MJN

EFFECTIVENESS OF BEHAVIORAL ACTIVATION THERAPY ON DEPRESSION OF MOTHERS WITH CERVICAL CANCER

Sri Utami*, Rismadefi Woferst, Miftah Azrin, Rr. Sri Catur St. Ningsih, Siti Fatonah, Arneliwati

Nursing Faculty, Universitas Riau, University in Indonesia, Indonesia

**Corresponding author email: t4m1_psik@yahoo.co.id*

ABSTRACT

Most of the cervical cancer patients suffer from psychological effects and depression. The aim of this research is to identify the effectiveness of Behavioral Activation Therapy (BAT) to decrease levels of depression on women with cervical cancer. The method is quasi-experimental with pretest-posttest design with control group. This research involves 30 respondents that were taken by purposive sampling technique. Measuring instruments used are questionnaire of Beck's Depression Inventory (BDI) with 21 statements. The Independent variable is application of BAT and the dependent variable is depression level. The collected data was analyzed by paired *t*-test with significance level α=0.05. The result showed that there was a change in reducing depression level of cervical cancer patients significantly after the implementation of the BAT. The result of paired *t*-test showed that the depression level of patients had a significance level of p=0.000. These results demonstrate the value of p <0.05, so the research hypothesis is accepted.

Keywords: Behavioral Activation Therapy (BAT), Cervical Cancer, Depression

INTRODUCTION

Cervical cancer occurs in woman's cervix, an area in the female reproductive organs that constitute of the entrance towards the uterus between the womb (uterus) and vagina (Aziz, Andrijono & Saifuddin, 2006). In 2008, the number of cancer patients who visited the hospitals in Indonesia reached 6,511, with a proportion of cervical cancer patients at 16.47% outpatient, and hospitalization was 10.9% (Depkes RI, 2010). Sufferers diagnosed with cervical cancer will experience a real psychic change. For patients of cervical cancer, it was a psychic trauma or suppressor which was quite heavy, because on the mind of the sufferer, a terrible shadow about a disease that will never heal and death will approach, would arise (Sukadja, 2000). Risk factors for the occurrence of depression in cancer patients depend on cancer stages and treatment actions (Herien, 2010). Depression is caused by two factors, namely the internal and external factors. Internal factors at play, namely genetic, are bad experiences of the past and personality types, while the external factors are those influencing the form of sufferer's life, illegal drugs and alcohol, childbirth, menopause, disease and/or medical treatment (Maramis, 2003).

To overcome depression, individuals need to find the right strategy, i.e. coping, by stopping the cycle of depression that had befallen him. Behavioral Activation (BA) helps to stop the cycle of depression by helping to change coping patterns that might be prevented by sufficient positive activities (Kanter *et al.*, 2009; Dimidjian *et al.*, 2011). BA encourages the scheduling of activities to increase the presence of positive reinforcement in the environment and the social skills training to improve the skills of clients to achieve and maintain a positive reinforcement (Kanter *et al.*, 2009; Hopko, Magidson & lejuez, 2011).

BAT treatment in cancer patients who experience depression, showed a progress in the form of a decrease in the level of depression, somatic anxiety, anxiety disorder, body pain and problems of everyday activities and better physical function. The progress can be sustained by the patient (Hopko, Robertson & Carvalho, 2009).

From the preliminary survey data obtained from the village of Pelalawan Indonesia showed that 10 mothers suffering from cervical cancer are undergoing medium depression. Therapeutic Behavioral Activation should be developed to lower the level of depression in cancer patients. Based on the above phenomenon, the author is interested in conducting research with the title "The Effectiveness of Behavioral Activation Therapy against Cervical Cancer Patients of Depression".

RESEARCH METHODOLOGY

Objectives

The purpose of this research is to know the effectiveness of Behavioral Activation Therapy on Depression in Mothers with Cervical Cancer.

The Benefits of Research

The results of this research are useful to health workforce of nurses/midwives and cancer clients to learn or continue to deepen the application of BAT in lowering the level of depression in patients with cervical cancer. This study can also be used as a material for the development of further research on BAT on cervical cancer.

Literature Review

A. Cervical Cancer

1. Definition

Cervical Cancer is a malignant disease caused by the Human Papilloma Virus (HPV) group oncogenic high risk, especially, HPV 16 and HPV18 and its phylogeny originating from the epithelial metaplasia in squamous columnar junction area, i.e. the area between the vaginal mucous and mucous from the cervical canal (Ferlay *et al.*, 2012)

2. Risk factors

According to Sukadja (2000), factors that affect cervical cancer are as follows:

a. The age of the patients should not be more than 35 years. The older the patient is the more the risk of the occurrence of cervical cancer. The increased risk is the combination of the increasing length of time and the increasing exposure to carcinogens, and the gradual weakening of the immune system due to age.

b. The age of marriage also plays a pivotal role. Marriage at less than 20 years of age was considered too young for sexual intercourse and the risk of cervical cancer was 10 to 12 times more likely than those who got married at more than 20 years. Maturity cannot be determined by menstruation alone. Generally, the cervical mucosa cells mature in women by the age of 20 years and over. At a young age the mucous cells in cervix are immature and vulnerable to stimuli, and these mucous cells could turn into cancer.

c. Women with high sexual activities who often change partners. Switching pairs allows the transmission of venereal diseases; Human Papilloma Virus is one of them. This virus will change cells in the mucosal surface and become cancerous.

d. Use of antiseptic. The custom of washing the vagina with antiseptics or drugs with deodorant will lead to irritation in the cervix that stimulates the onset.

e. Women who smoke. Women smokers have 2 times greater risk of developing cervical cancer than those who don't. Research shows that cervical mucus in female smokers contains nicotine and lowers the durability and eases of cervical mucous membranes or become aroused.

f. History of venereal diseases.

g. Number of births. Women with many children and short delivery distances will have an impact in reproductive organs and facilitate the occurrence of Human Papilloma Virus.

h. Use of oral contraceptives for a prolonged period. The use of oral contraceptives used for a long term or more than 4 years increases the risk by 1.5-2.5 times. Oral contraceptives can increase the risk of cervical cancer because cervix is one of the targets favored by female steroid hormone.

3. Signs and Symptoms

The speed of growth for cervical cancer is not the same in every case. Even though the tumor cell invasion had occurred into the stroma, cervical cancer may not show any symptoms (Prawirohardjo, 2011).

At the early stage, clinical symptoms have not been specific. Some complaining about recurrent vaginal discharge, smell and mixed blood. Moreover, bleeding after sexual intercourse occurs, this then continues in the form of metrorrhagia, menorrhagia

and menometrorrhagia. A more classic sign is a frequent vaginal bleeding or spotting after intercourse or vaginal discharge. Bleeding became more and more frequent and lasted longer, vaginal secretions that smell mainly with necrosis were also found. Necrosis occurs due to rapid tumor growth didn't offset the growth of blood vessels (angiogenesis) in order to get a sufficient blood flow. Necrosis is a foul odor and non-inflammatory reaction (Prawirohardjo, 2011). At an advanced stage of invasive cancer cells that will metastasize to the parametrium and tissues and in the pelvic cavity. This can lead to spontaneous bleeding and pelvic pain that radiates to the hips and thighs. Some also complain about painful urination, bloody urine and bleeding from the rectum. Metastasis to inguinal lymph nodes can cause lower limb edema. Invasion and metastasis could cause blockage of the distal ureter resulting in symptoms of uremia.

4. Stages

Determination of the clinical examination is performed with the stadium. Health screening with imaging such as endoscopy and radiological examination, conducted to establish stadium. Some surgery, including examination in the clinics involves body's tissues, biopsy and aspiration.

If surgery is done, then the findings from the surgery will not change the stages of the cancer, which means that the present stage is the stage diagnosed at the clinic and surgery is necessary to determine prognosis. In case of recurrence, the stage set is the stage at the time of the first findings (before treatment).

Revised 2009 FIGO staging for carcinoma of the endometrium:

a. Stage 0: carcinoma in situ, intraepithelial Carcinoma

b. Stage I: carcinoma is still limited in the cervical area

Stage IA: stromal invasion of cancer to be recognized only in microscope, depth of invasion of less than 5 mm and maximum horizontal spread of less than 7 mm

Stage I A1: invasion of the stroma: invasion with a depth of less than 3 mm and <7 mm in extension (microinvasive)

Stage I A2: stromal invasion >3 mm depth and not >5 mm and extension <7 mm

Stage I B: Advanced local tumours but limited to the cervical area

Stage I B1: clinically visible tumours less than 4 cm

Stage I B2: clinically visible tumours more than 4 cm

c. Stage II: the lesion out past the uterus but has not yet reached the walls of the pelvis or reached the 2/3 proximal vagina

Stage II A: involves upper 2/3rd of vagina without parametrial invasion

Stage II A 1: clinically visible tumours less or equal to 4 cm

Stage II lesions: clinically visible tumours more than 4 cm

Stage II b: infiltration into the parametrium but has not yet reached the walls of the pelvis

d. Stage III A: tumour spread to the pelvic wall and 1/3 or reaches the bottom of the vagina and or cause hydronephrosis/kidney damage

Stage III: tumor reaches A distal 1/3 vaginal wall but has not yet reached the walls of the pelvis

Stage III B: extension to pelvic side wall or causing obstructive uropathy, MR imaging findings that are suggestive of pelvic sidewall involvement include tumour within 3 mm of or abutment of the internal obturator, levator ani, and pyriform muscles and the iliac vessel

e. Stage IV: extension beyond true pelvis or biopsy proven to involve the mucosa of the bladder or the rectum

Stage IV A: extension beyond true pelvis or rectal/bladder invasion

Stage IV B: distant organ spread

5. The impact of Cervical Cancer Disease

Cervical cancer causes few effects on its victims, both physical and psychological.These impacts are interlinked and they influence each other.

a. Physical

Cancer poses many physical reactions in patients, whether arising from cancer or caused by the effects of treatments, such as chemotherapy. Physical impacts experienced by sufferers of cervical cancer include weight loss, decreased appetite, vomiting, bleeding, hair loss, anemia, pain, and fatigue. On cervical cancer patients, the pain is chronic. Pain occurs at the pelvis because the cancer cells are already metastasizing up into the pelvis and usually occurs at an advanced stage. Nausea, vomiting, decrease in appetite and hair loss occurs due to the side effects of chemotherapy treatment. Anorexia happens after chemo that causes the patient anemia. Anemia can cause sufferers to be weak, easily tired and look pale.

b. Psychological

Human beings have a holistic nature; physical and psychological aspects are inter-related. Any physical ailment experienced by someone not only attacks humans physically but can also bring psychological effects.

Anxiety is a common response after cancer is diagnosed. Anxiety also appears as the result of medical therapy performed on patients in the treatment of cancer. One of them is chemotherapy. Research conducted on cervical cancer patients in Dr. Moewardi Hospital Surakarta mentioned that more than 52.5% of respondents indicate symptoms of anxiety. In addition to anxiety, physical and mental suffering due to cancer will also cause the patient to feel miserable and low self-esteem, boredom, frustration, fear, and distress. If the low feelings perceived in patients for a long time, it can lead to depression.

In addition to suffering from cancer, they also suffer from depression. The psychological problems such as shock, anxiety, stress, and depression, also arise in the functioning and perpetuation of a woman. This problem threatens the identity of women as well as causes loss of sexuality. During cancer, sufferers experience five stages of emotional reactions associated with chronic cancer disease, i.e. negation, anger, bargaining, depression, and acceptance.

1) Negation- At this stage, the individual denies the illness that had befallen him and he will use his Denial as a defense mechanism that makes someone trying to avoid impact caused by the disease.

2) Anger- The individual will feel a deep emotional experience such as anger, frustration, and resentment, which is often directed at others, even God. Outrage occurred because patients felt their plans and activities disturbed. Patients feel envious of others who can still enjoy life.

3) Bargaining- At the third stage, namely bargaining, individuals recognize the illness he suffered. Individuals trying to "negotiate" to get more time completing the activities of religious and social if given relief against his illness. At this stage of cancer survivors turn their anger with better and different strategies, such as a promise to live healthier and closer to God.

4) Depression- At this stage of cancer, patients feel nausea, tightness, jaded, hard packed, hard control, shy away from people and feeling uncomfortable and they can be moody, grim, and sad.

5) Acceptance- At this stage, patients are not angry anymore and are already used to the idea of death that makes them depressed and confront unwelcoming thoughts.

Spiritual support in patients of cervical cancer can be given on 5 stages of grieving patients, ranging from denial to acceptance. It is expected that it will not diminish sufferer's spirituality along with emotional stages and changes that affect them.

B. Depression

1. General overview of depression

Major Depressive Disorder (MDD) is fundamentally impaired feeling, mood or the effects that depression with or without accompanied anxieties. Change of atmosphere feeling, usually accompanied by a change in the overall level of activity. Most of these disorders tend to be recurrent and the onset of episodes individually is often related to the event or stress on education.

A typical depression-episode consists of three variations that is mild, moderate and severe. Individuals usually suffer from feeling of depression, loss of interest and excitement and depletion of energy towards the growing state of fatigue and decreased activity. Other common symptoms are decreased concentration and attention, self-esteem and diminishing self-confidence,

the idea of feeling guilty and useless, views of bleak future and ideas of conducting harm himself, disturbed sleep, and reduced appetite. Major Depressive Disorder is a condition characterized by episodes of the classic clear for at least two weeks (generally lasts longer) include changes to strength of mind, cognition, vasomotor function vasomotor-paroxysmal sympathetic hyperactivity, and there is a clear inter-episode remission.

2. Major Depression Disorder Etiology

There is no single cause of major depression disorder. There are three models of the etiology of depression:

a. Biopsychosocial Model (the biopsychosocial model)

Causes of depression are interdependent of biological, psychological, and social factors. This model can effectively predict the severity and occurrence of chronic depression and give information-based Biopsychosocial Model.

b. Theory of systems (theory of system)

The vulnerability or predisposition to imbalance occurs between activation and inhibition to some cognitive function and emotion among some groups of certain neurons.

c. Model uremic stress (the stress of uremic model)

This describes the potential causes of the depression and the degree of vulnerability of individuals to react to such deployment. This model explains that individuals have a vulnerability or predisposition to become depressed. To be a disorder of depression a person needs to have an innate tendency to become depressed and should act with good stress.

C. Behavioral Activation Therapy (BAT)

Behavioral Activation Therapy can be defined as the process of healing that emphasizes on the effort to improve the noticeable behavior that would positively impact feelings, thoughts and the overall quality of life.

1. The first step:

At the first session of the psychotherapy activation behavior, the psychologist will explain about the depression, the rationale of the Activation Behavior Therapy, an introduction to monitor daily activities, the need for assessment upon the things that are entertaining and submit the form of monitoring and other things related to the procedure of psychotherapy.

Psychologist or psychiatrist will ask the patient to provide basic data and details about their daily activities accurately. In the past week, 1-2 made notes of the detail of their daily activities that had been performed. Daily activity data is then linked to the emotional state (mood), thoughts and various aspects of well-being (such as a balanced life, filling the role, distribution of activities throughout the day, etc.).

In addition to record all activities in detail, sufferers are also asked to make an assessment of any activity that is considered as pleasing (or reduce his sadness) and activities that are important. For example, the washing activity may not be pleasant, but essential. On the other hand, watching TV might be fun but not too important.

2. The second step:

At the next session, sufferers of depression prompted terms about what is enhanced in their life. In this case, the determination of the areas of their life should be specific and appropriate to the situations that cause depression.

After the areas are determined, the next step is to determine what needs to be done to improve those areas. Easier activities are recommended to do first, and then moving towards the tougher, more independent activities. In case of school children, for example, invite private tutors to teach Mathematics lesson, and then practice it every day.

Some areas needed to be improved are:

a. Family Relationships, for an instance, if the sufferer wants to improve himself in order to become a doting parent of his son. Activities that can be done are as follows:

1) Cooking favorites of children every Saturday morning

2) Picking up a child at school every day on time

b. Social Relationships, for an instance, requirements of a good friend. The activities needed to be done are:

1) Call or send SMS to friends at least once a week

2) Referring to the garden path together

c. Educational Training, for example:

1) Follow different language courses via the internet

2) Learn to create online stores

d. Career/job, for example:

1) Learn to plant potted plant and taking care of it

2) Learn to make new recipes like fried chicken

e. Hobby/leisure, for example:

1) Playing volley ball every Thursday afternoon

2) Walking into the vast open field

f. Social activities (volunteer, etc.), for example:

1) Make rice and side dishes to be served to the pedicab

2) Help cleaning the house of the old widow

g. Religious, daily responsibilities, etc. For example:

1) Follow the instructions

2) Clean room

3. The third step

The next step is to create a new schedule. In accordance with the areas to be enhanced, mutual agreement was established between the sufferer and the supervisor, scheduling new activities. In this step, changes of mind, mood and barriers experience are also monitored, as well as providing the necessary support. Here, depression sufferers were asked to make a "contract" or "agreement" with the family or a close person that he is really going to work on these activities.

4. The fourth step

After the depression sufferers perform activities that are amusing and positive, they discussed terms of what hampered the activities of positive behaviors.

D. Beck Depression Inventory (BDI)

Beck Depression Inventory was created in 1961 by Dr. Aaron t. Beck and developed to assess manifestations of depression on the behavior of adolescents and adults. Designed to standardize the assessment of severity of depression as well as illustrate in a simple symptom made during the trip of psychoanalysis or psychotherapy. Attitude and depression symptoms seem specific to this patient group, then the BDI described by statements and numerical assessment on each statement. BDI is the largest instrument to assess the severity of depression. The original BDI consists of 21 statements in the form of multiple choice, 21 statements are the manifestation of behavior of each area which are represented by four or five statements that describe the severity of depression symptoms, from mild to severe. The subjects were asked to identify the most excellent statements describing their feelings. Items specified his score and then summed up to obtain the total score. Total score illustrated the severity of the depression.

E. Application of Evidence-Based

1. Psychoneuroimmunology Depression and cancer

There has been no consistent data that describes the relationship between mood disorders, NK-cell, cytokine, growth of cancer and survival. Increased levels of interleukin-6 are associated with a diagnosis of depression in cancer patients. This allows the measurement of interleukin-6 levels in plasma as biomarkers of depression in cancer patients. Evidence suggests that cytokine interleukin 6 and other proinflammation play a role in the pathophysiology of mood disorders, behavioral disorders and neuroendocrine (Selye, 1950).

NK cell has an important role in immune function, including a defense mechanism on virus infection and tumor cells. Toxicity of NK cell decreases stress on the state through mechanisms of neuroendocrine. Stress modulates the formation of interferon-ɣ (IFN-ɣ) and interleukin-2 (IL-2) in peripheral blood leukocytes. Ɣ-IFN and IL-2 will inhibit NK cell and Lymphocyte-Activated Killer (LAK). If a cancer patient is in a state of stress, it will speed up the development of cancer. It supports the opinion that giving therapy to overcome stress will inhibit the development of cancer cells and improve the regulation of the immune system (Pasquini & Biondi, 2007).

The materials are carcinogens induced tumour cells and DNA produce damaged abnormal cells. The immune system against these processes through the enzymes that destroy chemical carcinogens, repair damaged cell DNA and destroy abnormal cells. Emotional distress will degrade capabilities in cell DNA damaged repair. In patients of depression, these

capabilities will gradually decline. Emotional distress affecting apoptosis changes genetically programmed process within the cell structure that would cause failure of the proliferation and differentiation of the cell death occurred. Inhibition of apoptosis will cause suppression on the immune system (Selye, 1950).

RESULTS

Based on the research results obtained are as follows:

1. Univariate Analysis

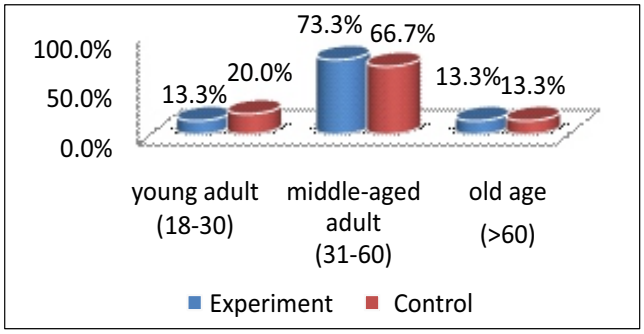

Figure 1: Characteristics of Respondent's Age and Education

Figure 1 explains the characteristics of respondents based on age. On the characteristics of the age group experiments with 31-60 age range (adult middle-aged) as much as 73.3%. Whereas, in the control with the 31-60 age range (adult middle-aged) as much as 66.7%.

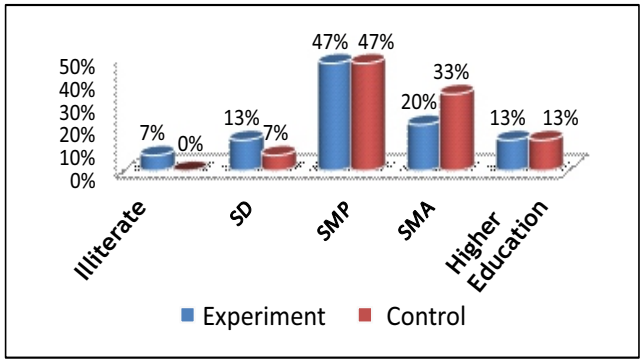

Figure 2: Distribution of Respondents Based on Education

Figure 2 describes the characteristics of the respondents based on education. The characteristics of experimental and control groups with the same level of education is the largest Junior High School as much as 46.7%.

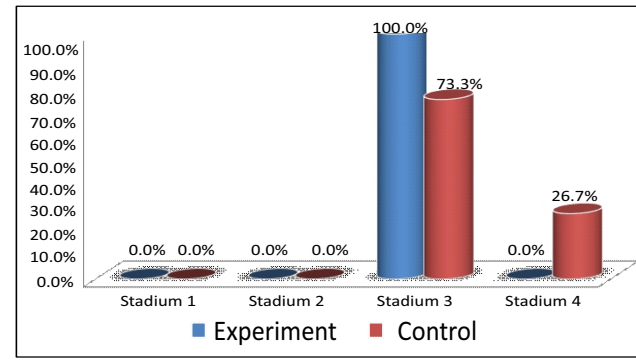

Figure 3: Distribution of Respondents Based on Stadium

Figure 3 describes the characteristics of the respondents based on stadium. On the characteristics of the stages on a group of experiments throughout the respondents are already experiencing stage 3 with 100% and the percentage of stage in the control group i.e. 73.3% in stage 3 and 26.7% in stage 4.

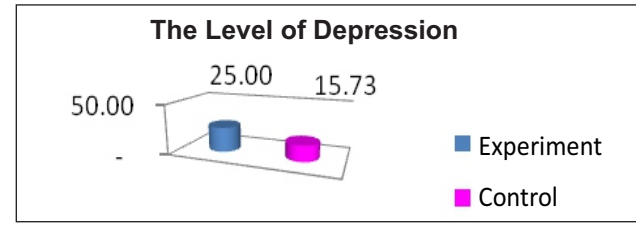

Figure 4: Distribution of the average level of depression before the given experimental group Intervention and a control group not given the intervention

Based on Figure 4 it is found that the mean rate of depression in patients before a given intervention i.e. 25 on a group of experiments and 15.73 in the control group.

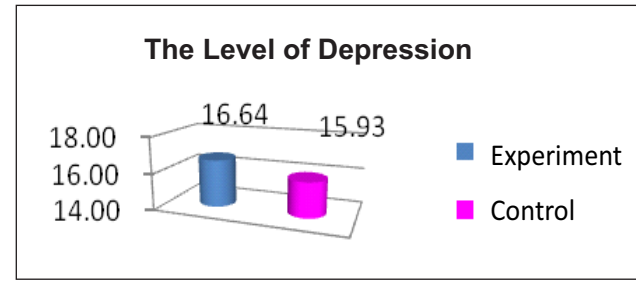

Figure 5: Distribution of average levels of Depression after being given an Intervention Group and a Control Group Experiment was not given the intervention

Based on Figure 5 it is found that the mean rate of cervical cancer patients with depression after a given

intervention i.e. 16.64 at 15.93 on experiments and group control group.

b. Bivariate Analysis

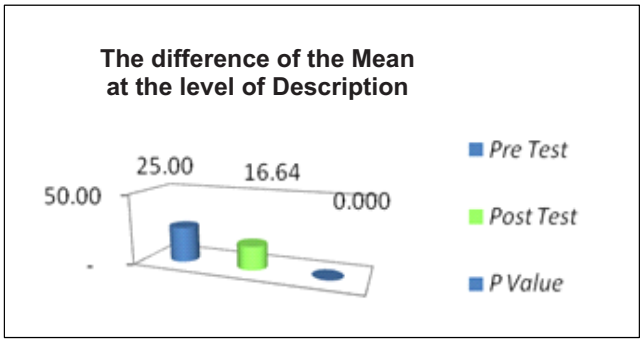

Figure 6: The difference in the average level of Depression before and after Intervention in Experimental Group

Based on figure 6 above, from the results of statistical tests obtained the mean levels of depression after the given therapy behavioral activation declined, whereas the results of pre-test is 25 reduced when the post-test is 16.64. Based on statistical tests obtained *p* value 0.000 ($p < \alpha$), this result means that there is a significant difference between the mean level of depression before and after the experiment.

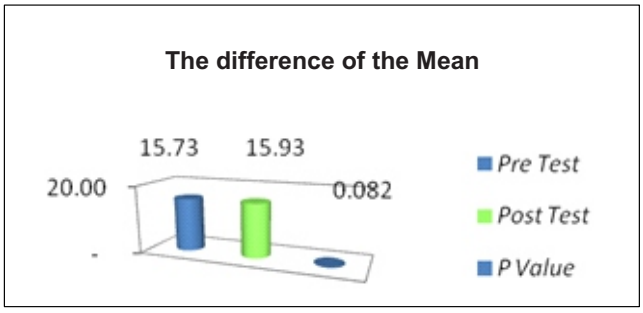

Figure 7: The difference in the average level of Depression before and after on a control group not given the intervention

Figure 7 obtained the mean levels of depression in pre-test is 15.73 and mean levels of depression post test is 15.93. Based on statistical tests obtained *p* value 0.082 ($p > \alpha$), this result means that there is no significant difference between the mean level of depression before and after in the control group.

DISCUSSIONS

A. Characteristics of Respondents

The results of the research that has been performed on patients of cervical cancer have obtained that most cervical cancer patients experience depression in the control group and experimental group with a range of age 31-60 (mature middle-aged) as much as 73.3%. This is in accordance with the research Gorbunova *et al.*, (2007) which stated the increase of age causing a decrease in immunity, decreased DNA repair and causes a loss of regulation of cells which facilitate the occurrence of carcinogenesis in the body.

Most respondents are Junior High School education that is as much as 46.6%. According to (Asiedu, Breitkopf & Breitkopf, 2015) cervical cancer is more likely to occur in women who are less educated as compared to highly educated women. High and low level of education is related to the socio-economic level, sex life and hygiene. Knowledge of a person towards a particular object plays an important role as to how that person took the decision mainly related to a woman's reproductive health.

B. Effectiveness of Behavioral Activation Therapy patients on depressed mother with cervical cancer

The results of the research that has been conducted on 30 respondents were divided into two groups, namely the Group of experimental and control group. Experimental group is given Behavioral Activation Therapy (BAT) for 3 days and a control group was not given the treatment. Both groups performed measurements of the levels of depression using Beck's Depression Inventory (BDI).

Measurement of the level of depression level showed average depression before Behavioral Activation Therapy was given i.e. 25 on a group of experiments and 15.73 in the control group. While the average level of depression after behavioral activation therapy i.e. 16.64 group experiments and 15.93 in the control group. At the time of pre-test it was found that most respondents had psychological failure felt disappointed by their condition, could not sleep at night most of the days, they are not in the spirit of seeking treatment, and loss of the appetite.

Behavioral Activation Therapy (BAT) has a positive impact on the level of depression on the patients suffering from cervical cancer (Hopkoa *et al.*, 2003). Most of the cancer patients are very much prone to depression, but the BAT therapy acts as an effective tool in lowering the intensity of depression among the

patients. This is in accordance with the research in cancer patients who experience depression showed a progression, in the form of a decrease in the level of depression, somatic anxiety, anxiety disorder, body pain, and problems in our daily activities and physical function better (Smith, 2015).

CONCLUSION

The results of the research on "The effectiveness of Behavioral Activation Therapy (BAT) and reduction of depression among mothers with cervical cancer" done on the 30 respondents obtained an average level of depression in patients of cervical cancer in experimental group before Behavioral Activation Therapy (BAT) was given, while 25 in control group was 15.73. After the intervention, the acceptance of Behavioral Activation Therapy (BAT) average rates of depressed patient's suffering from cervical cancer group experiment was 16.64, whereas in the control group there is a slight decrease which becomes 15.93.

The results of this study showed a decrease in depression among patients suffering with cervical cancer in a significant group of experiments after the given Behavioral Activation Therapy (BAT) with the results of statistical tests that is $p = 0.000$. So, it can be concluded that Behavioral Activation Therapy (BAT) is effective in reducing depression in mothers with cervical cancer.

RECOMMENDATIONS

For nursing education, educational institutions in particular, can make nursing Behavioral Activation Therapy (BAT) as a source of information and become one of the alternative therapies in the treatment of patients who are experiencing depression because of cervical cancer.

For subsequent researchers, it is expected to develop research with different methods, so it gets a more optimal result and can be more applicative. For subsequent researchers, it is expected to develop research with different methods, so it gets a more optimal result and can be more applicative so referred in providing palliative oncology nursing services.

ACKNOWLEDGMENTS

The authors would like to thank the University of Riau for supporting this work through SURWMARS CSTSTAW-Ut 2017.

REFERENCES

Asiedu, G.B., Breitkopf, C. R. & Breitkopf, D.M. (2015). Perceived risk of cervical cancer among low-income women. *Journal of Lower Genital Track Diseases*,18(4), pp 304-308.

Aziz, M.F., Andrijono & Saifuddin, A.B. (2006). Buku acuan nasional onkologi ginekologi edisi kedua. Yayasan Bina Pustaka Sarwono Prawirohadjo, Jakarta.

Depkes RI (2010). Laporan Hasil Riset Kesehatan Dasar Indonesia tahun 2010. Jakarta: Badan Penelitian dan Pengembangan Kesehatan Depkes RI.

Dimidjian, S., Barrera Jr. M., Martell, C., Munoz, R. F. & Lewinsohn, P. M. (2011). The Origins and Current Status of Behavioral Activation Treatments for Depression. *The Annual Review of Clinical Psychology*, 7, pp 1-38.

Ferlay, J., Soerjomataram, I., Ervik, M., Dikshit, R., Eser, S., Mathers, C., Rebelo, M., Parkin, D.M., Forman, D. & Bray, F. (2012). GLOBOCAN 2012: *Estimated Cancer Incidence, Mortality and Prevalence Worldwide in 2012 v1.0*, IARC CancerBase No. 11, IARC Publications, WHO.

Gorbunova, V., Seluanov, A., Mao, Z. & Hine, C. (2007). Changes in DNA repair during aging. *Nucleic Acids Research*, 35(22), pp 7466–7474.

Herien, Y. (2010). Hubungan berbagai dukungan sosial dengan tingkat depresi penderita kanker payudara di irna bedah. RSUD Dr. Adnaan WD. (2010) Retrieved from: http://repo.unand.ac.id/394/1/HUBUNGAN%2520BERBAGAI%2520DUKUNGAN%2520SOSIAL%2520DENGAN%2520TINGKAT%2520DEPRESI%2520PENDERITA%2520KANKER%2520PAYUDARA.pdf

Hopko, D. R., Magidson, J. & Lejuez, C.W. (2011). Treatment Failure in Behavior Therapy: Focus on Behavioral Activation for Depression. *Journal of Clinical Psychology*, 67(11), pp 1106-1116.

Hopko, D. R., Robertson, S.M.C. & Carvalho, J. P. (2009). Sudden Gains in Depressed Cancer Patients Treated with Behavioral Activation Therapy. *Behavior Therapy*, 40(4), pp 346-356.

Hopkoa, D. R, Lejuezb, C.W., Ruggieroc, K. J. &. Eifertd, G.H. (2003). Contemporary behavioral activation treatments for depression: Procedures, principles, and progress. *Clinical Psychology Review*, 23(5), pp 699-717

Kanter, J. W., Busch, A. M., Manos, R. C. & Rusch, L. C(2009). Making behavioral activation more behavioral. Behavior Modification, 32(6), pp 780-803.

Maramis, A. (2003). Penanganan depresi dan anxietas di pelayanan primer. Surabaya: Indopsy.

Pasquini, M. & Biondi, M. (2007). Depression in cancer patients: A critical review. *Clinical Practice and Epidemiology in Mental Health*, 3:2, pages 9.

Prawirohardjo, S. (2011). *Ilmu Kandungan*. Jakarta: PT Bina Pustaka. Sarwono Prawirohardjo.

Selye, H. (1950). *The physiology and pathology of exposure to stress: A treatise based on the concepts of the general-adaptation-syndrome and the diseases of adaptation*. 1st edition. Acta, Canada.

Smith, H. R. (2015). Depression in cancer patients: Pathogenesis, implications and treatment (Review). *Oncology letters*, 9(4), pp 1509–1514.

Sukadja. (2000). *Onkologi Klinik*. 2nd edition. Airlangga University Press, Surabaya.