

The overview of phobia's student brain waves as the implementation of neurocounseling paradigm

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Abstract

The new counseling paradigm that related to Neuroscience, called Neurocounseling, is acknowledged by the American Counseling Association (ACA) and became a new branch of counseling in 2015. This study is used Neurocounseling paradigm to understanding the psychological condition of the counselee in the counseling stage. Preliminary study showed that 46 from 80 students had showed phobia symptom with various levels. The Author used qualitative approach with case study to find out student with phobia symptom's brainwave and mental condition. Data collecting technique includes interview, observation, and documentation. One of the main activities is recording students with phobia symptom's brainwaves through Electroencephalography (EEG). The finding showed us that the main brain wave of counselee with phobia symptom is Beta wave in frequency 20-30Hz, it means counselee has a high level of anxiety. Counselee also had a deep tension on nerves and muscles during brainwaves record in the counseling.

Keywords: Neurocounseling, student's phobia , brainwaves

How to Cite: Azmi, K. (2019). The innovative breakthrough of neurocounseling through overview of phobia student's brain waves. *KONSELOR*, 8(4), 121-130. DOI: 10.24036/0201984105886-0-00



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Introduction

The developmental changing of technology and information has changed people's needs in the era of post globalization. The two main consequences in understanding change very quickly are with adaptation to a successful and failed environment (Adger, Barnett, Brown, Marshall, & O'brien, 2013; Azmi, 2019).. Meanwhile, The era of globalization is characterized by the dynamics of the lives of modern people who have developed and have given birth to a number of new concepts, terms and theories. The development of Psychology and Guidance and Counseling (BK) is an indicator of these developments. Counselors are one profession that must be prepared for various challenges and problems in the future. The study of BK science is required to always be dynamic and to keep up to date with the development of other disciplines so that it is expected to be able to answer various challenges and issues in the field appropriately and comprehensively (Azmi, 2018).

One of the main issues being experienced by counselors in the field is the demand for optimal service performance, especially through counseling services. During this time, counselors through counseling services still face several challenges, one of which is proof that counseling services can really help students' problems. This desire has been identified (Vogel, Wester, & Larson, 2007) by producing research findings that one of the main obstacles for counseling is doubts about the effectiveness of implementing counseling services in schools. Another finding (Yulinawati, Bariyyah, & Permatasari, 2018), by that 38% -60% of parents claimed not to be satisfied with the counseling services provided by the counselor. Whereas according to findings (Murad, 2012) the level of performance satisfaction of professional counselors only reaches a maximum of 70%. Whereas counseling services have a significant role in answering various problems experienced by students. This can be triggered by some counselor misconceptions such as counseling is giving advice only, the counselor does not yet understand the theory and technique of

counseling and the counselor's presumption if counseling is not a priority in the Guidance and Counseling program (Azmi, 2018).

The findings of the Counseling Expert (Davis, Doll, & Sterner, 2018) reveal that counselor misconceptions lead to inconsistencies in the performance of counselors, inadequate programs and ineffective counseling service delivery programs. In the 21st century, counselors as one of the helping professions are required to show that all services performed actually produce significant outcomes, not least counseling (Montes, 2013). If these demands have not been reached optimally, then appear in the personal feeling counselor inferior because of the assumption that the counselor has not been said to be professional as the standard applied by other helper professions (psychologists and psychiatrists) as in the following quote. On other hand, there are several development results of counseling. For example, the technique of giving advice by using continuum of counseling approach which explained to the six main stages in specific client, including: 1) identity (self); 2) relationship; 3) feeling distinction (differential of feeling); 4) identification and evaluation (identify and evaluate); 5) spiritual intervention; 6) acceptance of environment (Azmi, 2015). Pengembangan lainnya dalam bidang konseling didasarkan pada model kontemporer seperti Solution Focus Brief Counseling, Neo Family Therapy, NLP and Eclectic (Corey, 2011).

The study of counselor performance results is not intended to blame or discriminate counselors as a profession, but rather to the confusion and anxiety experienced by counselors in the field, especially when compared to other helper professions such as Doctors, Psychologists, Psychiatrists and other helper professions (Meier & Davis, 2019; Page & Wosket, 2013). The quote from Montes, a Counselor who is concerned in the field of Neurosciences also gave his comments on this situation. "For how long do we as counselors have to feel inferior to the psychologist and psychiatrist? Let's just do what we do well. I encourage other professionals to chase that straw man because, in the end, that's just not the philosophy of counseling (Montes, 2013). Through this statement, he wants to explain about the source of anxiety some counselors are then required to rise up with various breakthroughs and development.

If it is examined more deeply based on the quotation, the background to why the counselor feels inferior to other professions is the authenticity of the results of his counseling services. The need for proof that counseling services have changed counsees towards better or even made counsees become increasingly confused about the problems they are experiencing (Fitri, 2018). Doubt about the results of counseling must be answered by various studies that support the effectiveness of the counseling theory used, but that alone is not enough to prove that counseling has really changed a counsee. According to Neurocounseling (Chapin & Russell-Chapin, 2013) counselors with applied core science or applied science must begin to show a more scientific counseling paradigm and can be empirically proven (Beeson & Field, 2017). argues that counselors really need to know the internal conditions (brain and mind) of the counsee. The better the counselor knows the condition of the counsee's brain, the more effective the intervention can be given (Beeson & Field, 2017).

One of the paradigms used to support empirical changes in the counseling process is the science of the brain (neuroscience) and counseling. The development of neuroscience, scientific studies is one of the challenges that must be "attached" to the complexity of other scientific disciplines including counseling. Care, Griffin, & McGaw (2012) said that the integration of brain science with other disciplines or Neuro-Enhancement became one of the strongest predictors in the list of 12 scholarship that would develop rapidly in the 21st century. Griffin's statement has also been justified by a Professor in the field of Neuroscience (Chapin & Russell-Chapin, 2013) which states that the development of science that has developed rapidly is determined by the human brain. If before the 2000s scientific studies on neuroscience were only oriented to abnormalities, brain disorders and diseases, but in the following years, it focused on studying the relationship between the brain and other disciplines such as technology, economics, education, language, community, psychology and counseling (Schraw, G., Olafson, L., Weibel, M., Sewing, 2012). For example, the paradigm approach that combines the study of neuroscience in the work of (Hardiman, 2012) explicit terms and concepts about neuroeducation. Whereas in the study of psychology, which is viewed from neuroscience known as neuropsychology (Malatesti & McMillan, 2010) which describes the position of neuropsychology as a study of science and psychological phenomena seen from the perspective of the brain.

Research conducted by (Chapin & Russell-Chapin, 2013) in nearly 10 years has proven that counseling can change the brain. Counseling can create a new circuit for neurons for the brain and changes in brain circuits will affect the behavior of the counsee. The basic assumption that the brain is the center of control of the whole body becomes the main study in the science of neuroscience, which can now be linked to

counseling science more closely. Scientific frame Neurokonseling becomes a paradigm that helps counselors and other experts in understanding the counselee's internal conditions more real and scientific.

Through the neurocounseling paradigm, counselors are required to be able to provide treatments that are more holistic and integrated. Chapin (2013) said "Counselors have known for years of counseling changes, behaviors and the brain, and now we have scientific evidence". In America, in 2009, the Board of Accreditation for the preparation of counseling programs related to education or the Council for The Accreditation of Counseling and Related Educational Programs (CACREP) has begun to compile a program for training counselors who are concerned with the field of neurocounseling (CACREP, 2015). The latest standard published by CACREP in 2016 also explicitly includes the study of brain science (neuroscience) in the counseling curriculum (counseling curriculum) in the 5th part (Professional) of the Counselor Identity (CACREP, 2015).

In connection with the discussion, the author met with respondents with phobia in the City of Tulungagung and Malang City, East Java as part of a preliminary study or preliminary research. The activity was carried out in a period of 3 months, namely June to August 2016, involving 188 respondents at one university with two secondary schools. The result, 88 respondents who received follow-up to enter the advanced stages of screening through interviews with the author and 2 psychology experts and one psychiatrist. Through these stages, the author found one of the unique phobia sufferers. The female client with the age of 16 experienced a phobia of the balloon. Once the Balloon's name is disclosed, the client will provide a diverse response, starting to run away until he faints. However, the client always denies or denials. Clients claim they are not afraid of balloons. Various responses that are very "acute" and denial behavior make researchers want to make further disclosures through case studies. In order to prove scientifically the phobia experienced by the client, the researcher took the initiative to do brain wave recording through EEG or Electroencephalography. The process is attached to Neurokonseling science (Ikrar, 2016). The use of the term neurocounseling refers to the process of pre-counseling therapy that is integrated with the use of tools related to the brain and organic nervous system. Brain wave image is one type of data that can be studied and analyzed through the conceptual framework of neurocounseling.

This study focuses on the description or description of brain waves in a client with phobia in the pre-counseling period as a form of implementation of the concept of neurocounseling. The activity is carried out by recording, recorded brain waves through EEG by intervening on objects that are a source of phobia with the aim of ensuring assessment of the counselor before starting counseling. Researchers collaborate with several psychologists and psychiatrists to produce a brain wave analysis as a method of practice in neurocounseling. However, due to the lack of neurocounseling studies, the authors are very aware of the lack of various aspects of this study, but the other side of the purpose of this research is to add to the neuroconstruction of scientific development so that it is useful for counselors, psychologists, psychiatrists and other helping professions.

Method

The following article is written based on research using a qualitative-descriptive approach (Colorafi & Evans, 2016; Lambert & Lambert, 2012) with a case study model of counselees who suffer from phobias. The author as a key instrument in reviewing cases related to the object of research is important in collecting data. Researchers as the main data collection tool by conducting participatory observations where the participation of researchers in this study as observers and researchers as group members in the research objectives. As stated by (Sugiyono, 2012) that "researchers take a balanced role between researchers as observers and researchers as members of the research target group".

Case studies are chosen by considering the following aspects, (1) the uniqueness of the case that is owned by a client or counselee; (2) neurocounseling through brain recording practices are still very rare, so it requires research results that are partial, but specific and deep; and (3) researchers can uncover cases more deeply which are then dialogue with the literature and study of existing theories (George, 2019; Herreid & Schiller, 2013).

The population and sample selection in this study is based on the principle of qualitative approach with the use of potential random sampling. This Research was carried out in a period of 3 months, start from June to August, involving 188 respondents at one university with two secondary schools. The result, 88 respondents who received follow-up to enter the advanced stages of screening through interviews with the author and 2 psychology experts and one psychiatrist. The result, found one person who has a phobia against balloons with a very high phobia level. Indicators of the high phobia is the emergence of excessive

behavior such as fainting, screaming and running as fast as possible, and crying. On this basis, researchers are interested in finding the case. The next stage of research is validation with several experts and conducting an assessment with prospective counselors who will handle this case. Furthermore, the counselee is ready to be seen a picture of his brain through Electroencephalography (EEG) with gradual intervention gradations.

Locus carried out activities in the following articles were at Kedungwaru 1 Public High School, Tulungagung and General Hospital (RSU) dr. IskakTulungagung. The two locus were chosen by considering the willingness of the respondent, the completeness of the medical instruments and strategic locus with the need for research or activities.

The stages of research carried out in this activity focused on the pre-counseling session. This means that the data and information presented are data before the implementation of a specific therapy or intervention. The pre-counseling session was carried out with the following activities including (1) Phobia Assessment. Assessment carried out by distributing questionnaires as one of the main instruments in knowing the level and type of certain phobias. The researcher used the Fear and Anxiety Survey with 86 types of phobias; (2) Recording Preparation. This activity was carried out by preparing various instruments such as EEG and other administrative files at the Poli Syaraf, dr. Iskak Tulungagung by involving neurologist and nurse neurologist; (3) Recording Brain Waves through an EEG. This main activity is carried out by recording brain waves that appear in response to each stage in measuring phobia levels; (4) Analysis of Brain Wave Recording Results. The analysis was carried out by a neurologist with the help of an expert nurse and then the interpretation process was carried out on the results of brain wave recording analysis.

Data collection is done through observation, in-depth interviews, and documentation studies. The researcher makes an observation guideline that is based on the need for data to be obtained (Nurul, 2004). Observations are carried out by researchers so that they are included in the observation of participation. This is in accordance with (Hjelmeland, Dieserud, Dyregrov, Knizek, & Leenaars, 2012) which states that researchers are directly involved in starting the process beginning to the end of research activities, especially when recording. Even the researchers were immediately given a tutorial by the operator to operate a brainwave recorder even with certain limitations. The researcher also conducted a trial of the entire recording process until analysis so that the team from the Neurology Poly gave authority and understanding to the researchers to carry out these activities independently.

Besides observation, other data collection is in-depth interviews. Interviews are conducted on the subject of research (counselee / client) by referring to structured interviews starting from the initial research process to completion. In addition, occasionally researchers also carry out unstructured interviews so that questions can develop in depth. The activity was carried out because often the clients and researchers spent time and activities together. This is done in order to get more in-depth information about the client and the case to be studied. Furthermore, in-depth interviews were chosen because researchers need more complete data to reveal information about clients and other parties such as (close friends, parents, counselors who handle, physician neurologist, nurses and EEG operators) who have strong relations with the emergence of cases that is.

The data collection activity is in accordance with an expert in qualitative methodology (Creswell, 2012) which states that there are several data collection techniques used in qualitative research. The commonly used techniques in qualitative research are: "(1) in-depth interviews (in-depth interviews); (2) participant observation (participatory observation); and (3) document analysis ". Data triangulation was carried out with referential adequacy and member checks to all informants, counselors, counseling counselors, neurologists and other involved parties (close friends, parents, nurses and EEG operators and guardians).

Results and Discussion

The results showed that counselees suffering from phobias showed brain waves with a normal diagnosis. However, experiencing muscle tension affects the speed of the heartbeat, and breathing that is getting faster when the intervention is done, i.e. the researcher shows the source of phobia with a certain distance. EEG results also show that the most prominent brain waves are Beta waves with a frequency of 20-30 Hz (Chapin & Russell-Chapin, 2013). Categorizes brain waves with a frequency of 20-30 Hz as a high level Beta wave (High Level Bheta) which means that the wave is a brain wave that occurs when a person with anxiety is very high (Azmi, 2016).

Through these results it is expected that the counselor will be able to diagnose empirically the problems being experienced by the counselor. The use of EEG at the beginning of the counseling process can be a strong and empirical assessment as the first step for the counselor to follow up on the working stage.



Figure 1 <Display of Reports on the Results of Brain Wave Recording (EEG)>

Based on the image, there are some important information from the counselee or patient, including name, age, address, and EEG number. In addition, the display also contains 4 stages in the recording process that are conscious, sleep, hyperventilation and photic stimulation. Besides that the display also contains the following: Continuous activation, activity, frequency, distribution and special skills. Impressive results showed that the normal EEG (good) with clinical correlation with the diagnosis of "EEG during normal recording and no Epilogenetic activity was found (Special wave of Epilepsy sufferers). In addition, information is also published which shows the final results of recording, namely "Many muscle contractions are obtained when interrupted speech (counseling) and provoked by light. The greater the provocation, the greater the vibration and movement caused.

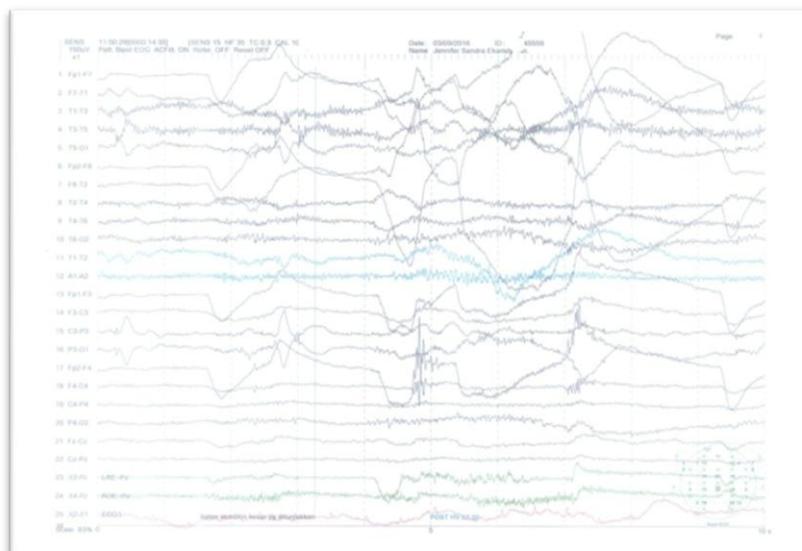


Figure 2 <An overview of the Counselee's Brain Waves During A Source Phobia Intervention is Given>

Based on the picture it can be described that waves can be recorded during the pre-counseling phase with balloon provocation as a tool or tool. The display also shows the emergence of dynamic and non-rhythmic waves. The waves are said to be very good with regular and rhythmic wave indicators, but in this

(The overview of phobia's student brain waves as the.....)

picture there are irregular, up and down, confirmed brain waves not as artifacts a term used to indicate waves that are not medical and not related to the recording process being carried out .

Phobia and the process of recording brain waves

One application of neurocounseling is through the use of EEG (electroencephalography) which is used to determine brain waves before, during and after the counseling process. The implementation of neurocounseling in the context of this research is closely related to the phenomena of acute anxiety and fear or phobias. Phobia phenomena are a strong emotion and are associated with several signs of anxiety or anxiety which are divided into 3 categories of reactions, namely motor, cognitive reactions and psychological reactions (Back et al., 2014).

Preliminary studies conducted by researchers found that about 80 students, 46 or more than 50% of them claimed to have phobias (Carter, Carter, Boschen, AlShwaimi, & George, 2014; Dong, Lu, Zhou, & Zhao, 2011). The researcher, distributed questionnaires adapted from Wolpe with 86 types of phobias with different categories. Some types of phobias experienced by students at SMAN 1 Kedungwaru include altitude phobia (Acrophobia), sharp and pointed objects (Agoraphobia), darkness (Nycophobia), loneliness (Menophobia), entry into the water (Claustrophobia), germs (Microphobia), animals (Zoophobia) and certain objects such as balloons or usually known as Hellenologophobia (Azmi, 2016).

Based on the varying phobia level, the researcher chose one of the students who was experiencing a high level of phobia with a score of 9 to 10. Another consideration was the strong desire of the subject to get treatment immediately and recover from the phobia experienced. Experienced is acute anxiety towards balloons (Hellenologophobia). The reaction that appears when seeing a balloon is cold sweat, screaming and crying. The reaction that appears is constant and persistent. The subject of research (counselee) 16-year-old female sex realized the phobia he has experienced since the age of 10 years and in the two images clearly shows the picture of phobia experienced seen from the brain waves that appear.

The author conducted this research with a focus on the stages of pre-counseling because the results of brain wave recording can be scientific information for counselors and therapists in carrying out assessments at the beginning of the counseling process. The recording process is carried out in accordance with the Standard Operating Procedure (SOP) which refers to the Standards for the Implementation of Hospital (STL-PAL) Medical Devices (RS). The initial stages prepared are (1) electrode installation which begins with washing the electrode with a special liquid which is then installed on the EEG; (2) directing the implementation of recording to patients; (3) the recording process; (4) reading the results of brain wave recording. The recording process takes place within a period of 2 hours with the following stages (1) photic stimulation, in which patients are given stimulation by shock light at certain intervals and frequencies; (2) Talking is the stage where patients are asked to answer some basic questions about identity and social environment and (3) Sleep, which is the stage where patients are asked to fall asleep within about 5-10 minutes to see brain waves during sleep (Chapin & Russell-Chapin, 2013; Zaepffel, Trachel, Kilavik, & Brochier, 2013).

Recording the results showed that EEG Impressions were normal (good) with clinical correlation with the diagnosis of "EEG during normal recording and no Epilogenetic activity was found (Special wave of Epilepsy sufferers). In addition, information is also published which shows the final results of recording, namely "Many muscle contractions are obtained when interrupted speech (counseling) and provoked by light. The greater the provocation, the greater the vibration and movement caused. These results are consistent with the study of EEG brain wave readings (Beeson & Field, 2017) that brainwave recording devices focus on the search for epilogenetic waves which are then not found in patients or clients. Furthermore, the recording device shows the rules of brain waves when object phobias begin to be given. This affects the brain waves associated with heart rate and pulse. According to a companion neurologist, the wave irregularities are strongly influenced by the level of anxiety and stress affecting the central nerve (Maiti, Manna, Ilvazhagan, Rossignol, & Dunbar, 2015).

Previous research related to neurocounseling

Neurocounseling is a scientific branch that has just been approved by the ACA (American Counseling Association) since 2015. However, the scientific development is very rapid. Some of the results of neurocounseling case study studies include one of the applications of neurocounseling in previous studies conducted by (Chapin & Russell-Chapin, 2013). The counselee experiences anxiety and avoidance or avoided because of the trauma of parental divorce. This also affects the problem of sleep hours. The counselee conducts counseling for several sessions, but the results have not been maximized. Even though every counseling session/session is over and the counselee is optimistic about a change in her. Chapin then

tried using Neurofeedback therapy by examining the entire brain of the counselee through EEG/electroencephalography (Chapin & Russell-Chapin, 2013).

EEG is a tool for knowing brain waves that appear and are captured by certain electrodes (Ismail, Hanif, Mohamed, Hamzah, & Rizman, 2016; Nidal & Malik, 2014; Urigüen & Garcia-Zapirain, 2015). As a result, the five channels in the EEG found that there was significant dysregulation in Occipital lobe, which still found high anxiety in the counselee's brain (Dreis et al., 2015). The evaluation is then carried out and the counseling session is resumed by the counselee. After several counseling sessions, the counselee undergoes significant changes and to ensure that there will be less anxiety and other disorders, then a brain wave record through the EEG is returned.

Other research is still being conducted by (Chapin & Russell-Chapin, 2013) found that one of his counselors was "suzy" who had a learning disorder because of the anxiety and dependence on sleeping pills that had been counseling regularly, and had not obtained significant results. Then the counselor began to use EEG and Neurofeedback to provide holistic therapy, and the result, at the 12th session, was a disturbance in the prefrontal cortex. The next step was to continue the counseling session with a behavioral approach by controlling the progress of counseling through neurofeedback and recording brain activity. As a result, counselees have experienced better progress in the 16th session. Counselors can be more accountable for their performance through more empirical and scientific based assessment and diagnosis results (Kraus, Castonguay, Boswell, Nordberg, & Hayes, 2011; Tracey, Wampold, Lichtenberg, & Goodyear, 2014).

Other studies have yielded findings that the use of the neurocounseling paradigm through MRI (Magnetic Resonance Imaging) brain scans is empirical evidence that neurocounseling can be used to detect the effectiveness of cognitive approaches in reducing stress, depression, anxiety or anxiety (Azmi, 2016). Whereas for disorders that are abnormal, neurocounseling becomes one of the empirical evidence for ADHD disorders, Asperger's Syndrome to Schizophrenia (Chapin & Russell-Chapin, 2013; Swingle, 2016).

EEG and the meaning of brain waves

The history of the Electroencephalogram (EEG) began in 1929 when one scientist announced the possibility of recording a weak electric current produced in the brain, without opening the skull, and the results were depicted on paper. Then this new recording format is called Electroencephalogram (EEG). So that it can be seen that EEG is a device that records electrical activity in the brain to be interpreted according to Lunder (Beeson & Field, 2017).

There are several criteria for individuals who need to be given brain scans treatment using EEG. The following is table 1 which explains the individual criteria that the EEG needs to do.

Table 1 <Individuals Need to be EEG. Source: Lunders (Benson, 2017)>

Suspicion of Seizures	Disorders of Growth and Development	Changes in Mental Status	Behavior Disorders
Epilepsy	- <i>Speech delay</i> - <i>Motor delay</i>	Awareness suddenly decreases, confusion	Learning disorders, hyperactivity, attention deficit disorders, phobias

Furthermore, there are several minimum EEG recording standards that must be met, here are the points.

Based on the results of brain wave recording in Table 2, it is known that the counselee shows very varied brain wave dynamics. This is especially apparent in Beta waves which are in the range of 20-30 Hz. Actually, there are several types of brain waves according to According (Chapin & Russell-Chapin, 2013). EEG frequency regions can be classified into five parts for EEG analysis (Beeson & Field, 2017), namely: 1) Delta (δ) (0.5 - 4) Hz; 2) Theta (θ) (4-8) Hz; 3) Alpha (α) (8-13) Hz; 4) Beta (β) (13-22) Hz & (22-35) Hz; 5) Gamma (γ) (35 - 45) Hz

Table 2 <Minimum Standards for EEG Recording. Source: Lunders (Benson, 2017)>**Minimum Standards**

1. At least 8 channels simultaneously
2. A minimum of 17 recording electrodes
3. Monopolar and bipolar
4. Procedure for opening and closing eyes
5. The machine is calibrated at the beginning and at the end of the recording
6. On the record listed the name and age of the patient and the recording date
7. The recording time is 15-20 minutes (120 pages)
8. Status / condition of the patient must be recorded on the record (conscious, sleepy, movement, coma, etc.)

The counselee's brain recording results of 20-30 Hz show high anxiety. Red lines on the picture show the heart rate and breath flow that are not stretched when the intervention through a phobia source is given to the counselee.

Neurocounseling

Neurocounseling is included in the very new multidisciplinary scientific flow that is expected to help the counselor in recognizing and establishing a diagnosis of the counseling process carried out by the counselee (Beeson & Field, 2017). If in America you have used EEG and Neurofeedback therapy, it is hoped that the Indonesian Counselor will do the same. Only because of the limitations of the tools, costs and the development of science, so that the development of neurocounseling must begin gradually. According to Neurocounseling will be one of the integrative approaches in counseling. At the end of the 21st century, ACA targets neurocounseling to be able to help solve various problems not only principally and practical, but also can be proven empirically (Field, Jones, & Russell-Chapin, 2017; Russell-Chapin, 2016). The counselor does not only focus on the philosophical aspects of each counseling approach, but also begins to prove scientifically that the counseling service is very accountable and can be proven. Another thing related to the preparation of counselors in the context of neo-counseling development is that each institution prepares professional counselors who have their own tools used in implementing neurocounseling such as EEG, MRI and Neurofeedback so that the counselor's holistic and truly comprehensive services will be realized soon.

Conclusion

The conclusion of this study is that the integrative approach to counseling through the neurocounseling paradigm has been needed by counselors in dealing with the increasingly complex counselee problems in the 21st century. In the Beta wave range of 20-30 Hz in the High Anxiety category. These results can be used in strengthening the assessment results before the counselor conducts counseling, so as to minimize the counselor's misperception of the conditions being experienced by the counselee. Case studies conducted in this study are still in the pre-counseling stage so it is necessary to proceed in the stages of during and after counseling. Through the description of the results of brain waves, it is expected to become "preliminary data" in preliminary research so that it will provide actual information in relation to the very young and new neurocounseling paradigm.

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