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Effect of Schizophrenia Care Application (Ics Mobile) on Family Knowledge about Activities Daily Living (ADL) to Schizophrenic Patients

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Abstract

Activities Daily Living (ADL) is the most common problem in schizophrenia. One most crucial effort is providing health education to families is considered useful in order to be able to increase family knowledge of the treatment process. The use of health education media can take advantage of the development of smartphone technology so as to make health education more interactive. Moreover, the ICS_Mobile application contains information about ADL through text and video. The purpose of this study was to determine the effect of ICS_Mobile application on family knowledge about Activities Daily Living(ADL) in schizophrenic patients. This study uses a quasi-experimental research method with pre-test and post-test control group approach. The population is 341 members of schizophrenia family with a sample of 40 respondents, divided into 2 groups, the intervention group 20 respondents and the control group 20 respondents. Sampling was collected by using purposive sampling. Respondents' knowledge was measured using instruments developed by researchers and content testing and construct test with Crombach'sAlpa value of 0.954. Data were analyzed using repeatedmeasures ANOVA. The results showed that there was an increase in the mean score of knowledge after the intervention with the value (F=121.819 p value = 0.000), there was no significant increase in the average score of knowledge in the control group with the value (F= 3.065 p = 0.096), and there were differences the average knowledge between the control group and the intervention group with the value (F=19.048 p value = 0.000). The conclusion of this study that the provision of health education interventions using the ICS_ Mobile application shows a significant influence on increasing family knowledge about Daily Living Activities (ADL) in schizophrenic patients. Researchers recommend the use of ICS_Mobile applications in health services as an option in increasing knowledge of schizophrenia treatment.

Keywords: Activities daily living, ICS_Mobile, Knowledge, Schizophrenia, Smartphone.

Introduction

Schizophrenia around the world has become a serious problem. Global data shows the World Health Organization (2016) the number of schizophrenics is more than 21 million people (men: 12 million people and women: 9 million people). In the United States, around 1 in 100 people is reported to have schizophrenia and more than 100,000 new cases are diagnosed each year (Michelle & Sherman, 2005). The Indonesian Ministry of Health in Riskesdas (2013) reported the number of people with severe mental disorders in Indonesia reached 1.7 per mile or around 1–2 people per 1,000 Indonesian population or around 400 thousand people.

The main problem experienced by Schizophrenia clients is the inability of patients to conduct Activities Daily Living (ADL) (Videbeck, 2011). The results of research conducted by Hardani, Basirun,and Sawiji (2009) showed that from 32 respondents 100% experienced an inability to fulfill Activities Daily Living (ADL) with different levels of dependence. Activities Daily Living fulfillment problems (ADL) are caused by changes in thought processes that cause setbacks in living everyday life.

Interventions in Activities Daily Living fulfillment process in Indonesia in the form of providing health education to families are still using simple media including visual aids, hearing (audio), and hearing and viewing aids (audiovisual) (Notoatmodjo, 2011). Whereas in the outside countries have carried out the development of health education media that is transformed into the benefits of smartphone features (Mosa, Yoo, & Sheets, 2012). In addition to its use in mobile clinical communication, smartphone applications can also be used in health education for patients, self-management of the disease, and remote monitoring of patients. The use of smartphones as medical devices can be useful in medical practice that focuses on the point of care, (Mosa et al., 2012).

The use of medical devices based on smartphone applications has significant potential in improving the efficiency of the health care system (Gaglani, 2013). The use of smartphone for health applications can also provide health education and information to patients and families so that the use of interventions can improve self-management and changes in health behavior when and wherever they need (Li et al., 2014). Several studies have shown the effectiveness of using smartphone applications in the use of health education media (Kratzke & Cox, 2012). These results indicate that the provision of health education using smartphone applications is considered to provide effectiveness in facilitating and optimizing care for clients.

The use of smartphones has experienced a rapid increase, especially in Indonesia. Data released by the Techinasia website (2014) Indonesia will exceed 100 million active smartphone users by 2018, making it the country with the fourth largest population of smartphone users in the world (behind China, India and the United States). However, this condition has not been maximized for the use of smartphone media as a health education media in the Activities Daily Living (ADL) fulfillment process for schizophrenic patients. It is hoped that the use of technology can help health workers in the treatment process in schizophrenic patients. Does using the ICS_Mobilesmartphone application improve family knowledge about the Activities Daily Living fulfillment process of schizophrenic patients?

Method

This study uses a quasi-experimental method, with the design of pre and post- test with control group and the design of this study involving one treatment and control group and conducting an assessment before the intervention is given to test changes that occur after the intervention. The population in this study was all families of patients who experienced schizophrenia in Majene District Health Center Work Area as many as 341 clients. The sampling technique uses non-probability samples with purposive sampling method, with a sample of 40 families (20 control groups and 20 intervention groups) with family inclusion criteria that care for schizophrenic patients and live at home with clients, families with smartphones, and a minimum educational background is middle

school graduates.

The place of this research was carried out in the Work Area of Majene District Health Center, West Sulawesi Province, the time of data collection for 3 months and the instrument of family knowledge about the management of daily living activities (ADL) was made by the researcher based on theoretical review of the maintenance of daily living activities (ADL) at home and using the Bloom Taxonomy Cognitive Theory approach, which has been revised by Anderson &Krathwohl (2015), which consists of cognitive abilities to remember, understand, and apply with the answer points, namely (right and wrong). Assessment of knowledge about ADL in the form of a questionnaire consisting of 25 questions including knowledge of the ADL concept of schizophrenic patients, personal hygiene, dressing/ornamentation, eating & drinking, and elimination with a total score of 0–25, scores calculated based on conditions, correct answers scored 1 and the wrong answer is given a score of 0. The final calculation results indicate that the value of the respondent. The complete knowledge measurement instrument grid is in Appendix 3. This instrument has been tested for content validity to expert mental nursing education expert and validity test shows that from 25 questions, all questions are declared valid with Alpha-Cronbachrealiability value of 0.94.

Intervention instruments used in this study is a health education media created by the researchers that was transformed into a smartphone application called ICS_ Mobile which had been developed through preliminary studies and literature study approaches in the process of making ICS_ Mobile applications. This ICS_Mobile application contains information about daily living (ADL) activities in schizophrenic patients consisting of providing information through text that has information on the ADL concept of schizophrenic patients, and providing information through videos that provide illustration information motivating and treating patients in the process of fulfilling personal hygiene care , ornamental care, eating/drinking treatments, and BAB (feces)/BAK (urine) care.

The stage of the data collection process was done in the first day, the measurement of knowledge on the respondents (pre-test) is done, then the second day ICS_ Mobile application is given by teaching the application how to operate and on the third day the researchers provide assistance in the use of the ICS_Mobile application later Knowledge measurement was conducted again (post-test 1) then the respondent used the ICS_Mobile application independently and the final stage was done by measuring the third knowledge after 2 weeks from the initial measurement (post-test 2), the data collection process took 2 months.

SPSS version 32 wasused fordata analysis. After the measures of central tendency were determined from the demographic data, analysis of variance was used to determined ifferences, ifany, between the experimental and the control group. Analysis then progressed to the Family Knowle scores for multivariate analysis using repeated measures ANOVA. There li- ability of the Family Knowledge was supported by the calculation of alpha coefficients for both the experimental and control groups.

Result

1. Differences in changes in average scores of family knowledge levels about Activities Daily Living (ADL) before and after obtaining treatment in intervention groups and control groups (n1 = 20, n2 = 20).

Table 1 Differences in changes in average scores of family knowledge levels

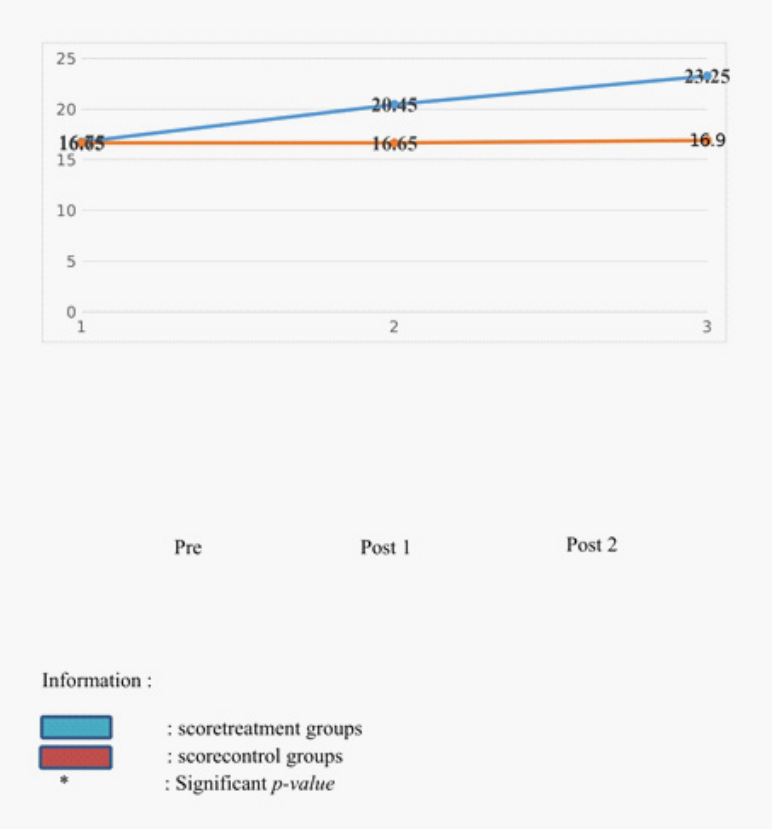
Scale	n	Pretest	Posttest 1	Posttest 2	Difference OverTime	Difference Between Group/Time
knowledge levels						
Experimental	20	16.75 (2.35)	20.45 (1.14)	23.25 (0.96)	F=121,819	F=19,048
Control	20	16.65 (2.03)	16.65 (2.03)	16.90 (2.04)	p=.000	p=.000,
Total(within-time)	40				df=1	df=1

This study found the value of the average score in the intervention group at the initial measurement before being treated with the provision of smartphone media obtained an average score of 16.75 knowledge scores from the maximum minimal-value (0–25), after the initial measurement then given intervention using the ICS_Mobile application is done twice a period of time and then a second measurement is done with the results of the knowledge score shows an increase with a score of 20.45, the third measurement is done after one week the respondent uses the ICS_Mobile application independently with the results of a knowledge score of 23.25, this result shows the difference in the increase in knowledge scores for each intervention using the ICS_Mobile application by performing Repeated Anova test analysis obtained p value = value 0.000 <0.05.

In the control group showed the average score on the initial measurement before being treated by giving nurses routine visits obtained the average score of knowledgescore 16.65 from the maximum minimal-value (0–25), after the initial measurement then given intervention with perform routine nurse visits 1 time a week, the second measurement is done intermittently a day after the first measurement and results obtained no change in knowledge score with fixed score 16.65, the third measurement is done in the second week after the first measurement after giving a routine nurse visit showing results 16.90 knowledge score. These results indicate that there is no significant difference from the increase in knowledge scores every time a routine visit by a nurse by conducting Repeated Anova test analysis obtained p value = value 0.096 <0.05.

2. Difference in changes in average score of change in family knowledge about Activities Daily Living (ADL) between treatment groups and control groups

This study found the results of the



difference in the average score of knowledge before and after the intervention in the control group and treatment with independent t test analysis which showed that the two final measurement results were significant differences with the value of p = value 0,000 with the average score of the intervention group 23, 25 and the control group 16.90.

3. Analysis of the long-standing relationship of using the ICS_Mobile application with an increase in family knowledge scores on Activities Daily Living (ADL) in schizophrenic patients.

The process of giving health education interventions to 20 respondents was carried out for 2 weeks with the first provision of getting assistance by researchers twice regularly and then the respondent used the ICS_Mobile application the following week independently with different intensity levels for each respondent. After analyzing using the Spearman Rank test, the results of P-value = 0.000 (<0.05) showed that there was a significant relationship between the duration of smartphone use and the family knowledge score about ADL, the Spearman (r) correlation value of 0.989 indicating the direction positive relationship with the strength of a very strong relationship.

4. Evaluating the use of the ICS_Mobile application media in the intervention group

The evaluation process on the ICS_Mobile application used in the health education process is carried out quantitatively using a questionnaire to measure the level of ease of use of the ICS_Mobile application features with 3 aspects of questions including: 1) the system, 2) user aspects, and 3) usage aspects with the choice of answer items namely 1) difficult, 2) quite easy and 3) easy, from the results of the analysis on all the aspects above found the majority of respondents said it was easy to use with a percentage of 70% and 30% said it was quite easy on 20 respondents who used the ICS_Mobile application in the research process.

Discussion

This study showed that the intervention group that uses ICS_Mobile as a health education media is effective and can be applied to the families of schizophrenic patients in the fulfillment of daily living (ADL) activities. The process of improving family knowledge every measurement shows a graph that continues to increase in each process of using ICS_Mobile as a health education media.

The initial process is carried out health education using the ICS_Mobile application for 2 weeks periodically the results of the average knowledge scores of respondents have increased in the second and third measurements. Effectiveness is seen in the provision of health education using the ICS_ Mobile application that contains information on the process of care for Daily Living Activities (ADL) in schizophrenic patients by visualizing through text and audiovisual through video. This is in line with the theory of Cognitive Theory of Multimedia Learning (CTML) in Mayer (2004) which states that multimedia in the process of providing information is able to combine various types of media including text, images, sound and video so as to increase retention of one's knowledge. the provision of well-designed health information in accordance with the objectives to be achieved can change the thought process that is influenced by the increased knowledge and awareness that has been received from health education (Onono et al., 2014).

The effectiveness of the use of ICS_ Mobile application in improving family knowledge can make the family independent in the process of maintaining Activities Daily Living (ADL). Mosa et al., (2012) revealed that the use of smartphones in providing information in the form of health education to patients and families can improve the ability of patients in self-management independently of the treatment of the disease and remote monitoring of patients. Research conducted by Kim, Shin, Lee, Kang, & Bartlett, (2017) shows the results that smartphone-based education can be an effective method for use in nursing education. This shows that the provision of health education using smartphone applications is considered to provide effectiveness in facilitating and optimizing care for clients.

The results of the analysis of the long-

term effectiveness of the use of the ICS_ Mobile application show the results that the more often respondents use the ICS_Mobile application, the higher the family knowledge score. Providing information in a span of two weeks using media by combining images and sounds called audiovisual media can provide up to 50% better memory than other media (Edgar Dale in Jackson 2016). This is also in line with Pavlov's concept of Classical Conditioning which states that in the learning process requires continuous practice and all require Conditioning Process (Pavlov, 1849–1936 in Cambiaghi and Sacchetti, 2015). Alternative use of smartphone media that can be used whenever and wherever the family needs thus it can increase the quantity and quality of health information obtained.

At the end of the data collection process, researchers evaluated the level of ease of use of the ICS_Mobile application and found that the majority of respondents (70%) revealed that the use of the ICS_Mobile application feature was easy to use. according to Sujana and Rivai, (2005) that in the process of health education that plays an important role in supporting the success of the delivery of information is the selection of the media used must consider the ease of obtaining the media used. the use of ICS_Mobile application on the provision of health education is considered in accordance with the needs of respondents in increasing knowledge about the patient's ADL care process by adjusting the level of ease in the process of use with the ability of respondents in general.

Conclusion

The conclusion of this study that the provision of health education interventions using the ICS_Mobile application shows a significant influence on increasing family knowledge about daily living activities (ADL) in schizophrenic patients.

Health education intervention using the ICS_Mobile application is expected to be a special consideration for health services as one of the health education media that can be applied in treating schizophrenic clients who receive home care by focusing on increasing family knowledge in treating schizophrenic patients. Subsequent research is suggested to see the effectiveness of ICS_Mobile application on attitudes and behavior in the care of daily living activities (ADL) and can develop collaboration-based applications with treatment through doctor instruction.

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