The evaluation of Nusantara Sehat program using Nusantara Sehat Public Health Index

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Abstrak

Latar Belakang: *Faktor geografi Indonesia yang berupa daratan, lautan, pegunungan, dan pulau-pulau yang tersebar menyebabkan distribusi tenaga kesehatan dan akses pelayanan kesehatan yang tidak optimal. Berdasarkan Peraturan menteri kesehatan yang telah ditetapkan, pemerintah berupaya mendayagunakan secara khusus sumber daya manusia kesehatan dalam kurun waktu tertentu dengan jumlah dan jenis tertentu, agar meningkatkan akses dan mutu pelayanan kesehatan pada fasilitas pelayanan kesehatan khususnya di wilayah Daerah Tertinggal, Perbatasan, dan Kepulauan (DTPK) dan Daerah Bermasalah Kesehatan (DBK) melalui Program Nusantara Sehat (NS).*

Metode: *Tahun 2015 telah ditugaskan Tim NS Batch 1 dan 2 pada 120 Puskesmas di DTPK dan DBK selama 2 tahun. Kemudian pada tahun 2017 setelah masa tugas berakhir, diadakan evaluasi program yang bertujuan untuk mengetahui dampak program NS terhadap indeks kesehatan masyarakat dengan menggunakan desain Pre and Post-Test Intervention with Control. Evaluasi dilakukan di 15 provinsi, 27 kabupaten, dan 60 Puskesmas pada bulan Februari - Desember 2017.*

Hasil: *Hasil evaluasi program menunjukkan bahwa pada tahun 2017 terjadi perubahan rata-rata indeks kesehatan masyarakat dibandingkan dengan tahun 2015, baik pada Puskesmas intervensi maupun kontrol (p=0,000). Kemudian hasil uji independen t-test terhadap delta perubahan indeks menunjukkan bahwa peningkatan indeks kesehatan masyarakat pada Puskesmas intervensi lebih besar dibandingkan dengan Puskesmas kontrol (p=0,046).*

Kesimpulan: *penugasan Tim NS pada Puskesmas telah membawa perbaikan indeks kesehatan masyarakat yang lebih baik. Diperlukan pengamatan lebih jauh terkait sustainabilitas Program NS dan analisis biaya manfaat (cost benefit analysis) terhadap Program NS.* **(Health Science Journal of Indonesia 2019;10(1):41-50)**

Kata Kunci: *Evaluasi program, Nusantara Sehat, Indeks Kesehatan Masyarakat, Indonesia.*

Abstract

Backgrounds: Indonesia's geographical factors in the form of land, oceans, mountains, and scattered islands have caused the distribution of health workforce and access to health services are not optimal. Based on the Minister of Health regulation, the government seeks to utilize health human resources specifically for a certain period, with certain number and types, in order to improve access and quality of health service to health service facilities, especially in remote area through the Nusantara Sehat Program (*Health Indonesia Program*-NS).

Methods: In 2015, NS Team Batch 1 and 2 were assigned to 120 primary health care center (Puskesmas) in remote areas for 2 years. Then in 2017 after the term ends, NS program evaluation were conducted in 15 provinces, 27 districts, and 60 Puskesmas from Feb to Dec 2017.

Results: This evaluation aims to analyze the impact of NS program on public health index using Pre and Post-Test Intervention with Control Design. The results of program evaluation showed that in 2017 there was a change in the average public health index compared to 2015, both in intervention and control Puskesmas (p = 0,000). The independent t-test result on the delta of index change indicated that public health index improvement at intervention Puskesmas is greater than the control (p = 0,046).

Conclusions: The assignment of NS Team at the Puskesmas has brought improvement of public health index. Further observations are needed regarding the sustainability and the cost benefit analysis of NS Program. **(Health Science Journal of Indonesia 2019;10(1):41-50)**

Keywords: Program evaluation, Nusantara Sehat, Public Health Index, Indonesia.

The health workforce has an important role in the health system where contributions, quantity, and distribution of the health workforce can improve the access and quality of health services, thereby affecting the health status of the community.[1] The more health workforce available in an area, the wider chance to access the health services in the region.[2,3] The World Health Organization (WHO) report states that there is a meaningful relationship between the number and quality of health workforce with immunization coverage, coverage of primary health services, child and infant health services and maternal survival, all of which are health indicators.[4]

One of the causes of the uneven spread of the health workforce in a region is the geographical condition.[5] Indonesia is an archipelago country which has geographical factors of land, sea, mountains, and scattered islands. This condition causes access to health services for the underdeveloped areas, border area, and the islands (*Daerah Tertinggal, Perbatasan, dan Kepulauan* - DTPK) very difficult to reach. In addition to DTPK, the same conditions exist in areas with health problems (*Daerah Bermasalah Kesehatan* - DBK). There are still many health service facilities in DTPK and DBK provided by the government which do not have health workforce. This causes health services in the area can not be implemented optimally.[6] In the era of *Universal Health Coverage* (JKN), policies to ensure access to health services in remote areas are a must. Without the access, universal coverage cannot be achieved. The issues of Human Resources (HR) in health sector is the biggest inhibiting factor in developing access to health services in difficult areas.[1,7] The main problem faced today is the lack of availability of health workforce, especially doctors, in the DTPK area. The distribution of health workforce is uneven because most work in densely populated areas, mainly in Java.

Provision of resources in health care facilities is the responsibility of the government, including among others health workforce. In the 2015-2019 RPJMN (*Indonesia's Medium Term Development Plan*) in Health, fulfillment the needs of health workforce are one of the main targets.[8] In this case the government is required to issue a policy on the model of placement of health workforce in health care facilities that are adjusted to regional characteristics and not to generalize the policy for the entire territory of Indonesia. One way to health personnel provision in Indonesia is carried out through Team Based Special Assignments in support of the Nusantara Sehat Program (*Health Indonesia Program* - NS).[9]

Team Based Special Assignment is a government breakthrough that is expected to be able to implement an integrated program and can provide optimal health services at the level of basic services, especially in the DTPK and DBK.[10] The ultimate goal of this program is the fulfillment of health workforce in the Puskesmas (*primary health care center*), implementation of Puskesmas management, increasing efforts in basic health services in the Puskesmas work area, and achieving the target coverage of the Puskesmas program. In its implementation, this program was carried out through the placement of Team NS with the priority of very remote Puskesmas in DTPK and DBK which experienced a lack of health workforce. Each team consists of eight health workforce from various professions, namely doctors, midwives, nurses, environmental health workforce, nutritionist, medical laboratory technology experts, pharmacy personnel, and public health workforce. Team assignments at DTPK were carried out for 2 years. The program began in 2015, in June Batch 1 was sent to 20 Puskesmas and Batch 2 in December was sent to 100 other Puskesmas.[11]

National Institute of Health Research and Development (*Badan Penelitian dan Pengembangan Kesehatan* - NIHRD) of Indonesia is in charge of escorting the monitoring and evaluation of NS Team placement. Evaluation of the NS Team placement was carried out at pre-, mid-, and post-term. At the time before the team was placed, basic Puskesmas data (pre-term) was taken along with the health status of the community. After a year of placement, mid-term data is retrieved to see the results of the activities. Furthermore, at the end of the placement period (post-term), the last basic data and the health status of the community are retrieved to be compared with the pre-term data.[11]

Year 2017 is the final year of the NS Batch 1 and 2 from year 2015 teams in carrying out their duties. Evaluation research of the team post placement conducted this year aims to assess the impact of the placement of the NS Team on the achievement of the Puskesmas health program, the performance of the Puskesmas, the range of services, improvement of services, and providing benefits to the community. Regarding that matters, baseline data collection was carried out in 120 Puskesmas with the placement of NS Batch 1 Team to collect data on community health status in 30 Puskesmas locations for NS Team placement as Puskesmas intervention and 30 Puskesmas which were not the location of NS Team as Puskesmas control.

The existence of Puskesmas control as a comparison is to test whether the changes that occur in the Puskesmas are properly affected by the presence of the NS Team or the performance is mature. To assess

the health status of the community, it was carried out through a rapid survey. In this quick survey, comparing the health status of the community before and after the placement of the NS team whether in the Puskesmas interventions and the Puskesmas controls has the effect of the placement of the NS team on the health status of the community. The Nusantara Sehat Public Health Index (*Indeks Kesehatan Masyarakat Nusantara Sehat* - IKM NS) was created to assess the success of the NS program in the Puskesmas that were placed by the NS team. The index is a composite of 12 indicators which are almost entirely adopted from the indicator of the Healthy Indonesia Program with Family Approach (*Program Indonesia Sehat dengan Pendekatan Keluarga* - PIS PK). This evaluation aims to analyze the impact of NS program on public health index using Pre and Post-Test Intervention with Control Design.

METHODS

This research is part of the three-year study that had been conducted in 2015 (pre), 2016 (mid) and 2017 (post). The selection of 120 Puskesmas (obtain the NS team) was carried out using a two-stage sample design and conducted at the time of pre in 2015. Then for this study was selected 30 Puskesmas from 120 Puskesmas in purposive method. 30 Puskesmas that obtain the NS team is called by the Puskesmas Intervention, whereas the puskesmas that is not obtain the NS team (but similar in geographical category and needs) is called a control, so there 60 Puskesmas were selected purposively from the available list of NS Program Batch 1 and 2 in 2015 covering 15 provinces, 27 districts. The time of research was conducted in February-December 2017.

This research is a program evaluation using a cross sectional research design with quantitative and qualitative methods which taken concurrently where scoring is emphasized on quantitative methods and qualitative methods as supporting data (Concurent Embedded Mixed Method). Quantitative research uses the Pre- and Post-Test Intervention design with Control Design.

The population is all households in the working area of the Puskesmas Intervention and Puskesmas Control. Samples were selected households located in the working area of the Puskesmas Intervention and Puskesmas Control. The unit of this study is an individual who is willing to be the subject of research (signing Informed Consent). Quantitative data were taken using questionnaire research instruments and anthropometric measurement tools. Qualitative data is taken through in-depth interviews by researchers according to the guidelines that have been designed, assisted with notes and, sound recording devices (recorders).

The sample selection was carried out using a two-stage sample design, which was purposively selected 30 Puskesmas Intervention and 30 Puskesmas Control from from the available list of NS Program Batch 1 and 2 in 2015. Then choose 30 clusters (*Rukun Tetangga* = Neighborhood Association) from each Puskesmas working area and choose households per cluster with systematic random. Data analysis included univariate and bivariate analysis with an independent t-test to compare pre- and post- conditions in the Puskesmas intervention and Puskesmas control if the data were normally distributed, and a dependent t-test to compare the conditions of the Puskesmas intervened in 2015 with 2017 and compare the conditions of Puskesmas control in 2015 with 2017.

Table 1. Summary of Research Methods

No.	Objectives	Type	Data Collection	Analysis Data
1	Measuring the variables included in the compiler indicators of IKM-NS year 2015 and 2017 on each Puskesmas intervention and Puskesmas control	Primary data	Structured interview with questionnaire.	Descriptive (univariat)
2	Analyze the compiler indicators of IKM-NS	Primary data	Measurement, literature review, and statistical analysis	Descriptive (Univariat: data transformation)
3	Analyze the conditions of the compiler indicators of IKM-NS year 2015 and 2017 on Puskesmas intervention	Primary data	Measurement, literature review, and statistical analysis	Analytical (independent t-test)
4	Analyze the conditions of the compiler indicators of IKM-NS year 2015 and 2017 on Puskesmas control	Primary data	Measurement, literature review, and statistical analysis	Analytical (independent t-test)
5	Analyze the changes in averages NS index year 2015 and 2017 on Puskesmas intervention	Primary data	Measurement, literature review, and statistical analysis	Analytical (independent t-test)
6	Analyze the changes in averages NS index year 2015 and 2017 on Puskesmas control	Primary data	Measurement, literature review, and statistical analysis	Analytical (independent t-test)
7	Analyze the significance of differences (delta changes) between the average index of Puskesmas interventions and Puskesmas control	Primary data	Measurement, literature review, and statistical analysis	Analytical (independent t-test)
8	Collecting qualitative data	Secondary data	In-depth interview	Reduction, display, conclusion/ verification

Then an independent t-test was conducted to see the significance of the difference between the Puskesmas intervention and the Puskesmas control. This research obtained ethical approval from the Ethics Comission of Health Reasearch - NIHRD Indonesia on March 15, 2017 Number LB.02.01/5.2/KE.080/2017.

RESULTS

The details and operational definitions on how to calculate indicators can be seen in Table 2 as follows:

Table 2. Indicator of the Nusantara Sehat Public Health Index Compiler

No	Indicator	Operational Definition
1	The mothers follow family planning program (*Keluarga Berencana* - KB)	The mothers are married and use family planning program then divided by the number of currently married mothers who use and not using family planning.
2	Ideal ANC	Pregnant mothers who had checked herself on Trimester I (1x), Trimester II (1x), dan Trimester III (2x) divided by all mothers who did pregnancy check-up at health facilities (ideally and not ideal)
3	Labor at health facilities	The numbers of mothers who had labor in health facilities for the past 3 years divided by numbers of mothers who had labor in health facilities and not
4	Complete immunization	The numbers of toddlers who had complete immunization divided by the total numbers of toddlers
5	Exclusive breastfeeding	Infants from 0 – 6 months old who had breastfeeding and still had only breastfeeding during the last 24 hours divided by the total numbers of infants from 0 – 6 months old
6	Children under 5 years growth and development	The children under 5 years who had been taking weight measurement 6 times a year and get vitamin A divided by the total numbers of children under 5 years.
7	TB patients get the treatment	The numbers of TB patients who had the treatment divided by total numbers of TB patients
8	Regular check-up for hypertension patient	The number of hypertension patient who had regular check-up divided by the total numbers of hypertension patients
9	Smoking behavior	Respondents ≥ 18 year-old who SMOKE [code: (1) Yes, smoking everyday. (2) Yes, sometimes. (3) No, but was smoking everyday. (4) No, but was smoking, divided by total respondents ≥ 18 year-old
10	Universal health coverage (*Jaminan Kesehatan Nasional* – JKN) membership (BPJS/KIS, Jamkesda, private insurance)	The numbers of respondents who has national health coverage (BPJS/KIS, Jamkesda, or private insurance) divided by the total respondents who has it and not
11	Access to clean water	Households who have water source which meet the KS indicator and the physical quality fulfill the health requirement divided by households who has water source
12	Family toilet	Households who has its own toilet with the right type according to KS indicator divided by total households who has their own toilet or not

The formulation of Nusantara Sehat Public Health Index was conducted based on Indonesia's Public Health Development Index (*Indeks Pembangunan Kesehatan Masyarakat* - IPKM) calculation. IPKM compiled and formulated by NIHRD Indonesia in 2007 based on Basic Health Reserch (Riskesdas) 2007, National Social Economic Survey (Susenas) 2007, and Survey of Village Potential (2008). Calculation of IPKM obtained copyrights from Indonesia Ministry of Justice and Human Right on July 8, 2011.[12]

Referring to the preparation of IPKM, in the preparation of the IKM-NS, the 12 indicators were scored based on the "Absolute", "Important", and "Necessary" category. Indicators categorized into

"Absolute" groups are given a score of 5, "Important" given a score of 4, and "Necessary" to be given a score of 3. It is categorized "Absolute" if the indicator directly affects the incidence of mortality. It is categorized as "Important" if the indicator does not directly affect the incidence of mortality but affects morbidity and its impact can lead to a wider incidence of morbidity and/or mortality. Whereas it is said "Necessary" if the indicator does not directly cause mortality and morbidity, but in general it will affect the health status of the community. Based on the discussion among the research team, the categorization of the 12 indicators was determined as follows:

Table 3. Category of Nusantara Sehat Public Health Indicator Compiler

No	Indicator	Category	Weight	Type
1	The mothers follow family planning program (*Keluarga Berencana* - KB)	Necessary	3	Favorable
2	Ideal ANC	Absolute	5	Favorable
3	Labor at health facilities	Absolute	5	Favorable
4	Complete immunization	Absolute	5	Favorable
5	Exclusive breastfeeding	Important	4	Favorable
6	Children under 5 years growth and development	Important	4	Favorable
7	TB patients get the treatment	Absolute	5	Non-favorable
8	Regular check-up for hypertension patient	Absolute	5	Non-favorable
9	Smoking behavior	Necessary	3	Favorable
10	Universal health coverage (*Jaminan Kesehatan Nasional* – JKN) membership (BPJS/KIS, Jamkesda, private insurance)	Necessary	3	Favorable
11	Access to clean water	Absolute	5	Favorable
12	Family toilet	Necessary	3	Favorable

In the preparation of IKM-NS, the scope of indicators for each Puskesmas (both Puskesmas intervention and Puskesmas control) was assessed based on community-based surveys. Each indicator has a value between 0-100. Each of favourable indicators (in percent) were multiplied by the weight of each indicator (see Table 3), each of non-favourable indicators were converted into positive value (100 minus proportion percentage of non-favourable indicators), which lead to equal positive value between favourable and non-favourable indicators.

It also determined the maximum value which may be obtained by the Puskesmas for each indicator. Due to the possibility that Puskesmas coverage for each indicator is between 0-100, the maximum value is: 100 x INDICATOR WEIGHT and the minimum value is: 0 x INDICATOR WEIGHT. The following is a simulation of value calculation for complete immunization indicators and smoking behavior. This assessment was then carried out for all intervention and control Puskesmas (60 Puskesmas) and for all selected indicators (12 indicators).

Table 4. Simulation of Complete Immunization Indicator Value and Smoking Behavior Calculation

No.	Puskesmas	Complete Immunization Coverage	Smoking Behavior	
			Proportion	Conversion value (100 – proportion)
1	Adaut	86,4	33,6	66,4
2	Badau	90,6	37,4	62,6
3	Balai Karangan	86,1	45,9	54,1
4	Bere-Bere	68,6	45,5	54,5
5	Bupul	71,0	49,8	51,2
6	Dorehkar	52,6	52,5	47,5
7	Enggano	75,7	52,0	48
8	Gemeh	82,8	46,5	53,5
9	Ilwaki	70,8	37,1	62,9
	Indicator Classification	Absolute (Weight 5)		Necessary (Weight 3)
	Maximum value	500		300
	Minimum value	0		0

Indicator Value (Value x Score)

No.	Puskesmas	Complete Immunization Coverage Score	Smoking Behavior Score
1	Adaut	432,0	199,2
2	Badau	453,0	187,8
3	Balai Karangan	430,5	162,3
4	Bere-Bere	343,0	163,5
5	Bupul	355,0	150,6
6	Dorehkar	263,0	142,5
7	Enggano	378,5	144,0
8	Gemeh	414,0	160,5
9	Ilwaki	354	188,7

Table 5. Theoritical Minimum and Maximum Value of Indicator of the Nusantara Sehat Public Health Index Compiler

No	Indicator	Weight	Theoritical Minimum Value	Theoritical Maximum Value
1	The mothers follow family planning program (*Keluarga Berencana* - KB)	3	0	300
2	Ideal ANC	5	0	500
3	Labor at health facilities	5	0	500
4	Complete immunization	5	0	500
5	Exclusive breastfeeding	4	0	400
6	Children under 5 years growth and development	4	0	400
7	TB patients get the treatment	5	0	500
8	Regular check-up for hypertension patient	5	0	500
9	Smoking behavior	3	0	300
10	Universal health coverage (*Jaminan Kesehatan Nasional –* JKN) membership (BPJS/KIS, Jamkesda, private insurance)	3	0	300
11	Access to clean water	5	0	500
12	Family toilet	3	0	300
	Total Score		0	5000

Furthermore, the calculation of the maximum value and minimum in theoretical and empirical values are carried out. Theoretical value is a value that is theoretically possible to occur (0 or 100). Empirical value is the value achieved by each Puskesmas (0-100).

Calculation of empirical values using the same calculation method, but using real coverage obtained based on the results of community surveys, as exemplified in Table 6. Calculations in the same way were carried out on all Puskesmas both in the intervention and control Puskesmas.

Determination of the index value is done by dividing the maximum empirical total value with the maximum theoretical total value, so that the IKM-NS obtained for each Puskesmas is intervention and control both at pre- (year 2015) and post- (year 2017). The complete calculation results can be seen in Table 7.

From the results in Table 7, it can be seen that there is an increase in the average index in 2017 both in the Puskesmas intervention and control when compared to the conditions in 2015. At first glance it is seen that changes in the index of the Puskesmas intervention are greater than the changes in the index at the Puskesmas control. These results are confirmed from calculations using SPSS software.

Table 6. Empirical Minimum and Maximum Value of Indicator of the Nusantara Sehat Public Health Index Compiler in Puskesmas Adaut, Badau, dan Balai Karangan

No	Indicator	Adaut	Badau	Balai Karangan
1	The mothers follow family planning program (*Keluarga Berencana* - KB)	121,3	203,2	185,4
2	Ideal ANC	285,7	450,0	411,8
3	Labor at health facilities	222,0	409,0	147,0
4	Complete immunization	432,0	453,0	430
5	Exclusive breastfeeding	200,0	0,0	0,0
6	Toddler growth and development	255,2	266,7	257,1
7	TB patients get the treatment	400,0	500,0	166,7
8	Regular check-up for hypertension patient	451,2	421,6	373,0
9	Smoking behavior	199,2	187,8	162,3
10	Universal health coverage (*Jaminan Kesehatan Nasional –* JKN) membership (BPJS/KIS, Jamkesda, private insurance)	170,7	123,0	213,0
11	Access to clean water	478,6	255,4	301,9
12	Family toilet	211,4	252,5	254,7
	Total Score	3427,311	3522,175	2903,427

Table 7. Nusantara Sehat Public Health Value Index in Puskesmas Intervention dan Puskesmas Control Year 2015 and 2017

Puskesmas Intervention	Year		Puskesmas Control	Year	
	2015	2017		2015	2017
Adaut	0,5214	0,6854	Ainiba	0,5133	0,6855
Badau	0,5048	0,7044	Bandar Khalifah	0,5349	0,5998
Balai Karangan	0,4787	0,5806	Daruba	0,6052	0,7110
Bere-Bere	0,4034	0,5782	Essang	0,4824	0,5373
Bupul	0,5269	0,6771	Galing	0,4918	0,5126
Dorehkar	0,4139	0,4095	Halilulik	0,5705	0,6634
Enggano	0,5350	0,5694	Hulu Gurung	0,5816	0,6414
Gemeh	0,4712	0,5773	Kanarilang	0,5485	0,6729
Ilwaki	0,4491	0,5509	Kelong	0,5540	0,6147
Kendahe	0,6342	0,7472	Kembayan	0,4739	0,6767
Lelang	0,3621	0,3808	Kuma	0,6727	0,7445
Long Ampung	0,4483	0,5708	Laulalang	0,4380	0,5156
Long Nawang	0,5198	0,6183	Long Loreh	0,4813	0,6799
Maritaing	0,4412	0,5931	Lorulun	0,5549	0,6189
Namfalus	0,4607	0,7380	Mahaleta	0,3501	0,3690
Ndao	0,4723	0,6407	Muting	0,4730	0,4813
Ogodeide	0,5053	0,5680	Pembeliangan	0,4831	0,5208
Rupat Utara	0,5211	0,5125	Rupat	0,5316	0,6298
Sabarmiokre	0,5538	0,6132	Serasan	0,5915	0,7334
Sajingan Besar	0,3800	0,4940	Simeulue	0,5312	0,5991
Sei Menggaris	0,4370	0,7288	Soenimanu	0,4474	0,5298
Serasan Timur	0,5417	0,6612	Sungai Boh	0,5286	0,6721
Silawan	0,5946	0,7036	Tanah Merah	0,4173	0,4990
Simeulue Cut	0,4470	0,6456	Tanjung Harapan	0,5549	0,6242
Skouw Mabo	0,5750	0,6256	Tounwawan	0,3734	0,3455
Sungai Guntung	0,3877	0,5278	Ujoh Bilang	0,4727	0,5866
Tambelan	0,6448	0,7927	Waygama	0,3895	0,5480
Tanjung Beringin	0,5099	0,7127	Weowe	0,5194	0,6407
Tiong Ohang	0,4181	0,4913	Yenggarbun	0,4900	0,6536
Wedomu	0,6149	0,7459	Yoka	0,6821	0,6684
Average Intervention Index	0,4925	0,6148	Average Control Index	0,5113	0,5992

Changes in the average index at the Puskesmas intervention and control:

Table 8. The Result of Paired Samples Statistic

Puskesmas	Year	Mean	N	Std.Deviation	Std.Error Mean
Control	2015	.51	30	.077	.014
	2017	.60	30	.097	.018
Intervention	2015	.49	30	.074	.013
	2017	.61	30	.100	.018

The results of the dependent t-test showed that changes that occurred both in the Puskesmas intervention and control were statistically significant with p = 0.000.

Results of the Puskesmas intervention and control dependent t-test:

Table 9. The Result of Paired Samples Test

Puskesmas	Paired Differences					t	df	Sig.(2-tailed)
	Mean	Std. Deviation	Std.Error Mean	95% Confidence Interval of the Difference				
				lower	Upper			
Kontrol 2015 – 2017	-.088	.059	.011	-.110	-.066	-8.214	29	.000
Intervensi 2015 – 2017	-.122	.071	.013	-.149	-.095	-9.349	29	.000

Then the independent t-test was tested to see the significance of differences (delta changes) between the Puskesmas intervention and control. The results showed that there was a statistically significant difference in the changes that occurred in the intervention Puskesmas compared to the control Puskesmas (p = 0.046).

The results of the Shapiro-Wilk data normality test showed that the data were normally distributed (p = 0.493).

Table 10. The Result of Test of Normality

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Delta	.054	60	.200*	.981	60	.493

a. Lilliefors Significance Correction
*. This is a lower bound of the true significance

The results of the independent t-test on the delta of the Puskesmas intervention were compared to the Puskesmas control:

Table 11. The Result of Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means					95% Confidence Interval of the Difference	
	F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std.Error Difference		Lower	Upper
Delta	Equal variances assumed	.513	.477	2.043	58	.046	.034	.010	.000	.068
	Equal variances not assumed		2.043	55.77	.046	.034	.016	.000	.068	

DISCUSSION

Indonesia is an archipelago that has more than 13,000 islands, stretching from Sabang to Merauke and from Miangas to Rote Island. This natural condition has implications for the distribution of health human resources and the difficulty of access the health services, especially in DTPK and DBK. To overcome this, the government seeks to specifically utilize health human resources within a certain period of time with a certain number and category, in order to improve access and quality of health services in health care facilities in these areas through the NS Program in accordance with the Minister of Health Regulation Republic of Indonesia No. 16 year 2017 concerning the Assignment of Health Personnel in the Nusantara Sehat Program, as well as the Permenkes No. 23 year 2015 concerning the special assignment of team-based health workforce (Team Based in supporting the Nusantara Sehat Program)[10,13]. As a embodiment of the Minister of Health Republic of Indonesia Regulation, the assignment of NS Batch 1 and 2 Team was conducted in 2015 in 120 DTPK and DBK Puskesmas. The assignment period of the NS Batch 1 and 2 from 2015 Team has ended in 2017, so the post-term evaluation is carried out, where the results will be compared with the pre-term results that have been carried out before the assignment of Team NS Batch 1 and 2 begins.

The evaluation results of the NS Batch 1 and 2 programs that have been conducted show that in 2017 there was a change in the average public health index compared to 2015, both in the Puskesmas intervention and control (p = 0,000). Then the independent t-test results of on delta index changes showed that the increase in the public health index in the Puskesmas intervention was greater than Puskesmas control (p = 0.046). It said the assignment of the NS Team to the Puskesmas has brought a better improvement in the public health index. The number of qualified human resources for health that fulfilled on an area can overcome and prevent disease or factors that threaten the health of high-risk groups.[14] The fulfillment of quality human resources for health is part of the strategy to achieve the goals in the

Sustainable Development Goals (SDGs) in reducing child mortality and improving maternal health.[14,15]

The Puskesmas control was chosen based on the similarity of characteristics with the Puskesmas intervention, such as the similarity of the Puskesmas working area conditions, the number of networks, service facilities, and the condition of available the health human resources. Based on the results of this study, it should be noted that the Puskesmas control that did not get the NS Team intervention also experienced an improvement in the public health index naturally, although the improvement in the index was not as large as the index improvement in the Puskesmas intervention, but statistically significant.

According to the researchers during preparation, monitoring and evaluation of the NS program, the implementation of the NS Batch 1 and 2 programs in the field was very diverse. This relates to the priority of health problems that vary from each placement area so it affects the innovation that is prioritized by each NS Team (qualitative results with the chair of the NS Team Batch 1 and 2). For example, Puskesmas in areas with high rainfall have initial data on health indicators related to improved access to clean water and NS teams in the area have more potential to conduct public health interventions regarding clean water, compared to Puskesmas in areas that tends to be dry and arid. Another example, in a Puskesmas with topography having preliminary data on health indicators related to delivery carried out in health care facilities, it tends to be better than Puskesmas with topographic waters or islands. Due to vehicle options that can be used to reach health care facilities through the mainland more than the waters or islands that have periodic or sudden high-wave challenges.

In measuring the population health needed a constituent factor that clearly measured, there was comparability of indicators, and the use of appropriate statistical models to analyze.[16,17,18,19] The public health index in this study was adopted and compiled from the determinants of basic health in accordance with the Health Goals that we have and is a composite of 12 indicators adopted from the PIS-PK Program indicators. Therefore, this study has been able to describe temporarily how the impact of the Team NS Batch 1 and 2 assignments on the public health index in the Puskesmas work area was selected in 2017. However, this research still needs to be developed and associated with other research related to the NS program, more factors can be explained to help improve and improve the public health index.

In conclusion, from From this study, it can be concluded that the public health status in 2017 experienced a statistically significant improvement compared to 2015, both in the Puskesmas intervention and Puskesmas controls. If it is viewed from the comparison of delta changes or the significance of differences at the end of the observation, the improvement of the public health index in the Puskesmas intervention is greater than Puskesmas control. That is, the presence of the NS Team in the Puskesmas intervened could bring a greater improvement in the public health index compared to the Puskesmas control.

Suggestion

Based on these conclusions, it is recommended that further observations be made regarding the sustainability of the NS Program and the need for cost benefit analysis of the NS Program.

Acknowledgments

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