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E-Learning Design for Psychologists to Implement Chatbots for Clients with Borderline Personality Disorder

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Abstract—**Individuals who meet the criteria for disorders must therefore be assisted in order to maintain their mental health. Borderline personality disorder (BPD) is a personality disorder that can be present in many cultures. This research has a target to design e-learning for psychologist for implementing the chatbot for clients with borderline personality. Since everything can now be done using the internet, psychologists can learn how to counsel clients with BPD using e-learning. The study employed the observation, interview, and focus group discussion methods (FGD). Observations and interviews with psychologists were conducted during the diagnosis and counseling process. A focus group discussion (FGD) with seven participants who scored above 70 on the BPD-scale was held in order to implement a chatbot for clients with BPD. After compiling the questions and answers, a chatbot is created for clients with BPD to use. Three psychologists reported that the chatbot assisted them since when they did not meet with the psychologist, BPD clients could communicate with the chatbot. E-learning designed for psychologists to implement chatbots for clients with borderline personality disorder can help psychologists assist BPD clients more easily.**

Keywords— borderline personality disorder, chatbot, text to speech, virtual assistant, virtual friend, voice recognition

I. INTRODUCTION

Health includes not just physical wellness, but also mental health. *Mens sana in corpore sano* is a Latin proverb that translates "a healthy mind in a healthy body." The WHO constitution states: "Health is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity." An important implication of this definition is that mental health is more than just the absence of mental disorders or disabilities [1].

Individuals who meet the criteria for disorders must therefore be assisted in order to maintain their mental health. Borderline personality disorder (BPD) is a personality disorder that can be present in many cultures. BPD is a personality disorder that is often referred to as a disorder that most often makes sufferers hospitalize, outpatient and most often visit counseling services [2]. Individuals with BPD often find it difficult to find solutions when experiencing problems, even though during counseling sessions they understand how to solve the problem. Therefore, psychologists need to help BPD clients with appropriate therapy or counseling.

Various therapies and counseling have been used to reduce BPD criteria, including pharmacology, Eye Movement Desensitization and Reprocessing/EMDR [3]. Schema Therapy [4] and Dialectical Behavior Therapy/DBT [5]. DBT is frequently utilized by psychologists and is quite effective at reducing BPD symptoms in individuals.

Since some therapies originate in the West, despite the fact that culture is one of the causes of BPD, counseling for clients with BPD would be more effective if it utilized a cultural approach. The Ramayana epic is a part of Indonesian culture. Therefore, therapy which is a combination of DBT and Ramayana epic-based counseling can be more effective in reducing BPD criteria.

Since everything can now be done using the internet, psychologists can learn how to counsel people with BPD using e-learning. Furthermore, to help clients, psychologists can use chatbots. The aim of this research is design e-learning for psychologist for implementing the chatbot for borderline personality client.

II. THEORY

A. Borderline Personality Disorder

Borderline personality disorder (BPD) is defined by the DSM-5 as personality instability, interpersonal relationships, self-image, and affect. Clients with BDP exhibit impulsive behavior, including suicide attempts. Initially, part of BPD client's behavior was regarded as a crime against the law rather as a personality illness. When legal treatment fails to stop the conduct, psychologists know that it is a BPD criterion [6].

According to the findings of Oldham [7] and Wong [8], BPD is a personality disorder that can affect people from all walks of life. Data on BPD clients in the West represent 25% of the population, with 75% being women. Although definitive data on the number of BPD clients may not yet exist in some countries, aggressive conduct and risk behavior are increasing in many countries. Distel [9] stated that people should not disregard violent or hazardous behavior because it could indicate BPD. Psychologists are also supposed to be able to assist BPD clients in developing a stable personality. Often, BPD clients and their relatives may not seek help right away if they suspect they or a family member meet the BPD criteria. This is because many of BPD clients may still go about their daily lives as if they were normal people. However, if this is permitted, BPD clients may endanger himself and others.

Session	Material	Reduced BPD criteria	Topic	Success Indicator
		emptiness, stress-related paranoid ideation	on the present moment without judgment. Listening, seeing, feeling, and smelling the environment, for example.	likely to criticize, and more willing to walk the middle path.
2	Interpersonal Skill	Intense anger or difficulty controlling anger	Teach clients how to be assertive, listen well, and forgive themselves and others.	Client can consider methods for establishing warm relationships with others.
			Rama, who can adjust to new situations Shurpanakha, who cannot adjust because she often loses control of his anger.	Client can adapt to their social environment by using Rama's methods and avoiding Shurpanakha's actions.

To determine whether someone meets the BPD criteria, psychologists might employ the BPD-scale developed by Wibhowo, Retnowati, and Ul Hasanat [10]. This scale is made based on nine criteria of BPD. The scale validity was tested using CFA with the results of CMIN=1,415 (fit), TFI=0,982 (fit), CFI=0,992 (fit). This scale also reached 0,8 in reliability coefficient

If the individual scores more than seventy, it is possible that he has BPD potential. Clients with BPD must seek therapy promptly because their dangerous behavior (using illegal drugs, free sex) has led to suicide attempts. Their lives are in danger if they do not receive immediate assistance.

Several studies on therapy for BPD clients demonstrate that there is no one therapy that is more appropriate than other therapies. Every therapy has advantages and disadvantages, for example, Schema Therapy [4], Transference-Focused psychotherapy [11] and Dialectical Behavior Therapy [5]. As a result, these therapies must continue be developed in order to truly help BPD clients.

According to WHO [12], BPD is included in personality and behavior disorders in adulthood (18-40 years). Currently, individuals of that age are in an era that is familiar with the internet. Furthermore, because the current generation is familiar with the internet, therapy or counseling can be performed using a chatbot. The hope is that clients with BPD will not be confused when they need to find a solution but do not have access to a psychologist.

B. E-learning Design for Psychologists

Psychologists can easily understand the process that must be followed when suspecting a client has BPD through e-learning. The process that psychologists must follow is depicted in Figure 1. A psychologist can use a chatbot to teach material and topics (as shown in Table I) to every client, every time.
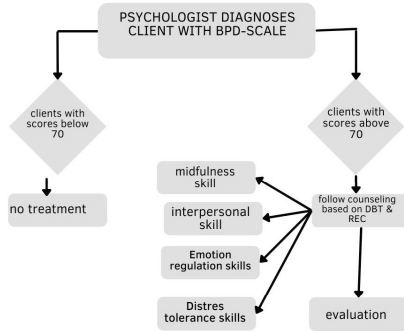

Figure 1. Process of Diagnosis and Counseling

Furthermore, psychologists can help clients with BPD by combining Dialectical Behavior Therapy (DBT) and Ramayana Epic-based Counseling (REC). Table I shows some examples of counseling materials. Psychologists can study these materials using e-learning.

TABLE I. COUNSELING THAT COMBINED DBT AND REC

Session	Material	Reduced BPD criteria	Topic	Success Indicator
1	Mindfulness skill	Chronic feelings of	Teach clients to concentrate	Clients are happier, less

III. METHOD

The study employed the observation, interview, and focus group discussion methods (FGD). Observations and interviews with psychologists are conducted during the diagnosis and counseling process.

To test the effectiveness of the E-Learning design for psychologists to implement chatbots for borderline personality disorder clients, the participants in this study consisted of psychologists and BPD clients. The following are the steps of this research:

1. Psychologists are given a pre-test on how to diagnose BPD clients and therapy materials.
2. Psychologists are given material about design for psychologists to implement chatbots for BPD clients through e-learning.
3. Post-test are given to psychologist to test their knowledge on how to diagnose and the therapy material for BPD clients.
4. Conduction a focus group discussion (FGD) with seven participants who scored above 70 on the BPD-scale was held in order to implement a chatbot for clients with borderline personality disorder (BPD). The questions they frequently ask when confronted with problems are discussed in the FGD.
5. Furthermore, the answers to these questions are compiled using DBT and REC.
6. After compiling the questions and answers, a chatbot is created for clients with BPD to use.
7. The client is asked to start asking questions to the chatbot.
8. Following that, participants were asked to describe the changes they experienced in their ways of thinking, behaving, and dealing with stress as a result of using the chatbot.
9. BPD clients are requested to fill the BPD'scale again as the post-test.

IV. RESULT

Three psychologists who take part in this study are given counselling material that blends DBT and REC via e-learning. They are requested to complete an exam about BPD understanding and relevant treatment resources for BPD clients before and after obtaining the e-learning. Table II shows the results.

TABLE II. PRE-TEST AND POST-TEST SCORE OF PSYCHOLOGISTS BEFORE AND AFTER E-LEARNING

Participants	Pre Test	Post Test
JG	65	85
LN	50	80
LR	65	80

According to the exam findings, there is an increase in psychologists' knowledge after studying counseling coupled DBT and REC via e-learning.

A chatbot is then developed to assist BPD clients in overcoming their problems prior to consulting with a psychologist. The chatbot referred in this paper is "Sovi Lau" which is an acronym that stands for "Sobat Virtual Anti Galau" or "Anti-Stress Virtual Friend". Seven participants with BPD scores of seventy or higher attended the focus group discussion (FGD). The outcomes of the FGD are questions that they often ask when they encounter challenges. After that, the answers to these questions are made. Some samples of questions and responses can be seen in Table III.

TABLE III. THE EXAMPLE OF QUESTIONS FOR BPD CLIENTS AND THE ANSWER BASED ON DBTC

Key word	Answer Based on DBTC
Hating someone	Walking in middle path, do not act "all or nothing" (emotion regulation's skill)
Feeling alone	Trying to be mindfulness
Easy to suspect	Learning how to communicate assertively (interpersonal skill)
Self-harm	Looking objectively in every situation (distress tolerance) Immediately call a friend or someone.

Psychologists can follow the rules in Table III, but chatbots can deliver replies to clients. By putting Sovi Lau into the Play Store, participants can install the chatbot (Figure 2). Sovi Lau can be updated at any time by psychologists.

Figure 2. Chatbot "Sovi Lau" for BPD clients

Three psychologists who attempted a method similar to Figure 1 and used Sovi Lau reported that the chatbot assisted them since when they did not meet with the psychologist, BPD clients could communicate with the chatbot. Some of the client's problems cannot be solved by the Sovi Lau application, but by examining the keywords and answers (Table III), psychologists can provide better counsel to their clients. Chatbots, according to psychologists, are also instruments for psychologists and BPD clients. So chatbots do not take the position of psychologists.

V. CONCLUSION

E-learning designed for psychologists to implement chatbots for clients with borderline personality disorder can help psychologists assist BPD clients more easily. With the help of information and technology, psychologists can access e-learning at any time and from any location. Thus, it can be concluded that the following process can be used to carry out e-learning design for psychologists to implement chatbots for individuals with BPD:
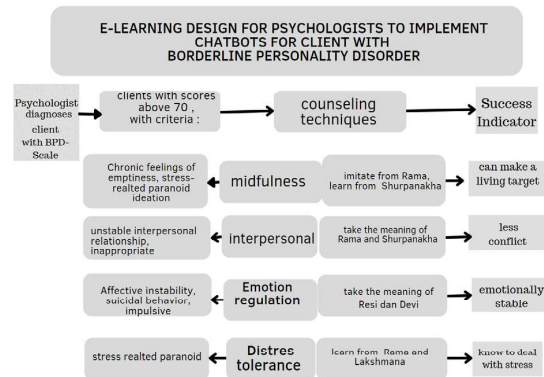

Figure 3. E-Learning Design for Psychologists

V. DISCUSSION

Based on the findings of the observations and interviews, it is clear that psychologists can use e-learning to carry out the process depicted in Figure 1 and Figure 3. The psychologist stated that having access to e-learning made it easier for him to implement chatbots for his clients.

The chatbot must always be updated so that the keywords are more representative of the client's feelings. Therefore, this research should be continued continuously with more clients.

Participants found it useful to have a chatbot to help them reduce their BPD criteria. They can solve problems, particularly those involving interpersonal skills, without feeling tutored. Chatbot is a tool for psychologists and clients but does not replace the position of psychologist.

titled Borderline Personality Disorder Assistance Model using Virtual Assistant Technology

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