

The Effectiveness of the Screening Method with Significant (TBC Response Application) in Improving the Networking of Suspects and Case Detection Rate (CDR) Tuberculosis in Sumenep District in 2021

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ABSTRACT

Tuberculosis is a contagious infectious disease caused by *Mycobacterium tuberculosis*, which can attack the lungs and other organs. Until now, it is still a public health problem in the world that causes high morbidity, disability, and death, so it is necessary to carry out integrated, comprehensive and sustainable prevention efforts and involve all parties. The purpose of this study was to identify the achievements of screening suspects and CDR TB using SIGAP, identify the achievements of screening suspects and CDR TB using a manual questionnaire and analyze the effectiveness of screening with SIGAP and manuals to increase the achievement of screening suspects and CDR TB in Sumenep district. This study is a quasi-experimental design with a non-equivalent control group design with pretest and post-test. This research was conducted in 22 Puskesmas in Sumenep Regency, 430 samples were taken which were divided into 2 groups. Independent t test analysis to see the difference between the two screening methods. then the data were analyzed using the Mann Whitney test. The results showed that the SIGAP method has a higher value than the Manual ($251.85 > 179.15$) in screening suspects, and the SIGAP method has a higher value than the Manual method ($250.50 > 180.50$), in increasing the achievement of the Case Detection Rate of Tuberculosis better. . This shows that there is an effect of the SIGAP screening method in increasing the Suspect and Case Detection Rate Tuberculosis achievement in Sumenep Regency. It is hoped that the results of this study can become the basis for the need for policies from the health department and local governments to support the implementation of the SIGAP application and develop a screening module that makes it easier for individual users so that they can self-screen.

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INTRODUCTION

Indonesia is a country that has a high burden of tuberculosis (TB) and occupies the 2nd position in the world today after India. In addition, cases of MDR-TB, TB-HIV, TB-DM, TB in children and other vulnerable communities are also increasing and becoming a challenge. Based on the 2019 Global TB Report, it is estimated that there are a total of 845,000 TB cases, and only 67% are receiving treatment. Of these cases, an estimated 24,000 cases were cases of Drug Resistant TB (RO TB) patients with an enrollment rate of 48% (5,531 patients) of the 11,463 confirmed TB RO. This figure is of course still below the treatment target, which is 90% of TB cases in East Java, which is the 2nd most TB case after West Java, which is 44,184 cases but is still far from the target of 95,925 (SITB. 2020). This report is still far from the achievement target that is expected to be able to lead to the elimination of TB by 2030. Tuberculosis is a disease caused by the bacterium *Mycobacterium Tuberculosis*. Physically the impact will also be different, such as the spread of infection to other organs, nutritional deficiencies, severe coughing up blood, resistance to many drugs and other complications. As is well known, Tuberculosis is a disease that requires a long treatment time and requires drugs that are consumed a lot (Yuda, 2018). Indonesia is a country with a tropical climate which is also a place for the growth of tuberculosis bacteria that infect humans. In 2019, there were 568,893 cases of tuberculosis found. From the number of cases, there was an increase from 2015 which was 330,729 cases. The highest number of cases was reported in the provinces with the largest population, namely West Java, Banten, Gorontalo, DKI Jakarta, North Sulawesi, and East Java. Tuberculosis cases in East Java province amounted to 68% of the number of new tuberculosis cases in Indonesia. Sumenep district is one of the districts with the most cases in 2020. Based on data obtained from the health office, there were 5,282 (85%) positive smear positive cases, with a cure rate in 2020 of 1402 cases out of 1679 cases treated with success rate (success rate) 83.50, Strategy and prevention policies in achieving "National elimination of TB by 2030" namely, Increasing access to quality TB services including: Increasing service networks, Family and community-based active discovery, Discovery innovation (networking) according to new diagnostic tools and tools, with screening. Therefore, there is a need for early detection of TB or screening in at-risk groups.

Based on the above conditions, the authors are interested in researching the effectiveness of the screening method swiftly (TB response application) in increasing the screening of suspects and the case detection rate (CDR) of tuberculosis in Sumenep district.

METHODS

In this study, researchers used a quasi-experimental design with a non-equivalent control group design with pretest and post-test. This research was carried out at 22 Puskesmas in Sumenep Regency, the sample was taken based on the formula notation of the minimum research sample size of 1503 populations at a margin of error of 5% was 430 which was divided into 2 groups. Data collection using the SIGAP method (TB response application) and manual format on the achievements of screening suspects and case detection rates for TB, questionnaire type analysis t independent test to see the difference between the two screening methods. then the data were analyzed using the Mann Whitney test. This research has gone through the ethical test phase with the number SK: 2306/KEPK/III/2021.

RESULTS

Uji Mann Whitney

	Treatment Group	N	Mean Rank	Sum of Ranks
Suspect Screening	SIGAP	215	251.85	54148.00
	MANUAL	215	179.15	38517.00
	Total	430		

	Screening Results Percentage
Mann-Whitney U	15297.000
Wilcoxon W	38517.000
Z	-6.106
Asymp. Sig. (2-tailed)	.000

The results obtained are $(0.000) < p (0.05)$, which means that there are differences in results between screening TB patients using the Sigap method and those using the manual method. Judging from the results of the Mean Rank, it shows that the SIGAP method has a higher value than the Manual method ($251.85 > 179.15$), this indicates that the SIGAP method can capture TB suspects better than the manual method.

	Metode	N	Mean Rank	Sum of Ranks
Data_CDR	Sigap	215	250.50	53857.50
	Manual	215	180.50	38807.50
	Total	430		

	Data_CDR
Mann-Whitney U	15587.500
Wilcoxon W	38807.500
Z	-9.133
Asymp. Sig. (2-tailed)	.000

The results of the Mann Whitney test analysis showed that $(0.000) < p (0.05)$, this means that there is a difference in the results between screening TB patients using the Spry method and those using the manual method. Judging from the results of the Mean Rank, it shows that the SIGAP method has a higher value than the Manual method ($250.50 > 180.50$), this indicates that the SIGAP method can increase the achievement of Tuberculosis Case Detection Rate better than the manual method.

DISCUSSION

A. Identification of the results of screening TB suspects and CDR using SIGAP (TBC Response Application)

The results showed that after screening with SIGAP (TBC Response Application) showed that from a number of respondents as many as 215, 2908 contacts were obtained around respondents who were screened, and 470 suspects were captured (16.16%), as well as from a number of suspects who were screened. found those who were able and willing to be examined were 335 suspects (71.27), and the final results were diagnosed with TB as many as 215 people (64.17%).

From the results of the screening above, it can be concluded that the above method can be very helpful in maximizing results. The smartphone application is a technology that can be implemented in health services, especially in screening activities, supporting facilities such as smartphones are needed, both for cadre communication and between health workers and as a means providing new information about health to the public. This smartphone application is also embedded in a module that can assist managers in monitoring the treatment status of TB patients whose filling is assisted by their families, relatives and cadres, so that they can help with TB problems in order to create an optimally healthy society. The development of smartphone technology in TB control activities can run well, it is necessary to pay attention to:

- (1) The need for local government policies to support the implementation of the implementation the smartphone application;
- (2) Readiness of human resources, not only health workers but also cadres, TB sufferers, their families and communities;
- (3) Provision of cheap, adequate smartphone-based technology for all layers of society, easy to understand and implement;
- (4) The need for good cooperation between the government, technology providers, health workers and the community (increasing internet coverage to remote areas).

B. Identification of screening methods for the achievement of screening for TB suspects and CDR using a manual questionnaire.

The results of the identification of the screening method show that after screening with a manual questionnaire, it shows that from a number of respondents as many as 215, 2729 contacts were obtained around respondents who were screened, and 343 suspects (12.56%), and from a number of suspects were found who were found to be able and willing to be examined a number of 253 suspects (73.76%), and the final results were diagnosed with TB as many as 145 people (61.22%).

The results obtained with the above method are very good. One of the problems in determining suspects with this questionnaire method is very much needed understanding and a lot of flying hours (for enumerators) so that in determining contacts as suspects can be maximized (netted).

Screening tests are often not intended to directly diagnose a disease, the real intention is to capture a number of people in a community (population) who appear to be healthy, i.e. people may be sick but still do not show symptoms and for subsequent more thorough diagnosis to be carried out for treatment or other actions (Sutrisna, 2010). In order for efforts to detect the presence or absence of a disease in people who appear healthy, it is very dependent on the sensitivity and specificity of the screening tools used in carrying out screening. The two components of sensitivity and specificity of the results tend to give opposite results to each other. A screening test that is too sensitive will result in a high false positive and vice versa if the specificity is high it will result in a high false negative. (Budiarto & Anggraeni, 2003).

C. Analysis of the effectiveness of the screening method with SIGAP (TBC Response Application) and manuals to increase the achievement of screening suspects and TB CDR in Sumenep district.

Based on the results of the Mann Whitney test analysis, the results were (0.000) smaller than p (0.05), the hypothesis was accepted, this means that there is an effect of screening with SIGAP (TB response application) in increasing the achievement of TB suspects and CDR in Sumenep district. Judging from the results of the Mean Rank, it shows that the SIGAP method has a higher value than the Manual method ($251.85 > 179.15$) in screening suspects, and the SIGAP method also has a higher value than the Manual method ($250.50 > 180.50$), in increasing the achievement of the Case Detection Rate. tuberculosis is better. this shows that the SIGAP method is more effective in increasing the screening of suspected tuberculosis suspects and case detection rates in Sumenep district.

This is in accordance with the opinion expressed by Hidayat (2006:15) which explains that: "effectiveness is a measure that states how far the target (quantity, quality, and time) has been achieved. Where the greater the percentage of targets achieved, the higher the effectiveness.

Effectiveness is one of the dimensions of productivity which leads to the achievement of maximum work, namely the achievement of targets related to quality, quantity and time. A program or activity that is considered effective, the resulting output can meet the expected goals.

Effectiveness comes from the word effective which means the occurrence of an effect or desired result in an action. In the Big Indonesian Dictionary, effectiveness means being able to bring results, to be effective. Effectiveness is the ability to choose the right goals or objectives and achieve them. Therefore, effectiveness refers to the relationship between the output or what has been achieved or the results actually achieved with the goals or what has been set in the plan or the expected results. According to Emerson (in Lumolos, 2013:12) states that effectiveness is a measurement in terms of achieving predetermined goals.

CONCLUSION

1. Achievements The screening method using SIGAP (TB response application) succeeded in capturing suspects from each respondent, the highest was 50%, and the highest case detection rate was 45%.
2. Achievements The manual screening method succeeded in capturing suspects from each respondent, the highest was 40%, and the highest case detection rate was 42%.
3. There is an effect of the screening method with SIGAP (TB response application) in increasing the achievement of Suspected and Case Detection Rates of Tuberculosis in Sumenep Regency.

SUGGESTION

1. For Respondents

It is hoped that this application still needs to be developed and there will be improvements in the future so that it can make it easier for users, including later it will be developed in an easier direction so that respondents can self-screen.

2. For Educational Agencies

It is hoped that educational institutions can use the results of this research as learning input and can be developed again for further research to be more useful for readers and researchers.

3. For Researchers

It is hoped that further researchers can add research areas for better and more diverse results and collaborate across programs and across sectors to monitor and evaluate the use of SIGAP.

4. For Community Health Center

It is hoped that the Puskesmas can use the results of this study as a screening tool for all implementing officers in villages throughout Sumenep Regency.

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I solemnly declare that to the best of my knowledge, in this thesis there is no scientific work that has been submitted by another person to obtain an academic degree at a university, and there is no work or opinion that has been written or ordered by anyone. others, except those quoted in this manuscript and mentioned in the sources of citations and bibliography.

CONFLICT OF INTEREST

In this study, there is no interest whatsoever regarding myself or with other institutions other than the Indonesian Strada Institute of Health Sciences, Kediri City.

REFERENCES

- Alimul Hidayat A.A., (2010). *Metode Penelitian Kesehatan Paradigma Kuantitatif*, Jakarta : Heath Books.
- Anwar Imam. (2015). *Aplikasi Analisis Multivariate Dengan Program*. Edisi Ketujuh. Semarang: Badan Penerbit Universitas Diponegoro.
- Arikunto, Suharsimi. (2013). *Prosedur Penelitian Suatu Pendekatan Praktik*. Jakarta : Rhineka Cipta.
- Alsagaff, H., & Mukty, A. 2010. *Dasa-dasar Ilmu Penyakit Paru*. Surabaya : Airlangga University Press.

- Awusi , R., Saleh , Y., & Hadiwijoyo, Y. (2009). *Faktor-Faktor yang mempengaruhi penemuan Penderita tb paru Di kota palu provinsi Sulawesi Tengah*.
- Brunner & Suddarth. 2005. *Keperawatan Medikal Bedah*.(edisi 8). Jakarta : EGC.
- Chin, J. 2010. *Manual Pemberantasan Penyakit Menular*. Jakarta : Depkes.
- Crofton, et al . (2009). *Clinical Tuberculosis*. London: Oxford.
- Duhri, A. P. (2008). Kinerja Petugas Puskesmas Dalam Penemuan Penderita Tb Paru Di Puskesmas Kabupaten Wajo.
- Fertman, C. I. and D. D. Allenswort. 2010. *Health Promotion Programs from Theory to Practice*. Jossey –Bass. San Francisco.
- Fitri, W. S. (2014). Karakteristik Penderita Tuberkulosis Paru Relaps Yang Berobat Di Poliklinik Paru Rumah Sakit Umum Daerah Arifin Achmad Provinsi Riau.
- Harrison. 2013. *Prinsip-prinsip Ilmu Penyakit Dalam* Edisi 13, Jakarta: EGC.
- Hermansyah, B. (2010). Karakteristik penderita TBC paru dengan BTA positif di RS Paru Jember. *Saintifika*.
- Hoog, A. et al (2014). *Choosing algorithms for TB screening: a modelling study to compare yield, predictive value and diagnostic burden*. *Biomed Central*, 14: 532.
- Infodatin kemenkes RI. 2016. *Tuberculosis temukan dan obati sampai sembuh*. Jakarta : Kemenkes RI.(www.depkes.go.id/.../structure-publikasi-pusdatin-info-datin.html) diakses tanggal 4 November 2020.
- Kementerian Kesehatan RI.2016. *Penanggulangan Tuberkulosis*. Jakarta.
- Ismainar, H. 2013. *Administrasi Kesehatan Masyarakat : bagi Perekam Medis dan Informatika Kesehatan*. Yogyakarta : Deepublish.
- J, W. (2009). Integration of a TB screening tool into a comprehensive HIV adult clinical record in the Eastern Cape, South Africa. *Fourth South African AIDS Conference*, (p. 485). Durban.
- Kementerian Kesehatan RI. 2011. *Strategi Nasional Pengendalian TB di Indonesia 2010 – 2014*. Jakarta : Direktorat Jenderal Pengendalian Penyakit dan Penyehatan Lingkungan. Kementerian Kesehatan Republik Indonesia.
- Kementerian Kesehatan RI. 2015. *Profil Kesehatan Indonesia Tahun 2015*. Jakarta : kementerian Kesehatan RI.(www.depkes.go.id/resources/.../profil-kesehatan-Indonesia-2015) diakses tanggal 08 november 2020.
- WHO, 2015. *Pengelolaan Aman Limbah Layanan Kesehatan*. Buku Kedokteran. Jakarta.