

## Knowledge, Attitude, and Practice Survey among Nurses in Dr. Hasan Sadikin General Hospital toward Tuberculosis-Human Immunodeficiency Virus Collaboration Program

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### Abstract

**Background:** One of the barriers on implementation of Tuberculosis-Human Immunodeficiency Virus (TB-HIV) collaboration is lack of health care workers' knowledge to this program. This study aimed to measure level of knowledge, attitude, and practice among inpatient nurses in Dr. Hasan Sadikin General Hospital toward TB-HIV collaboration program and to measure their correlation.

**Methods:** This was a cross-sectional study with total sampling method which started on May–October 2013 at Internal Medicine Department ward in Dr. Hasan Sadikin General Hospital. Knowledge, attitude, and practice of research subjects were measured using modified questionnaire about TB-HIV collaboration program, based on guidelines from WHO and National Ministry of Health.

**Results:** Of 88 respondents, there were no respondent had high level, 33 respondents (38%) had moderate level, and 55 respondents (63%) had low level of knowledge toward collaboration. For attitude, 53 respondents (60%) had positive attitude and 35 respondents (40%) had negative attitude. The study also showed 48 respondents (55%) had positive practice and 40 respondents (46%) had negative practice. The correlation between knowledge and attitude, knowledge and practice, and attitude and practice were not statistically significant ( $p > 0.05$ ).

**Conclusions:** The level of knowledge among inpatient nurses in Dr. Hasan Sadikin General Hospital toward TB-HIV collaboration program was low but they showed positive attitude toward the collaboration itself. There was no correlation between knowledge, attitude, and practice among inpatient nurses toward collaboration. Further efforts were needed to improve nurses' knowledge, attitude, and practice on TB-HIV collaboration. [AMJ.2016;3(1):85–92]

**Keywords:** Attitude, knowledge, nurses, practice, TB-HIV

### Introduction

Tuberculosis (TB) is the most common opportunistic infection among Human Immunodeficiency Virus (HIV) infections.<sup>1</sup> In 2012, 320,000 people died of TB-HIV and there were an estimated 1.1 million new TB-HIV cases.<sup>2</sup> Indonesia was included as one of the high TB-HIV burden countries and ranked fourth as a country with the most TB-HIV cases in Southeast Asia Region.<sup>3</sup> The prevalence of HIV infection among new TB cases was 3% while according to second quarterly report in 2011 the prevalence of TB among AIDS cases was 50%.<sup>4</sup> Indonesia was increasingly important in the global TB-HIV control.<sup>5</sup>

The World Health Organization (WHO) and

Stop TB Partnership devised an international policy guideline toward TB-HIV collaboration which important to monitor TB-HIV collaboration and to decrease the mortality of TB-HIV patients.<sup>6-8</sup> Nevertheless, there were still some barriers in implementation of collaboration. Lack of knowledge and skill of health care workers are one of some barriers in collaboration beside the limitedness of health care workers, infrastructure of the hospital, drug supply, referral system, and internal factors of patients.<sup>5,9-11</sup> This lack of knowledge among health care workers could lead to denied access among patients to health services, suboptimal health care services and lead to an increasing non communicable disease burden and death.<sup>12</sup> The studies

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regarding level of knowledge, attitude, and practice among health care workers toward TB-HIV collaboration at Dr. Hasan Sadikin General Hospital have yet never been done. This study aimed to measure level of knowledge, attitude, and practice among inpatient nurses in Dr. Hasan Sadikin General Hospital toward TB-HIV collaboration program and to measure their correlation.

## Methods

This cross-sectional study was conducted in May–December 2013. Inpatient nurses in Dr. Hasan Sadikin General Hospital who actively involved in TB-HIV collaboration had been given informed consent. The nurses willing to complete a questionnaire were selected as research subjects. Total sampling or survey method was used in this study because of a few researches discussing specifically about knowledge, attitude, and practice survey among health care workers toward this program.

The study used primary data, a modified questionnaire based on guidelines from WHO and National Ministry of Health, which was proved by Health Research Ethics Committee and applied in October 2013 at Internal Medicine Department ward of Dr. Hasan Sadikin General Hospital. The questionnaire consisted of questions about characteristics of respondent and questions about knowledge, attitude, and practice among inpatient nurses toward TB-HIV collaboration program. Knowledge questions were 21 items in multiple choice questions. Attitude questions were 21 items and practice questions were 9 items, in likert scale.

Validation of questionnaire had been conducted on July–September 2013. Validity testing conducted were face validity, a validity test by consultation with the experts about the contents, either by TB or HIV doctors' team, and content validity resulting a strong and very strong correlation. Reliability testing was also measured using  $\alpha$ -cronbach value ( $\alpha=0.749$ ) which means strong or high correlation. Afterward, the valid questionnaire was applied with an agreed mechanism by the room leaders in each department.

The collected data was then analyzed. In the beginning, an investigation whether the data is distributed normally (parametric test) or not (nonparametric test) using Kolmogorov-Smirnov was done. Level of knowledge was categorized into high, moderate, and low

level based on classification of knowledge by Arikunto. It can be called as high if percentage  $\geq 75\%$ , moderate if  $56\% \leq$  percentage  $< 75\%$ , and low if percentage  $< 56\%$ . Attitude of respondents was categorized into positive attitude (percentage  $\geq$  median) and negative attitude (percentage  $<$  median). Practice was assessed based on respondents assumption and was categorized into positive practice (percentage  $\geq$  median) and negative practice (percentage  $<$  median). When data distribution is normal, correlation bivariate analyses test or correlative hypothesis testing uses Pearson test. Instead of that, test used Spearman test.

## Results

From 111 research subjects, 88 questionnaires had been obtained from nurses who agreed to become respondents and signed informed consent sheet. Other 23 nurses could not fill the questionnaire because of study and pilgrimage issues.

From 88 respondents, only 12 nurses (14%) had attended TB-HIV training, including DOTS (Directly Observed Treatment, Short-course) training, collaborative TB-HIV, PMDT (Programmatic Management of Drug-resistant TB), HDL (Hospital DOTS Linkage), PITC (Provider-Initiated Counseling and Testing) & VCT (Voluntary HIV Counseling and Testing), MDR-TB (Multi-drug-resistant tuberculosis), IMAI (Integrated Management of Adolescent and Adult Illness), palliative care for PLWA (People Living with HIV/AIDS), and treatment compliance.

Survey presented there were no respondent had high level, 33 respondents (38%) had moderate level, and 55 respondents (63%) had low level of knowledge toward collaboration.

Median of attitude percentage in this study was 80% with minimum 67% and maximum 95%. This survey results stated that 53 respondents (60%) had positive attitude and 35 respondents (40%) had negative attitude.

Median of practice percentage in this study was 40% with minimum 20% and maximum 80%. In 88 inpatient respondents, 48 respondents (55%) had positive practice and 40 respondents (46%) had negative practice.

In Kolmogorov-Smirnov test, knowledge, attitude, and practice score have  $p=0.000$ . Because of  $p<0.05$ , these three variables had not normal distribution. In Spearman test, the correlation between knowledge and attitude of the respondents was negative and very weak ( $r=-0.069$ ), not statistically significant

**Table 1 Characteristic of Respondents**

Variable	Frequency	Percentage (%)
Age		
20-29 years	33	38
30-39 years	41	47
40-49 years	12	14
50-59 years	2	2
Sex		
Male	22	25
Female	66	75
Employment status		
Civilian employee	62	71
Contract staff	22	25
Others	4	5
Length of civilian employee		
<2 years	2	2
2-10 years	37	42
>10 years	23	26
Department		
1st floor Fresia	14	16
2nd floor Fresia	24	27
3rd floor Fresia	23	26
Flamboyan	11	8
1st floor Kemuning	7	10
5th floor Kemuning	9	13
Profession		
S1 Keperawatan	17	19
D3 Keperawatan	70	80
SPK/SPR	1	1
Length of work		
≤10 years	71	81
>10 years	17	19
TB-HIV training which had been accepted		
Ever	12	14
Never	76	86

( $p > 0.05$ ). The correlation between knowledge and practice of the respondents was positive and very weak ( $r = 0.153$ ), not statistically significant ( $p > 0.05$ ). The correlation between attitude and practice of the respondents was also positive and very weak ( $r = 0.155$ ), not

statistically significant ( $p > 0.05$ ).

In Kolmogorov-Smirnov test, knowledge, attitude, and practice score have  $p = 0.000$ . Because of  $p < 0.05$ , these three variables had not normal distribution. In Spearman test, the correlation between knowledge and attitude

**Table 2 Description of Level of Knowledge among Respondents toward TB-HIV Collaboration Program**

	Know		Do not know	
	N	%	N	%
1. Objectives of TB-HIV collaboration implementation in Indonesia	61	69	27	31
2. Model of TB-HIV collaboration program service in Dr. Hasan Sadikin General Hospital	5	6	83	94
3. Example of TB-HIV collaboration activities to decrease TB burden for PLWAs	38	43	50	57
4. Example of TB-HIV collaboration activities to decrease HIV burden for TB patients	48	55	40	46
5. Control of TB infection in health care services and specific places.	75	85	13	15
6. Role of health care workers in TB-HIV collaboration	66	75	22	25
7. Role and function of nurses in TB unit	86	98	2	2
8. Screening of TB in PLWA	66	75	22	25
9. Thorax x-ray examination for TB suspects AFB negative in diagnosis of TB for PLWH	43	49	45	51
10. Strategy of HIV testing and counseling in TB patients to decrease HIV burden in TB patients	4	5	84	96
11. Definition of PITC (Provider Initiated Testing and Counseling)	37	42	51	58
12. Principal of PITC implementation	60	68	28	32
13. Action of PITC implementation in DOTS unit	69	78	19	22
14. Referral system in TB-HIV collaboration services	6	7	82	93
15. Indication of cotrimoxazole therapy	20	23	68	77
16. Recording of HIV cases in TB program	28	32	60	68
17. Reporting of collaborative TB-HIV program	33	38	55	63
18. Reporting of collaborative TB-HIV program from HIV unit	19	22	69	78
19. The success indicator of TB-HIV collaboration program	75	85	13	15
20. The success indicator of TB-HIV collaboration activities in HIV unit	42	48	46	52
21. The success indicator of TB-HIV collaboration activities in TB unit	45	51	43	49

of the respondents was negative and very weak ( $r=-0.069$ ), not statistically significant ( $p>0.05$ ). The correlation between knowledge and practice of the respondents was positive and very weak ( $r=0.153$ ), not statistically significant ( $p>0.05$ ). The correlation between attitude and practice of the respondents was also positive and very weak ( $r=0.155$ ), not statistically significant ( $p>0.05$ ).

## Discussion

Survey presented that there were no respondent had high level, 33 respondents (38%) had moderate level, and 55 respondents (63%) had low level of knowledge toward collaboration. The study showed that the level of knowledge of respondents was mostly low and lower if compared to the research conducted by Tikuye<sup>13</sup> about knowledge,

**Table 3 Description of Attitude of Respondents toward TB-HIV Collaboration Program**

Statement	VA n (%)	A n (%)	D n (%)	NA n (%)	VNA n (%)
1. Implementation of TB-HIV collaboration in Indonesia is important to decrease TB and HIV burden in society.	72 (82)	15 (17)	1 (1)	0 (0)	0 (0)
2. Model of TB-HIV collaboration service should be appropriate with health care facility condition.	36 (41)	51 (58)	1 (1)	0 (0)	0 (0)
3. In my opinion, TB-HIV collaboration program increases my work burden as health care worker.	19 (22)	48 (55)	16 (18)	2 (2)	3 (3)
4. In my opinion, TB-HIV collaboration activities purposed to decrease HIV burden in TB patients are important to do, beside to decrease TB burden in PLWA.	51 (58)	37 (42)	0 (0)	0 (0)	0 (0)
5. In my opinion, effort to control both of TB infection and HIV infection will make stigmatization and discrimination to TB and HIV patients.	8 (9)	17 (19)	12 (14)	38 (43)	13 (15)
6. In my opinion, just counselor and doctor had a right to do TB screening, whereas nurses had not.	19 (22)	48 (55)	11 (13)	5 (6)	5 (6)
7. In my opinion, assessment of HIV risk factor in TB patients and patient reference to HIV unit can be done by both doctors and nurses in TB services.	19 (22)	59 (67)	6 (7)	3 (3)	1 (1)
8. In my opinion, TB screening only needs to do to PLWH who complain TB sign and symptom.	13 (15)	40 (46)	3 (3)	22 (25)	10 (11)
9. AFB examination is important to diagnose TB for PLWH.	43(49)	38(43)	0(0)	7(8)	0(0)
10. One of HIV testing and counseling strategy for TB patients in Indonesia is toward screening of risk factor.	22 (25)	58 (66)	5 (6)	3 (3)	0 (0)
11. PITC which had been done to TB patients is an effort to decrease HIV burden in TB patients.	25 (28)	50 (57)	12 (14)	1 (1)	0 (0)
12. Communication, information, and education about TB-HIV is important to give to patients before doing PITC.	29 (33)	54 (61)	1 (1)	3 (3)	1 (1)
13. In my opinion, HIV risk factor screening in TB patients is very important for early TB-HIV cases finding.	24 (27)	63 (72)	1 (1)	0 (0)	0 (0)
14. In my opinion, it is important to know whether the TB patients are HIV positive or not to determine the appropriate treatment.	32 (36)	54 (61)	1 (1)	1 (1)	0 (0)
15. Cotrimoxazole therapy for PLWH is purposed to decrease the number of morbidity and mortality because of co-infected or not with TB.	16 (18)	62 (71)	8 (9)	2 (2)	0 (0)
16. Recording and reporting of TB-HIV collaboration program is important to do in TB and HIV unit.	36 (41)	52 (59)	0 (0)	0 (0)	0 (0)
17. In my opinion, monitoring and evaluating of TB-HIV collaboration program is important to determine the accomplishment of program by indicator of program success.	24 (27)	63 (72)	0 (0)	0 (0)	1 (1)
18. In my opinion, important components in monitoring and evaluating of TB-HIV collaboration program are recording and reporting process.	20 (23)	65 (74)	3 (3)	0 (0)	0 (0)
19. In my opinion, data in TB-HIV collaboration report should be integrated between TB and HIV unit, so it makes easier data tabulation and analysis.	37 (42)	47 (53)	2 (2)	1 (1)	1 (1)
20. In my opinion, total of PLWH receiving TB service is one of important indicator for TB-HIV collaboration program success in HIV care unit.	28 (32)	57 (65)	2 (2)	0 (0)	1 (1)
21. In my opinion, total of HIV positive patients receiving cotrimoxazole preventive therapy is important indicator for TB-HIV collaboration program success in TB care unit.	20 (23)	45 (51)	19 (21)	2 (2)	2 (2)



**Table 4 Description of Practice of Respondents toward TB-HIV Collaboration Program**

Statement	A n (%)	O n (%)	S n (%)	SE n (%)	N n (%)
1. Attending the TB-HIV collaboration meeting in Dr. Hasan Sadikin General Hospital.	1(1)	4(5)	6(7)	14(16)	63(72)
2. Doing TB screening to PLWHs.	7(8)	19(22)	16(18)	27(31)	19(22)
3. Doing HIV risk factor screening to hospitalized TB patients.	12(14)	13(15)	24(27)	22(25)	17(19)
4. Asking TB patients to be done HIV examination.	2(2)	13(15)	11(13)	31(35)	31(35)
5. Giving information about the result of HIV testing in TB patients.	0(0)	3(3)	16(18)	18(21)	51(58)
6. Giving information about TB screening to PLWHs.	3(3)	14(16)	21(24)	23(26)	27(31)
7. Giving communication, information, and education to hospitalized TB patients about HIV/AIDS.	2(2)	12(14)	26(30)	22(25)	26(30)
8. Attending the collaborative TB-HIV training.	0(0)	1(1)	8(9)	11(13)	68(77)
9. Filling the TB05 form for sputum examination demand.	9(10)	11(13)	26(30)	14(16)	28(32)

Note: \* A=always; O=often; S=sometimes; SE=seldom; N=never

attitude, and practice of health care providers towards Isoniazid Preventive Therapy (IPT) provision in Addis Ababa, Ethiopia. That research concluded that from 104 health care providers, 74 respondents (71%) had high knowledge towards IPT, 29 respondents (28%) had moderate knowledge, and only one respondent (1%) had low knowledge. This could be caused by many respondents who had been trained in collaborative TB-HIV, including IPT.<sup>13</sup>

In Dr. Hasan Sadikin General Hospital, TB-HIV training had always been conducted but only a few nurses had attended TB-HIV training. From 88 respondents, only 12 respondents (14%) who had attended TB-HIV training and 76 respondents (86%) had not. A research in Uganda by Okot-Chono<sup>14</sup> and Uwimana et al.<sup>15</sup> explained that collaborative TB-HIV activities might not have been well implemented due to lack of training of TB-HIV collaboration for all health care workers related to this collaboration, besides minimal follow-up supervising after training, lack of structural collaborative TB-HIV mechanism in facilities, low and unstandardized collaborative TB-HIV stipend for health care workers leading demotivation, and lack of manual for TB-HIV collaboration.

In addition, a study from Pakenham-Walsh et al.<sup>12</sup> stated that lack of knowledge of health care workers was due to little access to information among health care workers and failure of international information policies. A clear, authoritative, referenced manual was also important for avoiding discrepancies between recommended services and practice. A study also revealed that active participation

like training of health care workers was fundamental.<sup>12</sup>

This study illustrated that over 50% of respondents seemed did not know about model of TB-HIV collaboration service in Dr. Hasan Sadikin General Hospital that was a parallel model because of the independent between unit TB and unit HIV.<sup>4</sup> This study also found that over 50% of respondents appeared did not know about the strategy of HIV testing and the definition of PITC. A study of Okot-Chono<sup>14</sup> said that it is important to know PITC in TB-HIV collaboration since the implementation of PITC will increase the number of TB-HIV patients who were screened for HIV resulting in lower rates of morbidity and mortality of TB-HIV patients. Over 50% respondents also appeared did not know about referral system, therapy, recording, and reporting in TB-HIV collaboration.

An analysis of interaction between TB-HIV programs in Sub-Saharan Africa<sup>16</sup> established by WHO showed that the lack of knowledge of health care workers was caused by low national awareness to TB-HIV interaction, lack of priority to collaborative TB-HIV activity, lack of resources, lack of ability from an organization in implementation of TB-HIV collaboration program, and lack of communication between two units.

This survey revealed that there were 53 respondents (60%) had positive attitude and 35 respondents (40%) had negative attitude. The study has the same result with a study conducted in Ethiopia by Tikuye<sup>13</sup> which attitude of health care workers toward IPT practice in average was positive attitude (69%). This is due to the high level of knowledge of

the IPT.<sup>13</sup> Awareness of duty and authority of respondents in TB-HIV collaboration program were might had been good. It was evidenced by more than 50% respondents' statement that they were willing to give service for TB-HIV patients and nurses have rights doing TB and HIV screening.

The study revealed that there were 48 respondents (55%) had positive practice and 40 respondents (46%) had negative practice. Practice of respondents of the study in TB-HIV collaboration generally was relatively less when compared to practice of health care providers towards IPT practice in the study by Tikuye<sup>13</sup> that good practice in average (81.7%) and the rest had fair practice.

Over 50% of respondents stated that they have never attended TB-HIV collaboration meeting and training as well as have been given information about result of HIV testing to TB patients. Most of respondents also stated that they hardly or have never done TB screening to PLWHs and HIV risk factor screening to hospitalized TB patients. They also have never asked TB patients for doing HIV examination have never given information about TB screening and HIV/AIDS, and have never filled the TB05 form for sputum examination.

This was similar to a research conducted by Okot-Chono<sup>14</sup> which explained that the implementation of TB-HIV collaboration in the recording and reporting of TB-HIV cases was somewhat poor. Then, from sample of 28 patients with HIV in the Forum Group Discussion (FGD), 21% had never been screened for TB.<sup>14</sup> One of the causes was due to the lack of knowledge among health care providers about the program and policy of the collaboration and the role of each health care providers in collaboration itself.<sup>14</sup> Negative practice of these respondents might be caused by different program and policy structure between Dr. Hasan Sadikin General Hospital and National Ministry of Health, as well as lack of an internationally agreed package of care for TB-HIV patients.<sup>16</sup>

This study found that there was no correlation between knowledge, attitude, and practice among respondents toward collaboration itself. It might indicate that their knowledge, attitude, and practice were built independently each other.<sup>17</sup> A research of IPT practice by Tikuye<sup>13</sup> explained that there was a significant relationship between knowledge and attitude ( $p=0.000$ ), which meant a high level of knowledge would form a positive attitude. However, there was no significant relationship between knowledge and practice

( $p=0.368$ ) as well as between attitude and practice ( $p=0.257$ ) IPT. Limitations of this study were restricted time for data collection. Therefore, questionnaires were applied to each room leader and took one week later. Because of the self-report questionnaires, the honesty of respondents' answers should be questioned.

In conclusion, knowledge among inpatient nurses in Dr. Hasan Sadikin General Hospital toward TB-HIV collaboration program was mostly low, attitude among most inpatient nurses toward this program was positive, but practice among inpatient nurses toward this program was still lacking. Nevertheless, there was no statistically significant correlation between knowledge, attitude, and practice among inpatient nurses toward TB-HIV collaboration program.

Suggestion from this study was there is a need to increase TB-HIV collaboration training and enclose more health care workers who active in this program for joining the training, provisioning of follow up after TB-HIV collaboration training, constructing specific modules for the program, increasing communication and integration of TB-HIV collaboration, involving TB & HIV community in every TB-HIV workshops, and integrating political commitment in TB-HIV collaboration. For the next research, it was suggested to prolong time of data collection for more reliable data collection method, by an example to gather the respondents in a room for answering the questionnaires collectively.

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