The Effect Of Intervention In The Form Of Short Message Service On Revisit Compliance Rate In Patients With Chronic Disease In Internal Disease Policy Of Binjai Hospital In 2022

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Abstract
In today's growing medical environment, the efficiency of health services and patient satisfaction are often considered as important indicators of the quality of health services. However, the absence of patients according to the specified schedule is a common problem. Short Message Service (SMS) as a reminder and motivation is able to influence changes in patient behavior. The formulation of the problem in this study is how the effect of providing intervention in the form of SMS on the rate of follow-up visits in chronic patients in the internal medicine clinic of Binjai Latersia Hospital. The research design used was Quasi-Experimental with One-Group Pre-Post Test Design. The population in this study were all patients with chronic diseases in outpatient installations who underwent control at the internal medicine clinic of the hospital as many as 42 people for 3 months, with a total sample of 126 people. The results of the study show 5. There is an effect of providing intervention in the form of Short Message Service on increasing the number of repeat visits in doing a treatment.

Keywords: *Intervention, Short Message Service, Patient visit compliance.*

I. INTRODUCTION

In the current era of the growing medical environment, the efficiency of health services and patient satisfaction are often considered important indicators of the quality of health services (Shrestha et al, 2017). In outpatient services, a well-run scheduling system can cut patient waiting time, and provide opportunities for health care providers to allocate resources based on the number of patients, to improve the quality of health services (Tsai et al, 2019).However, the absence of patients according to the specified schedule is a common problem. Based on scientific evidence, as many as 40% of patients do not comply with the treatment schedule and fail to follow the instructions given by health services (Sugiharto et al, 2019). The absence of a patient during a scheduled visit can create a significant negative burden and impact on the medical service system (Davies et al, 2016).Patients often give several reasons that cause them not to come on a set schedule. These reasons are forgetting the schedule of visits, confusion on the date and day of the visit schedule, miscommunication regarding visit schedule information, feeling better, transportation problems, and obstacles to leaving work or school (Crutchfield & Kristler, 2017).Reducing the number of missed consultations can be a relatively inexpensive way to improve the efficiency, effectiveness, and quality of health services (McLean et al, 2016). The use of the Reminder System can help patients determine and remind the schedule of visits that must be made (Sugiharto et al, 2019). The types of reminders that have been proven to be effective include letters, telephones, electronic mail/emails, and short messaging services (Moore, et al, 2016).

Short Message Service (SMS) is a technology that has spread widely in developing and developed countries. This technology has the potential to reach large numbers of individuals but at a relatively low cost. Several studies have shown that the use of SMS as a reminder to schedule visits is effective in reducing outpatient absenteeism and is more cost-effective than other methods (Keeshin et al, 2017).Based on the initial survey that the researchers conducted on patients at the Latersia Binjai Hospital, the average visit was 42 people per month with the status of chronic disease patients. The majority of patients who seek treatment at the internal medicine polyclinic have chronic diseases such as Diabetes Mellitus and Hypertension. The duration of the patient's treatment depends on the patient's condition, if the patient's condition allows or is

stable, then the patient is allowed to make repeat visits every 3 months, but if the patient's condition is not stable, then repeat visits can be made every month. For patients, ± 20 percent of repeat visits occur every month for various reasons such as forgetting the specified schedule, being late for repeat visits for reasons of family matters, and no one accompanying the patient or taking the patient to the hospital.Based on the description above, the researchers are interested in taking the title " The Effect Of Intervention In The Form Of Short Message Service On Revisit Compliance Rate In Patients With Chronic Disease In Internal Disease Policy Of Binjai Hospital In 2022".

II. LITERATURE REVIEW

2.1. Reminder System

Mobile technology-based health systems have become popular in recent years. This system has been widely used in everyday life aimed at helping in managing daily tasks (Al-Hasnawi et al, 2016). Some systems have the function of helping to remind a person of future actions. These systems will create reminders based on several aspects in the future, such as location, event, activity, person, and time (Graus et al, 2016).

2.1.1. Composition

Reminders usually contain a predicate sentence. The sentence contains a phrase (verb) that relates to an action that the user wants to perform and an object that is the target of the action to be taken. An example of this sentence is “remind me to take money from the bank” (Graus et al, 2016).

Reminders usually remember the subject to perform certain tasks such as going somewhere, working, communicating, managing external processes that are going on, organizing ongoing activities, and consumption (Graus et al, 2016).

2.1.2. Element

New York Links (2014) developed guidelines regarding visiting schedules. In these guidelines, there is a sub-section of 'Appointment Reminders' whose elements are:

a. Patient contact information and communication methods selected are up-to-date
b. The system manages a list of upcoming medical visits
c. Patients get two scheduled reminders

2.2. Short Message Service

Short Message Service is a technology system for sending and receiving messages between mobile phones which was introduced in 1992 (Unik et al, 2019). This system is contained in a cellular phone device with a delivery mechanism via a cellular network without having to activate the internet system. This is what causes SMS to be popular among the public as a communication tool because its operation is easy, convenient, fast, and cheap (Yani, 2018).

2.3. Obedience

In the Indonesian Dictionary, compliance comes from the word obedient which can be interpreted as an obedient nature, while obeying can be interpreted as obeying an existing rule (KBBI Online, 2016). Meanwhile, medication adherence can be interpreted as an effort of obedience made by the patient to take treatment in accordance with the regulations that have been agreed upon with the health service provider (Nisa, 2017).Compliance with repeat visits is an action taken by the patient who is complying with the rules in carrying out treatment, where the rules have been determined by the health service provider and agreed upon by both the recipient and the health service provider.

Patients who are obedient in taking treatment are patients who do the routine treatment at least once a month, while patients who are not compliant in taking treatment are patients who do not take treatment for two months (Permenkes RI, 2016).Several factors that cause patients to take treatment, either intentionally or unintentionally by the patient, can of course be interpreted as a failure, either failure to carry out daily instructions or follow-up instructions which are of course very much needed in the progress of patient treatment (Nisa, 2017).

2.4. Benefits of SMS Reminder System in Health Services

A systematic review of identifying studies published between 2005 and 2015, using a meta-analysis to calculate the combined odds ratio stated that the OR was positive indicating that SMS reminders proved effective in reminding patients of appointments to be made. comparing attendance rates in patients who are given a reminder and not given a reminder (Boksmati et al, 2016).In addition to increasing patient attendance, SMS-based reminder systems also have other benefits. A study conducted in Indonesia using reminders via SMS recommends that a reminder system can be one way to improve medication adherence in diabetic patients (Lubis et al, 2016).

III. METHODS

The research design used is a Quasi-Experimental study with a One-Group Pre-Post Test Design, where later in the research group observation of the level of compliance will be carried out before and after the intervention or treatment is given (William and Hita, 2019). This study aims to determine the effect of an action on the experimental group that received the intervention. Provision of intervention in the form of Short Message Service for follow-up visits to chronic disease patients at the Internal Medicine Polyclinic at the Latersia Binjai Hospital.

This research was conducted at the Latersia Binjai Hospital from January 2022 to June 2022. The population in this study were all patients with chronic diseases in outpatient installations who underwent control at the internal medicine clinic of the Latersia Binjai Hospital for as many as 42 people for 3 months, with a total sample is 126 people. The sampling technique in this study was using purposive sampling. The selected sample is then adjusted according to the inclusion and exclusion criteria, divided into:

1. Inclusion criteria, namely (a) Outpatient unit patients who carry out control in the internal medicine polyclinic at the Binjai Latersia Hospital; (b) Patients whose next visit is scheduled; (c) The patient is still taking medication; (d) Patients who have cellphones and are able to operate the facilities properly; (e) Patients receive information and give informed consent to participate in the study voluntarily and in writing (Informed Consent).
2. Exclusion Criteria, namely (a) The patient/guardian does not have a mobile phone; (b Patient/guardian who is unable to read; (c) During the research process, the patient suddenly lost contact or did not respond.

The types of data collected in this study are primary data to determine age, gender, final education, occupation, and diagnosis, and secondary data to determine medical diagnosis and schedule for further visits. The variables used in this study are:

1. Independent Variable: Intervention via SMS
2. Dependent Variable: Revisit patients with chronic disease
3. Confounding Variables: Predisposing Factors (knowledge, beliefs, beliefs, values, attitudes), Enabling Factors (availability of health facilities or facilities), Reinforcing Factors (family support and officer attitudes), knowledge factors in the cognitive domain, opinion, and emotional factors that affect concerned (attitude is also a person's closed response to a particular stimulus or object, such as happy-not happy, agree-disagree, good-bad, and so on).

Quantitative data analysis was carried out in stages, namely univariate analysis to obtain a description of each variable studied and bivariate analysis to express the analysis of 2 variables, namely the group's pretest value before being given the intervention and the group's post-test value after being given the intervention.

IV. ANALYZE AND RESULT

4.1. Description of Research Site

Latersia General Hospital is a type C hospital which is located at Jalan Soekarno-Hatta No. 451 Binjai-North Sumatra. Latersia General Hospital is surrounded by densely populated residential areas, factories, and offices both owned by the government and privately owned, with the main focus of prioritizing quality and best health services for all levels of Binjai society and its surroundings.

4.2. Description of Respondent Characteristics

Based on the results of research on the provision of interventions in the form of Short Message Service on the rate of follow-up visits in chronic patients at the internal medicine polyclinic at the Latersia Binjai Hospital, the characteristics of the respondents are described as follows:

Table 1. Distribution of Characteristics of Research Respondents Based on Gender, Age, Education, Occupation, and Diagnosis in Internal Medicine Polyclinic, Latersia Binjai Hospital in 2021

Gender	Amount	Percentage (%)
Male	78	41.9
Female	108	58.1
Total	**186**	**100**

Age	Amount	Percentage (%)
Early Adult (26-35 years)	14	7.5
Late Adult (36-45 years)	29	15.6
Early Elderly (46-55 years)	68	36.6
Late Elderly (56-65 years)	50	26.9
Seniors (> 65 years)	25	13.4
Total	**186**	**100**

Last Education	Amount	Percentage (%)
Elementary & Middle School (SD & SLTP)	20	10.8
High School (SLTA)	149	80.1
College (D-III / S1)	17	9.1
Total	**186**	**100**

Occupation	Amount	Percentage (%)
Government Employees	13	7.0
Private Sector Employee	32	17.2
Self-employed	77	41.4
Housewife	64	34.4
Total	**186**	**100**

In table 4.1 above, it can be seen that the frequency based on gender is mostly female, namely, 108 people (58.1%), while based on age the most in the early elderly group, namely 68 people (36.6%), while based on the latest educational status, most are in secondary education or high school, namely 149 people (80.1%), while based on occupation the most are entrepreneurs, namely 77 people (41.4%).

4.3. Univariate Analysis Before Giving Short Message Service Intervention

4.3.1. Revisit Compliance

Based on the results of initial observations on the follow-up visits of chronic disease respondents at the internal medicine clinic at the Latersia Binjai Hospital in the last 3 months of patient visits in October – December 2021, the following results were obtained:

Table 2. Research Respondents' Visits Before Providing Short Message Service Interventions at Internal Medicine Polyclinic, Latersia Binjai Hospital in 2021

Return Visit	Amount	Percentage (%)
Regularly	63	33.9
Irregularly	123	66.1
Total	**186**	**100**

In table 2 above, it can be seen that 123 people (66.1%) had an irregular rate of follow-up visits, either because the patient did not come according to the schedule of repeat visits that had been scheduled by the doctor and the patient or the patient did not come at all to get treatment.

The reasons respondents did not come regularly in making medical visits to the hospital, namely:

Table 3. Reasons for Irregular Research Respondents in Conducting Routine Medical Visits at the Internal Medicine Polyclinic of the Latersia Binjai Hospital in 2021

Return Visit	Amount	Percentage (%)
Forget Schedule Visit	50	26.9
No Family Members Accompany	22	11.8
Troubled by Transportation Problems	4	2.2
Unable to Leave Work or Daily Routine Activities	39	21.0

In table 3 above, it can be seen that the reason respondents were not regular in their routine visits for treatment to the hospital was that they forgot to visit again, namely 50 people (26.9%).

4.3.2. Research Respondents Pretest

The pretest is an initial test in the form of filling out a questionnaire given to respondents who are willing to participate in this study where the scores obtained by the respondents will be summed and classified based on the calculations that have been determined from the start by the researcher, namely Good (Score > 8 Points), Medium (Score 7-8 Points) and Poor (Score < 7 Points). So based on the results of the initial test (Pretest) on the research respondents, the following results were obtained:

Table 4. Pretest Scores of Research Respondents at the Internal Medicine Polyclinic of Latersia Binjai Hospital in 2021

Score	Amount	Percentage (%)
Good (>8)	39	21.0
Middle (7-8)	54	29.0
Bad (<7)	93	50.0
Total	**186**	**100**

In Table 4 above, it can be seen that from 186 respondents, 93 people (50.0%) had a bad pretest score (Score < 7 points). The distribution of the pretest answers conducted by the respondents are:

Table 5. Distribution of Research Respondents' Pretest Answers at the Internal Medicine Polyclinic of Latersia Binjai Hospital in 2021

Questions	Yes		No		Number of Respondents	
	n	%	n	%	n	%
Carry out regular health checks every month to check the condition of the disease	92	49.5	94	50.5	186	100
Follow the instructions from the doctor about the rules of medication and dietary rules that must be applied every day	97	52.2	89	47.8	186	100
Always think about the progress of treatment without instructions from a doctor	79	42.5	107	57.5	186	100
Take the medication according to the doctor's directions	96	51.6	90	48.8	186	100
Consulting health developments with doctors	98	52.7	88	47.3	186	100
If you are not accompanied by your family, you will not go on a repeat visit to the hospital	70	37.6	116	62.4	186	100
Will still come to the hospital to find out the progress of treatment without being reminded by the nurse	92	49.5	94	50.5	186	100

Based on Table 5 above, it is known that before the intervention, 94 people (50.5%) did not routinely carry out re-control of their disease conditions, and as many as 89 people (47.8%) did not comply with the recommendations given by health service providers in consuming drugs and eating patterns daily. days, as many as 79 people (42.5%) thought about the progress of treatment carried out without any instructions from a doctor, as many as 90 people (48.8%) did not take drugs according to the doctor's directions, as many as 88 people (47.3%) did not consult the progress of their treatment to the doctor, as many as 70 people (37.6) will not make a repeat visit to the hospital if there is no accompanying family member, as many as 94 people (50.5%) will not come to the hospital to know the progress of treatment without being reminded by the nurse.

4.4. Univariate Analysis After Giving Short Message Service Intervention

4.4.1. Revisit Compliance

Based on the results of research that has been carried out on respondents who are willing to join in this study, who are chronic patients in the internal medicine clinic of the Latersia Binjai Hospital on a visit after giving an intervention in the form of Short Message Service in the research period from April to June 2022, the results obtained are as follows:

Table 6. Research Respondents' Visits After Providing Short Message Service Interventions at the Internal Medicine Polyclinic of Latersia Binjai Hospital in 2022

SMS Delivery Status	Visit Status						Total	
	On Schedule		Not on Schedule		Did not come			
	n	%	n	%	n	%	n	%
Delivered (+)	160	86.0	18	9.7	6	3.2	**184**	**98.9**
Not Delivered (-)	0	0	0	0	2	1.1	**2**	**1.1**
Total	**160**	**86.0**	**18**	**9.7**	**8**	**4.3**	**186**	**100**

Based on table 6 above, it is known that of the 186 respondents who were willing to take part in the study, 184 people (98.9%) received SMS to the respondent's cell phone in the form of a reminder to make a return visit to the hospital. Of those 184 people, 160 people (86.0%) made a repeat visit. to the Hospital in accordance with the date that has been notified by the researcher to the respondent.

4.4.2. Research Respondent Posttest

Posttest is the final test in the form of filling out a questionnaire given to respondents who have finished following all aspects of the research while the questionnaire given is the same questionnaire used at the pretest at the beginning of this study where the calculation of the score remains the same as the Pretest, namely Good (Score > 8 Points), Moderate (Score 7-8 Points) and Poor (Score < 7 Points). So based on the results of the final test (Posttest) on the research respondents, the following results were obtained:

Table 7. Posttest Scores of Research Respondents at the Internal Medicine Polyclinic of Latersia Binjai Hospital in 2022

Score	Amount	Percentage (%)
Good (>8)	142	76.3
Middle (7-8)	29	15.6
Bad (<7)	7	3.8
Did not Present	8	4.3
Total	**186**	**100**

In Table 7 above, it can be seen that from 186 respondents, 142 people (76.3%) had a good post-test score (Score > 8 points) and as many as 8 people (4.3%) of 186 respondents could not fill out the Posttest questionnaire because they did not make repeat visits during the time of doing this research. The distribution of the Posttest answers carried out by respondents are:

Table 8. Distribution of Research Respondents' Posttest Answers at the Internal Medicine Polyclinic of Binjai Latersia Hospital in 2022

Questions	Yes		No		Amount		Did not come		Number of Respondents	
	n	%	n	%	n	%	n	%	n	%
Carry out regular health checks every	141	75.8	37	19.9	178	95.7	8	4.3	186	100

month to check the condition of the disease										
Follow the instructions from the doctor about the rules of medication and dietary rules that must be applied every day	149	80.1	29	15.6	178	95.7	8	4.3	186	100
Always think about the progress of treatment without instructions from a doctor	36	19.4	142	76.3	178	95.7	8	4.3	186	100
Take the medication according to the doctor's directions	143	76.9	35	18.8	178	95.7	8	4.3	186	100
Consulting health developments with doctors	128	68.8	50	26.9	178	95.7	8	4.3	186	100
If you are not accompanied by your family, you will not go on a repeat visit to the hospital	40	21.5	138	74.2	178	95.7	8	4.3	186	100
Will still come to the hospital to find out the progress of treatment without being reminded by the nurse	113	60.8	65	34.9	178	95.7	8	4.3	186	100

Based on Table 8 above, it is known that after the intervention, 141 people (75.8%) routinely re-controlled their disease conditions, and as many as 149 people (80.1%) obeyed the recommendations given by health service providers in consuming drugs and eating patterns daily, as many as 149 people (80.1%) 142 people (76.3%) did not think about the progress of treatment carried out without instructions from a doctor, as many as 143 people (76.9%) took drugs according to doctor's directions, 128 people (68.8%) consulted the progress of their treatment to doctors, as many as 138 people (74.2%) will continue to make repeat visits to the hospital even though there is no accompanying family member, as many as 113 people (60.8%) will come to the hospital to find out the progress of treatment without having to be reminded by the nurse.

4.5. Bivariate Analysis

To determine the effect of providing intervention in the form of Short Message Service on the compliance of repeat visits in chronic patients at the Internal Medicine Polyclinic at the Latersia Binjai Hospital, it is described as follows:

Table 9. Result of Normality Test of Pretest and Posttest of Research Respondents in Internal Medicine Polyclinic, Latersia Binjai Hospital

	Kolmogorov-Smirnov		
	Statistic	**df**	**Sig**
Pretest	.217	178	.000
Posttest	.199	178	.000

Based on the results of the analysis above, there was a reduction in the number of respondents from 186 people to 178 people where this happened because 8 respondents did not take the Posttest which caused the Miss System to occur with as many as 8 respondents, and based on the total number of respondents (> 30 respondents) the test used is the Kolmogorov-Smirnov Test with significant values Pretest and Posttest Sig. = 0.000 (<0.05) then the data can be said to be not normally distributed, thus the test carried out in this section is the average difference test using the Non-Parametric Test, namely the Wilcoxon test.

Table 10. Result of Normality Test of Pretest and Posttest of Research Respondents in Internal Medicine Polyclinic, Latersia Binjai Hospital

		n
Posttest-Pretest	Negative Ranks	1[a]
	Positive Ranks	146[b]
	Ties	31[c]
	Total	178

a. Posttest < Pretest
b. Posttest > Pretest
c. Posttest = Pretest

	Posttest – Pretest
Z	-10.655[a]
Asymp. Sig. (2-tailed)	.000

Based on the data above, it can be interpreted that 1 respondent experienced a decrease in Posttest scores (Negative Rank Posttest < Pretest), 146 respondents experienced an increase in Posttest scores (Positive Ranks Posttest > Pretest), and 31 respondents had the same score. on the Pretest and Posttest (Ties Posttest = Pretest).Meanwhile, for the results of the calculation of the difference between the two averages of the Pretest and Posttest using the Wilcoxon test, the value of Asymp.Sig. (2-Tailed) = 0.000 where the value is <0.05, so it can be concluded that H0 is rejected and Ha is accepted. Thus there is an effect of providing intervention in the form of Short Message Service on the incidence of control compliance in chronic disease patients in the internal medicine clinic of the Latersia Binjai Hospital.

V. CONCLUSION

Based on the results of the research that has been carried out and have been presented in the previous chapter can be concluded as follows:

1. The characteristics of respondents based on gender are mostly women compared to men. Characteristics of respondents based on age, the most are early adults with an age range of 46-55 years, and the least are seniors, namely > 65 years. The characteristics based on final education are mostly secondary (SLTA) and the least is high (D-III/S1). The characteristics based on the occupation are mostly self-employed and the least are civil servants. Characteristics of the diagnosis of the majority of respondents are diabetes mellitus.
2. Most of the reasons for non-compliance in taking treatment were due to forgetting to schedule visits, while the least reason for non-compliance was due to transportation problems.
3. The highest score of compliance before giving the Short Message Service intervention was in the bad category (< 7 points) and the least in the good category (> 8 points).
4. The highest score of compliance after the Short Message Service intervention was in the good group (> 8 points) and the least in the bad category (< 7 points).
5. There is an effect of providing intervention in the form of Short Message Service to increase the number of repeat visits in carrying out treatment.

REFERENCES

[1] Al-Hasnawi, S., Ahmad, M., Al-Janabi, A., Zulkifli, AN., Abu Bakar, JA. (2016). Design of Mobile Healthcare Reminder for Chronic Diabetes. ***Journal of Telecommunication, Electronic, and Computer Engineering*** *Vol 8 No.8.*61-64.

[2] Boksmati, N., Butler-Henderson, K., Anderson, K., & Sahama, T. (2016). The Effectiveness Of SMS Reminders On Appointment Attendance: A Meta-Analysis. ***Journal Of Medical Systems***, *40*(4), 90.

[3] Crutchfield, T.M., & Kistler, C.E., 2017. Getting Patients in The Door: Medical Appointment Reminder Preferences. *Patient Preference and Adherence*, 11: 141 – 150.

[4] Davies, M.L., Goffman, R.M., May, J.H., Monte, R.J., Rodriguez, K.L., Tjader, Y.C., et al., (2016). Large-Scale No-Show Patterns and Distributions for Clinic Operational Research. *Healthcare*, 4(1): 15.

[5] Graus, D., Bennett, P.N., White, R.W., & Horvitz, E., 2016. Analyzing and Predicting Task Reminders. *UMAP*. DOI: 10.1145/2930238.2930239

[6] KBBI. (2016). Kamus Besar Bahasa Indonesia (KBBI). [Online] Available at: http://kbbi.web.id/pusat, [Diakses 20 Juni 2022].

[7] Keeshin, S.W., Feinberg, J. (2017). Text Message Reminder–Recall to Increase HPV Immunization in Young HIV-1-Infected Patients. ***J Int Assoc Provid AIDS Care***, 16: 110 – 3.

[8] Lubis, I.K., Harjoko, A., & Dewi, F.S.T., 2016. Desain Sistem Pengingat Berbasis SMS untuk Meningkatkan Kepatuhan Pengobatan Pasien Diabetes Melitus. ***Journal of Information Systems for Public Health***, 1(1): 3 – 9.

[9] McLean, S.M., *et al*. (2016). Appointment Reminder Systems are Effective But Not Optimal: Results of A Systematic Review And Evidence Synthesis Employing Realist Principles. *Patient Preference and Adherence*, 10: 479 – 499.

[10] Nisa, I. F. S. (2017). Hubungan Tingkat Kepatuhan Dan Pengambilan Keputusan Etis Dengan Keberhasilan Terapi Pengobatan Pasien Hipertensi Primer Di Puskesmas Dinoyo Kota Malang (*Doctoral Dissertation, University Of Muhammadiyah Malang*).

[11] Shrestha, M.P., Hu, C., Taleban, S. (2017). Appointment Wait Time, Primary Care Provider Status, and Patient Demographics are Associated with Nonattendance at Outpatient Gastroenterology Clinic. ***J Clin Gastroenterol*****,** 51: 433–8.

[12] Sugiharto, A., Khoe, LC., Dabarguna, BS. (2019). Reminder System as a Strategy to Improve Patient's Asherence on Medical Appoinment.***eJKI*** *Vol.7, No.1, April 2019.*28-34.

[13] Tsai, W.C., Lee, W.C., Chiang, S.C., Chen, Y.C., Chen, T.J. (2019). Factors of Missed Appointments at An Academic Medical Center in Taiwan. ***J Chin Med Assoc***, 82(5): 436-442.

[14] Unik, M., Larenda, VG., Mukhtar, H. (2019). Analisis Investigasi Android Forensik Short Message Service (SMS) pada Smartphone. *JOISIE (Jurnal Of Information System and Informatics Engineering) Vol. 3 No 1 Juni 2019. 10-15.*

[15] William, W., & Hita, H. (2019). Mengukur Tingkat Pemahaman Pelatihan PowerPoint Menggunakan Quasi-Experiment One-Group Pretest-Posttest. ***Jurnal SIFO Mikroskil*** , *20* (1), 71-80.

[16] Yani, A. (2018). Pemanfaatan Teknologi Dalam Bidang Kesehatan Masyarakat. *Promotif:* ***Jurnal Kesehatan Masyarakat*** *Volume 8 Nomer 1 Juni 2018 Artikel XII.*97-103.