KNOWLEDGE, AWARNESS AND WILLINGNESS OF WOMEN LIVING WITH HIV ON FOLLOW-UP AT JINKA GENERAL HOSPITAL REGARDING CERVICAL CANCER SCREENING: THE APPLICATION OF A HEALTH BELIEF MODEL

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ABSTRACT

BACKGROUND: Cervical cancer is one of the leading causes of death in women worldwide. Women living with Human Immunodeficiency virus are at higher risk of acquire cervical cancer. Despite the importance of screening, the proportion of willingness for screening among these women is low in Ethiopia. Therefore, this study aimed to determine the magnitude of willingness for cervical cancer screening and its associated factors among women living with HIV.

METHODS: A facility-based cross-sectional study was conducted from March 14 to May 8, 2018. 341 women were selected by using systematic sampling method among adult HIV positive women attending treatment at Jinka General Hospital. The data were collected using an interviewer-administered questionnaire.
Bivariate and multivariable logistic regression analyses were used to determine the presence and the strength of association between dependent and independent variables by using odds ratio with 95% confidence interval.

RESULTS: The status of willingness for cervical cancer screening was 56.9% (95%CI; 51.6%, 62.1%). Women aged 40 years and above (AOR=2.58; 95% CI = 1.21-5.45), having two or less number of children (AOR=2.49; 95% CI =1.3-4.78), having awareness about cervical cancer screening (AOR = 4.85; 95% CI = 2.56-9.17), high perceived susceptibility (AOR=5.02;95%CI=2.74-9.18) and low perceived barrier (AOR=9.87; 95% CI = 5.34-18.31) were found to increase willingness for cervical cancer screening.

CONCLUSIONS: The finding of this study has important indications which call for a wide ranged public health approach directed to cervical cancer and its screening among HIV-positive women. The willingness, knowledge and awareness for cervical cancer screening is low. This calls for the need to create awareness and educate HIV-positive women about the availability of screening and usefulness of utilizing the screening service by using different mass media. Being young , having two or fewer number of living children, awareness about cervical cancer screening, perceived susceptibility, and perceived barriers were predictors of willingness for cervical cancer screening.

KEY WORDS: Cervical, Cancer, Willingness, screening, Jinka.

(The Ethiopian Journal of Reproductive Health; 2021; 14;20-31)

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INTRODUCTION

Cervical cancer is a cancer of the cervix which is the easiest gynecologic cancer to prevent and has a gradual onset with precancerous change. Globally, it accounts for 7.5% of all female cancer deaths[1–3]. Prevention and intervention at an early stage have a 100% cure rate and long survival. Persistent infection with one of the high-risk human papillomavirus (HPV) especially HPV 16 and 18 is the most common cause of cervical cancer cases [4–6].

Every year, more than 528,000 women develop cervical cancer and about 266,000 women die from the disease worldwide[2]. Over the past decades, the incidence and mortality had dropped in high-income countries. In contrast, similar success has not yet been achieved in low and lower-middle-income countries where the incidence is increasing. This drastic difference is due to the lack of access to effective screening and services that facilitate early detection and treatment [1,5,7].

Many countries that have a high rate of cervical cancer morbidity and mortality are also burdened with HIV, such as those in sub-Saharan Africa. Even if all women are at risk for cervical cancer, women infected with HIV have an increased risk for the development of cancer due to certain risky behavior like multiple sexual partners and HIV associated immunosuppression, which lead to decreased HPV clearance and accelerate malignant transformation[3,8]. This can put women in a devastating condition with a very high human, social and economic cost.[2].

Despite the high risk for acquiring cervical cancer in HIV positive women, willingness, awareness, knowledge, and acceptability of screening is low. In Nigeria for example, 34.5% of respondents were aware of cervical cancer screening but only 9.4% of respondents had ever been screened for cervical cancer [9]. In a study in Addis Ababa, Ethiopia, more than a third of participants (37.3%) were not willing to be screened due to fear of being positive for the test and assuming the test as time-consuming and high cost[10].

Even though HIV treatment guidelines of Ethiopia recommend prevention and screening of cervical cancer as a key element in chronic HIV care, only 1% of eligible women receive screening for cervical cancer. Similarly, cervical cancer screening remains very low across several countries in SSA because of low levels of awareness, challenges with health-seeking behavior, non-willingness among patients, and low accessibility of the screening services and health system barriers[11].

Moreover, there are very few studies done on cervical cancer and its screening in Ethiopia. However, These studies were limited by not addressing the behavioral determinants of willingness for cervical cancer screening. Similarly, no study has been done in the study area on willingness for cervical cancer screening and its determinates. So, this study aimed at determining the status of willingness for cervical cancer screening and determinant factors among HIV positive women on HIV care by using Health belief model in order to identify behavioral related determinants, with the hope that the findings of the study will be used by decision-makers to improve the program. (Figure 1).

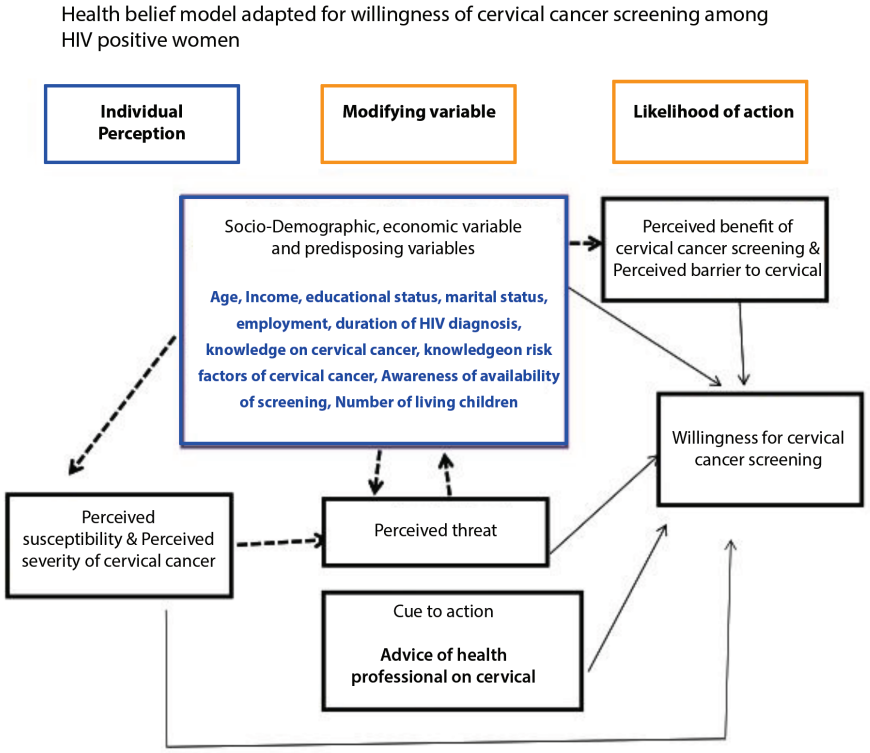

Figure 1 conceptual frame work for willingness to cervical cancer screening and associaed factor among HIV positive women on followup at Jimka General Hospital adapted from Stretcher V. Rosen stock I,M(1997)

METHOD AND MATERIALS

Study design and area: This facility-based cross-sectional study was conducted in ART treatment units of Jinka General Hospital from March 14 to May 8, 2018. Jinka General Hospital is found in Jinka town, South Omo Zone, Southern, Ethiopia.

Study population: The study population for this study were randomly selected women living with HIV/AIDS and on follow-up at Jinka General Hospital during the study period.

Inclusion and Exclusion criteria: Inclusion criteria considered for this study were all HIV positive women who were on follow- up at Jinka General Hospital and aged 18 years and above, Women who had screening for cervical cancer and had positive screening test were excluded from the study.

Sample size determination: A single population proportion formula was used to determine the required sample size based on the following assumptions. The proportion of HIV positive women willing to cervical cancer screening was assumed to be 62.7% (10) .With 95% level of confidence and, 5% margins of error, the required sample size was calculated to be 358.

Sampling technique: The respondents for this study were selected by using systematic random sampling technique.

Operational definitions

Willingness for cervical cancer screening: By asking the question, "Are you willing to be screened for cervical cancer?"If a woman responded yes, she was regarded as willing, otherwise she was regarded as not willing.

Awareness of cervical cancer screening: if a woman answers at least two and above awareness related questions correctly she was regarded as having awareness on cervical cancer testing, otherwise she was regarded as being not aware [9].

Knowledge of cervical cancer: if a woman answered correctly 6 and above questions out of 12 cervical cancer knowledge related questions, she was regarded as knowledgeable about cervical cancer, otherwise she was regarded as not knowledgeable.[9]

Perceived susceptibility: If a woman scored above

the mean score of perceived susceptibility related questions she was regarded as having high perceived susceptibility, otherwise she was regarded as having low perceived susceptibility.

Perceived severity: If a woman scored above the mean score of perceived severity related questions she was regarded as having high perceived severity, otherwise she was regarded as having low perceived severity.

Perceived benefit: If a woman scored above the mean score of perceived benefit related questions she was regarded as having high perceived benefit, otherwise she was regarded as having low perceived benefit.

Perceived barriers: If a woman scored above the mean score of perceived barrier related questions she was regarded as having high perceived barrier, otherwise she was regarded as having low perceived barrier.

Data collection instrument and procedures: Data were collected using interviewer administered structured-questionnaires. The questionnaire included socio-demographic and economic, knowledge on cervical cancer and awareness on cervical cancer screening, willingness for screening and perception of cervical cancer-related questions. To measure perception about cervical cancer, the Health Belief Model Scale for Cervical cancer and the Pap Smear Test' was used in four subscales: susceptibility, seriousness, benefits, and barriers [12]. The questionnaire was initially prepared in English and then translated into Amharic and back to English to ensure its consistency. Then it was pretested in Arba Minch hospital on 5% of the sample size (16 women).

Data quality management: In addition to the pretest, all the data collectors and supervisors were given 2 days training on data collection techniques and procedures. Two BSc Nurses for data collection and one Health Officer for supervision was recruited from ART clinic in the Hospital and trained for two days on data collection. Supervision was done by supervisors to check for completeness, and consistency of the collected data throughout the data collection period. Errors identified during data collection were corrected accordingly at the field and those errors occurred during/after data entry were corrected by revising the original questionnaire.

Data processing and Analysis: Data were coded and entered into EpiData version 3.1 and exported to SPSS version 23 for analysis. First, descriptive analysis was done to describe the variables involved in the study. Then the prevalence of willingness was computed. Chi-square test of association was conducted to assess the association between each categorical variable with the outcome variable and to identify candidate variables (with p-value ≤ 0.25) to be included in the multivariable logistic regression model. Then the multivariable logistic regression model was fitted using a backward stepwise variable selection method to identify variables independently associated with the outcome variable of interest at a 5% significance level. The AOR and the corresponding 95% CI for the variables in the final model were reported. The goodness of fit of the final model was assessed using Hosmer and Lemeshow goodness of fit test and the test had p-value of 0.73.

Ethical consideration: Ethical clearance was obtained from the Institutional Review Board (IRB) of the Institute of Health of Jimma University. Then, a formal letter was obtained to South Omo Zone Health Office and Jinka General Hospital. An informed consent was obtained from each study participant before conducting data collection. The names of respondents or any identifiers were not included in the questionnaire.

RESULT

Socio-demographic characteristics

A total of 341 respondents participated in this study with a response rate of 95.25%. The mean age of the participants was 32.8± 7.7 years. (Table 1).

Table 1: Socio-demographic, economic and obstetric characteristics of HIV positive women attending adult ART clinic in Jinka General Hospital , Southern Ethiopia, May 2018 (n=341).

Variable	Category	Frequency	Percent (%)
Age in years	18-29	99	29.0
	30-39	108	31.7
	≥40	134	39.3
Educational status	No formal education	207	60.7
	Primary	63	18.5
	Secondary	50	14.7
	College and above	21	6.2
Religion	Orthodox	194	56.9
	Protestant	101	29.6
	Muslim	33	9.7
	Other a	13	3.8
Ethnicity	Ari	168	49.3
	Amhara	82	24.0
	Mursi	51	15.0
	Oromo	19	5.6
	Tigray	13	3.8
	Otherb	8	2.3
Occupation	Housewife	93	27.3
	Daily laborer	75	22.0
	Government employee	64	18.8
	Merchant	31	9.1
	Student	29	8.5
	Farmer	26	7.6
	Private employee	23	6.8
Marital status	Married	184	53.9
	Divorced	63	18.5
	Single	58	17.0
	Widowed	36	10.6
Income	Have no regular monthly income	145	42.5
	Have regular monthly income	196	57.5
Number of pregnancy	Null gravida	72	21.1
	1-2	77	22.6
	3-4	109	32.1
	≥ 5	83	24.3
Number of deliveries	Nulliparous	4	1.5
	1-2	107	39.8
	3-4	94	34.9
	≥5	64	23.8
Living children	≤ 2	202	59.2
	≥ 3	139	40.8
Duration of HIV diagnosis	≤ 5 years	185	54.3
	6-10 years	143	41.9
	11-15 years	13	3.0

Others a = Catholic, Adventist, and Jewish; Others = Gofa, Gamo

Knowledge about cervical cancer

Overall, 91 (26.1%) of the respondents were knowledgeable about cervical cancer.

Table 2: Knowledge of cervical cancer among HIV positive women attending adult ART clinic in Jinka General Hospital , Southern Ethiopia, May 2018

Variable		Frequency	Percent
Did you hear about Cervical Cancer?	Yes	131	38.4
	No	210	61.6
Source of information	Health professional	108	31.7
	Other	231	68.3
Risk factor for cervical cancer	Having many sexual partners	99	81.1
	Early sexual initiation	37	30.3
	smoking cigarette	33	27
	using oral contraceptive	23	18.9
	Sexually transmitted infections	19	15.6
Symptoms of cervical cancer	vaginal discharge	85	81.7
	excessive vaginal bleeding	84	80.8
	lower abdominal pain, and	52	50
	minimal vaginal bleeding during sex	53	51
Do you believe Cervical Cancer is preventable?	Yes	117	89.2
	No	14	10.8

Table 3: Awareness, Perception of cervical cancer screening, and history of screening among HIV positive women attending adult ART clinic in Jinka General Hospital, Southern Ethiopia, May 2018

Variable		Frequency	Percent
Awareness of cervical cancer screening	Aware	140	41.1
	Not aware	201	58.9
Perceived susceptibility	High	215	63.1
	Low	126	36.9
Perceived severity	high	189	55.4
	Low	152	44.6
Perceived benefits	High perceived benefits of the screening services	190	55.7
	Low	151	44.3
Perceived barriers	High perceived barriers to use the screening.	167	49
	Low	174	51
Ever screened for cervical cancer	Yes	55	16.1
	No	286	83.9

Willingness for cervical cancer screening

Among the respondents, 194 (56.9%; 95%CI; 51.6%, 62.1%) were willing to be screened for cervical cancer.

Factors associated with the willingness of Cervical Cancer screening

In the multivariable analysis, age, number of living children, awareness on cervical cancer screening, perceived susceptibility and perceived barrier had statistically significant association with willingness for cervical cancer screening (Table 2).

Respondents who had two or fewer living children were more than two times (AOR=2.49; 95% CI: 1.3, 4.78) more likely willing to be screened for cervical cancer as compared with women who had three or more children. The odds of willingness for cervical cancer screening among women who were forty years or above were more than two times higher compared to women were less than 29 years (AOR=2.58;95% CI:1.21, 5.45). HIV positive women who had awareness of cervical cancer screening were nearly five times (AOR=4.85; CI: 2.56-9.17) more likely to be willing to be screened for cervical cancer compared to women who were not aware of cervical cancer screening. The odds of willingness to be screened for cervical cancer among women with low perceived barriers were about ten times higher compared with women with high perceived barriers (AOR= 9.87; 95% CI: 5.34, 18.31). Women with high perceived susceptibility were five times (AOR= 5.02; 95% CI: 2.74, 9.18) more likely willing to be screened for cervical cancer compared to women with low perceived susceptibility (Table 2).

Table 4: Bivariate and multivariable analysis of factors associated with willingness for Cervical Cancer screening among HIV positive women, Jinka General Hospital, Southern Ethiopia, May 2018 (n = 341).

Variables	Category	Willingness for Cervical cancer screening		COR(95%CI)	AOR(95%CI)
		Yes n(%)	No n(%)		
Age in year	18-29	52 (52.5)	47(47.5)	1	1
	30-39	40 (37.0)	68(63.0)	0.53(0.31-0.93)	0.52(0.26-1.05)
	≥40	102 (76.1)	32(23.9)	2.88(1.65-5.04)	2.58(1.21-5.45)
Education status	No formal education	90 (43.5)	117(56.5)	1	
	Primary	41 (65.1)	22 (34.9)	2.42 (1.35-4.35)	
	Secondary	45 (90.0)	5 (10.0)	11.7 (4.46-30.68)	
	Tertiary	18 (85.7)	3 (14.3)	7.8 (2.23-27.3)	
Income	No regular income	66 (45.5)	79 (54.5)	1	
	Regular income	128 (65.3)	68(34.7)	2.25 (1.45-3.5)	
Number of pregnancy	null gravida	46 (63.9)	26 (36.1)	2.31 (1.21-4.42)	
	1-2	50 (64.9)	27 (35.1)	2.42 (1.28-4.58)	
	3-4	62 (56.9)	47 (43.1)	1.85 (1.04-3.31)	
	≥5	36 (43.4)	47 (56.6)	1	
Number of living children	≤ 2	125 (61.9)	77 (38.1)	1.65 (1.06-2.55)	2.49(1.3-4.78)
	≥3	69 (49.6)	70 (50.4)	1	1
Knowledge of cervical cancer	Not knowledgeable	125 (50.0)	125 (50.0)	1	
	Knowledgeable	69 (75.8)	22 (24.2)	3.14 (1.82-5.38)	
Awareness of cervical cancer screening	**Not aware**	**87 (43.3)**	**114 (56.7)**	**1**	**1**
	Aware	**107 (76.4)**	**33 (23.6)**	**4.25(2.63-6.86)**	**4.85(2.56-9.17)**
History of cervical cancer screening	**Yes**	**41 (74.5)**	**14 (25.5)**	**2.55(1.33-4.87)**	
	No	**153 (53.5)**	**133 (46.5)**	**1**	
Perceived susceptibility	**Low**	**45 (35.7)**	**81(64.3)**	**1**	**1**
	High	**149 (69.3)**	**66 (30.7)**	**4.06(2.55-6.47)**	**5.02(2.74-9.18)**
Perceived severity	**Low**	**42(27.6)**	**110(72.4)**	**1**	
	High	**152(80.4)**	**37(19.6)**	**10.75(6.49-17.83)**	
Perceived benefit	**Low**	**41(27.2)**	**110(72.8)**	**1**	
	High	**153(80.5)**	**37(19.5)**	**11.09(6.68-18.48)**	
Perceived barrier	**Low**	**138 (79.3)**	**36 (20.7)**	**7.59(4.66-12.37)**	**9.87(5.34-18.31)**
	High	**56 (33.5)**	**111(66.5)**	**1**	**1**

DISCUSSION

The key contribution of this paper is to show the status of knowledge, awareness and willingness for cervical cancer screening and associated variables among HIV positive women on follow up at Jinka General Hosipital. The fndings have important implications, particularly in Ethiopia, where the burden of the disease is high but the utilization of secondary prevention services is still low, especially in high risk group HIV positive women[13].

This study showed that 56.9% of women were willing to have cervical cancer screening. This finding was lower as compared with a study done in Mozambique (84%) and in Addis Ababa, Ethiopia (62.7%) [10,14]. These differences could be due to differences in age and the knowledge level of the study participants. Participants in the Addis Ababa study were older [10]. Most of the participants of the Mozambique study were knowledgeable regarding cervical cancer. But, it is higher than a study done at Dabat district, Northwest Ethiopia in which 17.1% of the participants decided to be screened within the next two months [15]. This discrepancy might be due to the time differences which could cause the implementation of different interventions which might improve the accessibility of the service.

In this study 16.1% of the participants were ever screened for cervical cancer. The finding of this study is comparable with the pooled prevalence of cervical cancer screening among HIV-positive women in Ethiopia (18.17%)[16]. However, this is lower than the national target (80%) of cervical cancer screening[17].Similarly, its lower than a study done Hawassa town public health facilities where 40.1% of HIV positive women utilize cervical cancer screening and 24% HIV positive women attending adult anti-retroviral treatment clinics in Bishoftu town were ever screened for cervical cancer[13]. This might be due to the improved expansion and access of screening centers especially after the start of VIA in many health facilities, the enhanced nation-wide advocacy, media concern, community sensitization and awareness creation through expansion of urban health extension program about the CCS that has been put into effect in recent years (time difference)[18].

In this study 26.1% of the respondents were knowledgeable about cervical cancer, which is lower than the findings of studies done in Nairobi, Kenya (72%) and Mekelle, Ethiopia (82.5%) [19,13]. This difference may be due to difference in socio-demographic characteristics of participants, differences in access to mass-media or level knowledge.

According to this study, woman who were forty years and above were more than two times more likely to be willing to have cervical cancer screening compared to women less than 29 years. This finding is in line with studies done at Nairobi, Kenya, Dar es salaam, at Addis Ababa, Ethiopia and Mekelle, Ethiopia [19,15,10,13]. This may be explained by the fact that as the more one gets older, the more that they will be concerned about their health. Therefore, they see themselves as being at risk and seek care. However, this result is inconsistent with studies done in London, UK, in Nunavik Canada and Korea, where older women were less likely to be willing for cervical cancer screening [16,17,18]. This inconsistency may be due to the integration of cervical cancer screening with different services in the countries that result in the early engagement of women which might made the women reluctant due to a repeated hospital visit[16,17,18].

In this study, women who had two or fewer number of living children were more than two times more likely to be willing for cervical cancer screening as compared with those who had three or more children. This finding is in line with studies done in Dar es Salaam, Tanzania and Lagos, Nigeria[9,15]. In this study majority of the women were housewives and women with large family size, thus they will be likely to be engaged (preoccupied) with house hold activities and might not pay adequate attention for their health. Also, the possible reason could be lack of awareness or knowledge as most of the housewives are uneducated.

This study showed women who were aware of cervical cancer screening were nearly five times

more likely to be willing to have cervical cancer screening. This finding is in line with studies done in Dar es Salaam, Addis Ababa and Mekelle [15,10,13]. This may be due to the reason that when women are aware of the disease and its screening, they may have low perceived barrier and seek the screening.

In this study, women who had high perceived susceptibility to cervical cancer were more likely to be willing for its screening as compared with those who had low perceived susceptibility. This finding is consistent with the finding of a study conducted in Mildmay Uganda, in which respondents who perceived themselves as at risk of developing cervical cancer were more likely to seek its screening [25]. Another study done in Kenya at Nationwide and Mekelle zone northern Ethiopia showed women who had receptive perception of their potential susceptibility to develop cervical cancer were more likely to be screened, as compared with those who had non-receptive perception [24,26]. This could be explained by women having information about the disease and knowing their susceptibility are more likely undergo screening to protect themselves.

This study also revealed that women who had low perceived barriers were more likely to be willing for cervical cancer screening compared with women with high perceived barriers. This is consistent with studies done at London and Dar es Salaam in which fear of the test procedure and perceived barrier were the factors that prevent women from taking screening [17,15]. Similarly, in a study done at Mekelle in Ethiopia women who had no perceived barriers were 2.3 times more likely to be screened than those who have perceived barriers [13]. It was supported by a qualitative study done at Mildmay , Uganda, among HIV positive women, which found the major hindrances for screening included various fears and misconceptions about the screening procedures [20]. This may be due to perceived barriers of specific health problems are more powerful in affecting healthcare-seeking behavior [12]

CONCLUSIONS AND RECOMMENDATION

The findings of this study have important indications which call for a wide range public health approach directed to cervical cancer and its screening among HIV-positive women. The willingness, knowledge and awareness for cervical cancer screening is low. This calls for the need to create awareness and educate HIV-positive women about the availability of screening and usefulness of utilizing the screening service. Young age, having two or fewer number of living children, awareness on cervical cancer screening, perceived susceptibility and perceived barrier were all predictors of willingness for cervical cancer screening. South Omo Zone health office should increase awareness of HIV positive women about cervical cancer and its screening through different meetings and use of mass media. Also, it should develop different strategies that are targeted to women less than 40 years to increases their number involved in screening because early intervention is important for detecting and management of the disease and should encourage screening among women who had three or more children through campaigns at kebele level. Furthermore, studies should consider the possibility of exploring the problem from the health providers' perspective in order to come up with a better plan for intervention so as to address the problem.

ACKNOWLEDGEMENTS

The authors would like to thank the study participants for their valuable information and for data collectors and supervisors for their commitment.

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