

Assessment of factors affecting voluntary counseling and testing service utilization among preparatory school students in Gondar town, Amhara region, Ethiopia

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Research

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Abstract

Background Globally the adolescent and youths are facing different sexual and reproductive health problems like unwanted pregnancy, unsafe abortion, STI including HIV. HIV / AIDS is continue to be a major global health priority. HIV counseling and testing is a key strategic entry point to prevention, treatment, care and support services .HIV/AIDS counseling is “confidential communication between client and a care provider aimed at enabling the client to cope with stress and to take personal decisions relating to HIV/AIDS.VCT give clients an opportunity to explore their HIV risks and to learn their HIV test results in complete confidence.

Objective The objective of the study was to asses factors affecting voluntary counseling and testing service utilization among preparatory school students in Gondar town.

Methods Institutional based cross-sectional study design was employed. A multistage sampling procedure was conducted in the study area. Data were collected using pretested self-administered questionnaire and the data entered, clean and analyzed by using SPSS version 16 software. Descriptive, bivariate and multivariate analysis were employed. Multivariate analysis with 95% CI was computed to identify factors associated with voluntary counseling and testing service utilization at P-value <0.05.

Results A total of 654 study participants were included in the study with the response rate of 97%. The study indicated that 81.7% of study participants knew about voluntary counseling and testing services utilization .But the practice of voluntary counseling and testing was 48.3% with (95% CI: 44.5 -52.1).Based on the finding of multivariate analysis among independent variables, age, place of birth, mother’s educational level and discussed with parents on the issue of VCT were significantly associated with voluntary counseling and testing services utilization.

Conclusion Majority of the study participants were not utilize voluntary counseling and testing services, only few respondents ever had VCT test as well as the proportion of students who had discussed on VCT issues with their parent was also very low. Cultural taboos was the main obstacle to students did not discuss with parents on the issue of VCT in the study area. Therefore; it needs great effort all concerned body to improve their services utilization. In broadly family life education should be encourage for the students and parents to promote VCT utilization.

Plain English Summary

Voluntary counseling and testing is important to controlling the spread of HIV, especially among adolescents. VCT is behavioral intervention not a mere test procedure. Therefore, dramatically increasing prevalence rate of HIV necessary the implementation of prevention and control programs and one of these approaches is voluntary counseling and testing. Voluntary HIV counseling and testing is a key strategy to control the spread of HIV and to provide care and support to those who are positive.

Institutional based cross-sectional study design was conducted on selected adolescents from 6 preparatory schools in Gondar town. Voluntary Counseling and Testing service and sexually transmitted infections (STI) diagnosis and treatment service utilization were considered to be used by the students.

Six hundred fifty four participants responded to the questionnaires making a response rate of 97%. The mean age of the respondents was 18.62 with (SD±1.714) years. Respondents who had knowledge 81.7% of study participants knew about VCT and Media (TV) was the major source of information about VCT (56.1%). Generally, the proportion of students who had good response rate and knowledge. But the accessibility of services and the practice or utilization services in the study area was very low.

Background

According to the world health organization, adolescents were defined as the persons age from 10–19 and young age from 10–24 years old (22). About 1.2 billion adolescents found in worldwide making 5th world population and 80 % of them live in developing countries (19). Today out of 7.3 billion of world population, the number of young people is little less than 1.8 billion (18). The term youth friendly reproductive health service refer to those services that are accessible, acceptable and appropriate for the youth. The services include, family planning, voluntary counseling and testing and treatment of sexually transmitted infections (21).

Voluntary counselling and testing means an individual seeks HIV counselling and testing where confidential services are offered. Services are rendered in confidence. The primary focus is mainly on preventing HIV acquisition through risk assessment, risk reduction and testing (13). Voluntary counseling and testing clients are usually sexually active, in reproductive age and disproportionately affected by HIV (2).

HIV/AIDS is a disease of human group and its demographic and social impact multiply from infected individuals to the group. The impact of this pandemic is unique since it mostly affects young and middle age adults (17).

Young people from sub-Saharan Africa countries are more at risk of sexual and reproductive health problems than those young people from around the world (16). Youths from this region contribute the highest risk of sexually transmitted infections, for example over half of all new HIV infections are among them (16). In developing countries more than half of new cases of HIV infections is found among young people aged from 15–24 years (24). Sexual transmitted diseases (STD) rates are the highest in Africa particularly in Sub-Saharan Africa having with 110 million new cases per year (23).

In Ethiopian according to population projections for 2017, adolescents and youth aged 10–24 account for one third of the population (31,426,691) and about half of them (15,485,880) are adolescent girls and young women aged 10–24 (5). Overall, 0.2 percent of young women and men aged 15–24 are HIV-positive. HIV prevalence among adolescent girls and young women aged 15–24 is three times higher than

boys in the same age (female 0.3% and male 0.1%). Among young women and men combined, HIV prevalence ranges from less than 0.1 percent in Somali to 1.3 percent in Gambella (7).

Ethiopian demographic and health survey showed that the test of HIV rising educated person than non-educated. For example, HIV test of non-educated women were 14% compared to 44% HIV test among women with more than secondary education, whereas, HIV test of non-educated men were 13% compared with 39% among those with more than secondary educational level (6).

Vulnerability, risk and the impact of AIDS coexist in a vicious circle. Vulnerability can be reduced by providing young people with schooling, supporting protective family environments and extending access to health and support services population wide. HIV testing accompanied by prevention intervention has a place with a comprehensive range of measures for HIV/AIDS prevention, care and support (20). Voluntary counseling and testing is a vital entry point of preventive and other HIV/AIDS services including prevention of MTCT; prevention and clinical management of HIV related illnesses and psychosocial and legal support, there is demand and VCT provides benefits for those who test positive as well as those who test negative. VCT alleviates anxiety, increases client's perception of their vulnerability to HIV, promotes behavioral change, facilitates early referral for care and support including access to anti-retroviral therapy and assists reduction of stigma in the community (10).

The government of Ethiopia has formulated policies, strategies, programs and institutional arrangement to prevent and control HIV/AIDS and to mitigate its devastating impact (9). For many control and prevention method VCT is one of the major approaches set by the Ethiopian government to prevent and control HIV/AIDS.

Methods

Study area and period: The study was conducted in Gondar town from March 2019 to June 2019. Based on the 2018/19 population projection of central Gondar zone, Gondar town had a total population of 302,539 among this 142,821 and 159,718 were male and female population respectively. From a total population age group 10–14 were 12%, 15–19 and 20–24 were 16.1% and 14.1 respectively. According to Gondar town administration education office there were seven (7) public and three (3) private preparatory schools in the town in which 4,728 students attended in 2019 academic year.

Study design and data source: Institutional based cross-sectional study design was conducted among public and private preparatory school students. The main data source for this study was primary data. The primary data source was collected through questionnaire.

Source and study population: Source of population were all preparatory school students attending in Gondar town. The study population were public and private school students among selected preparatory schools in the study area.

Inclusion and exclusion criteria of the study: The inclusion criteria of the study was preparatory school students were attending both public and private schools and the exclusion criteria, the students were sick

or unable to speak and night time students excluded from the study.

Sample size determination: The sample size was determined by using single population proportion formula by considering the following assumption. Level of confidence was 95% with 0.05 α value ($Z_{\alpha/2} = 1.96$ on the standard normal distribution curve), 5% margin of error ($d = 0.05$), a proportion of 29.8% taking from previous study in Woreta town among adolescents age 10–19 years, 5% contingency and design effect of two was considered in the sample size determination.

[Due to technical limitations, the formulas could not be displayed here. Please see the supplementary files section to access the formulas.]

Adding 5 % of contingency the sample was 337. Multistage sampling method was used to increase the sample size and to select the first sampling unit, the sample of 337 is multiplied by design effect of 2 and the final sample size was 674.

Sampling techniques: Multistage sampling technique was used to select primary sampling unit to determine the sample proportion for each selected schools. In the study area there were seven public and three private preparatory schools were present. Simple random sampling technique was employed to select secondary sampling unit. Out of 10 preparatory schools, six schools, four from public and two from private were selected using lottery methods and purposively. Systematic sampling technique was done by taking the list of all students from roster in each grade.

Data collection techniques: The questionnaire was first prepared in English and then translate in to Amharic and re-translate back to English by another translator to check consistency. After these the data were collected using self-administered questionnaire. The questionnaire include, demographic, socio economic, individual, as well as health system characteristics.

Study variables: Outcome and explanatory variables, the outcome variable was voluntary counseling and testing services utilization, whereas, explanatory variables were demographic, socio-economic, and individual as well as health system factors.

Data quality control: To ensure data quality one school facilitator for each selected preparatory schools were assigned who supervised each preparatory school students how to fill the data. The intensive training was given for one day about the aim of the study, procedures and data collection techniques. Prior to the study 5% pretest structured questionnaire was conducted on students at Merawi preparatory school outside the study area to check the reliability of the questionnaire. The collected data were rechecked for completeness before the data entry.

Data analysis: Quantitative data were collected from preparatory school students; SPSS version 16 was used for statistical analysis. Bivariate and multivariate analysis was employed to see the association between outcome and explanatory variables within 95% confidence level at P-value < 0.25 and < 0.05 respectively. Cross tabulation and chi-square methods were used in order to find out the degree of association each explanatory variables to outcome variable. Logistic regression model was employed

since this method is the most appropriate tool to analyzing the degree of strength of the relationship between outcome variable and explanatory variables when outcome variable dichotomous taking value between 1 and 0. Descriptive statistics was used to describe results in table as frequency and percentage.

Results

Background Characteristics of the Study Population:

A total of 654 students were included in the study making a response rate of 97%. From a total of 654 respondents, two hundred fifty one (38.4 %) were males and four hundred three (61.6%) respondents were females from grade 11th -12th. Considering to place of birth, one hundred sixty one (24.6%) were rural area and four hundred ninety three (75.4 %) were urban dwellers. With regard to religious five hundred six (77.4%) were orthodox followers, eighty eight (13.4%) were Muslim and sixty (9.2%) were other religion followers such as, protestant and catholic. Regarding to age (63.3%) of respondents less than 18 years old and (36.7%) were greater than 18 years old. Concerned to marital status most adolescents, six hundred thirty six (97.2%) were single and the rest eighteen (2.8 %) were ever married. When ask students regarding to personal monthly pocket money one hundred fifty six (23.9%) ever had pocket money for daily expenses and four hundred ninety eight (76.1 %) of respondents who had no pocket money. In terms of educational status of father sixty three (9.6 %) of the respondents reported that their fathers were illiterate, one hundred eighty three (28 %) were read and write, one hundred twenty two (18.7 %) were primary education and two hundred eighty six (43.7 %) of respondents their father had taken secondary and above secondary education.

The majority of respondents their father occupational status, two hundred fifty four (38.8%) were government employed, followed by merchant one hundred eighty nine (28.9 %). Study participants reported that their mothers educational status, three hundred six (46.8 %) of the respondent mothers didn't have any formal education, one hundred ten (16.8 %) were primary education and two hundred thirty eight (36.4%) of respondents their mothers had taken secondary and above secondary education. Regarding to mothers occupation, most of the respondents reported that their mothers a house wife which accounts two hundred ninety one (44.5%), one hundred sixty three (24.9%) of merchants, one hundred sixty (24.5 %) and forty (6.1 %) were, government employed and others respectively. Others refers to daily laborer as well as farmers.

About family monthly income majority of their families earned greater than 3550 birr. Regarding to living arrangement majority of students, four hundred eighty eight (74.6%) of live with both parents, eighty six (13.1%) were live with mother only and eighty (12.2 %) were live with others. Others indicted that with father only, sister, brother, grandmother, aunt as well as grandfather.

Table1: Percentage distribution of study population by their basic socio- economic and demographic characteristics in Gondar town 2019

Variables		Frequency (N)	Percent (%)
Sex	Male	251	38.4
	Female	403	61.6
Age	<18 years	414	63.3
	>18 years	240	36.7
Religion	Orthodox	506	77.4
	Muslim	88	13.4
	Others	60	9.2
Place of birth	Rural	161	24.6
	Urban	493	75.4
Marital Status	Single	636	97.2
	Married	18	2.8
Personal monthly pocket money	Yes	156	23.9
	No	498	76.1
Father's educational level	Illiterate	63	9.6
	Read & write	183	28
	Primary school	122	18.7
	Secondary & above	286	43.7
Mother's educational level	Not formal education	306	46.8
	Primary school	110	16.8
	Secondary & above	238	36.4
Family monthly income	150-1400 ETB	184	28.1
	1401-3550 ETB	224	34.3
	>3550 ETB	246	37.6
Mother's occupation	Government employed	160	24.5
	Merchant	163	24.9
	House wife	291	44.5
	Others	40	6.1
Father's occupation	Government employed	254	38.8
	Farmer	177	27.1
	Merchant	189	28.9
	Daily laborer	34	5.2
Living status	With both parents	488	74.6
	With mother only	86	13.1
	Others	80	12.2

Source: Field Survey, 2019

Sexual history of study participants: Among respondents seventy one (39%) of male and one hundred eleven (61%) of females were ever had girlfriend and boyfriends. With regard to sexual intercourse, one hundred seventy (26%) of respondents had sexual intercourse. Respondents mentioned that factors that motivated to practice sexual intercourses, eighty nine (52.4%) were love relationship, sixty three (37%) were peer influence and eighteen (10.6 %) were drinking alcohol. Twenty seven (4.1%) of respondents who faced sexual and reproductive health problems, such as, unintended pregnancy ten (37%), abortion four (14.8%) and Chlamydia thirty were (48.2%).

Knowledge and source of information about VCT: With regard to knowledge of VCT, 81.7% of study participants knew about VCT and 56.1% of respondent's, reported that media (TV) was the major source of information about VCT. From the study participants 32.6% respondents were discussed with parents on the issue of VCT in the past time .Student mentioned that, the reasons not discussed with parents on the issue of VCT, not necessary 49.9%, fear of family 10.6% and cultural taboos 55.3%.

Table 2: Percentage distribution of study population by knowledge and source of information about VCT in Gondar town 2019

Variables		Frequency	Percent
Do you know about VCT	Yes	534	81.7
	No	120	18.3
Where you got source of information about VCT*	From health professional	226	34.6
	From radio	228	34.9
	From television	367	56.1
	From newspaper	99	15.1
	From teachers	210	32.1
	From friends	170	26
Discussed with parents on the issue of VCT in the past time	Yes	213	32.6
	No	441	67.4
Reasons not discussed about VCT *	Cultural taboos	244	55.3
	Not necessary	220	49.9
	Fear	48	10.9

Source: Filed Survey, 2019 * Multiple responses

VCT Services Utilization: The study revealed that 48.3% of respondents utilized VCT services. The main reasons for not utilizing VCT service listed by adolescents, to know the status 89.2%, for marriage purpose 5.1% and self-suspicion 5.7%. Among study participants the place where you got VCT services, most of respondents mention that, from government health center 41.1% followed by private health center 32.6%.

Table 3: Percentage distribution of study population by VCT services utilization in Gondar town 2019

Variables		frequency	Percent
Ever used VCT service	Yes	316	48.3
	No	338	51.7
The reasons undergo VCT*	To know the status	282	89.2
	For marriage	16	5.1
	Self-suspicion	18	5.7
Where you got VCT services *	From government hospital	96	30.4
	From gov,t health center	130	41.1
	From private health center	103	32.6
	From FGAE	56	17.7
STI diagnosis and treatment	Yes	88	13.5
	No	566	86.5

Source: Field Survey, 2019 *Multiple responses

Factors associated with VCT services utilization: Bivariate analysis were computed to assess factors associated with VCT services utilization. First the degree of association between independent and outcome variables was assessed using bivariate analysis.

Table 4: Bivariate analysis of factors associated with VCT service utilization among preparatory school students in Gondar town, 2019

Variables		VCT Use				
		Yes	No	χ^2	df	P-value
Sex	Male	131	120	2.202	1	0.138
	Female	185	218			
Age	<18	177	237	13.387	1	0.000
	>18	139	101			
Place of birth	Rural	94	67	8.141	1	0.004
	Urban	222	271			
Marital status	Single	303	333	3.308	1	0.069
	Married	13	5			
Mothers educational level	Not formal education	167	139	9.209	1	0.010
	Primary school	49	61			
	Secondary & above	100	138			
Ever had girl / boyfriends	Yes	127	55	45.333	1	0.000
	No	189	283			
Ever had sexual intercourse	Yes	122	48	49.309	1	0.000
	No	194	280			
Discussed with parents on the issue of VCT	Yes	137	76	31.444	1	0.000
	No	179	262			
Media exposure	Yes	184	183	7.167	1	0.000
	No	107	63			
High cost for VCT services	Yes	52	61	2.122	1	0.145
	No	75	128			
Waiting time before got VCT in health institution	<60 minutes	113	179	2.787	1	0.095
	\geq 60 minutes	14	10			

Source: Field Survey, 2019

On bivariate analysis, the factors were found to be significantly associated with VCT services utilization were ,sex, age, place of birth, marital status, mother's education, ever had sexual intercourse, media exposure, ever had girl or boy friends, discussed with parents, cost and waiting time before got VCT P-value <0.25. These variables which were significant on bivariate analysis were entered into multivariate analysis by using enter. After that, mother's education, age, place of birth and discussed with parents on the issue of VCT in the past time were found to be significantly and independently associated with VCT services utilization at P- value <0.05.

Table 5: Bivariate and multivariate analysis of factors associated with VCT service utilization among preparatory school students in Gondar town, 2019

Variables	VCT Use		Odds Ratio(OR)		
	Yes	No	B	COR(95%CI)	AOR(95%CI)
Sex					
Male	131	120		1	1
Female	185	218	0.252(0.218)	0.777(0.567-1.066)	1.244 (0.855-1.810)
Age					
<18 years	177	237		1	1
≥18 Years	139	101	0.783(0.443)	2.188(1.519-3.153)	0.642(0.453-0.909)*
Place of birth					
Rural	94	67		1	1
Urban	222	271	0.538(0.579)	1.713 (1.195- 2.455)	1.785 (1.090-2.921)*
Marital Status					
Single	303	333		1	1
Ever married	13	5	1.050(-0.895)	2.857 (1.007- 8.109)	2.448 (0.754-7.949)
Mother's educational level					
Not formal education	167	139		1	1
Primary school	49	61	0.403 (0.482)	1.496 (0.965-2.318)	1.619 (0.846 -3.098)
Secondary &above	100	138	0.506 (0.763)	1.658 (1.178 -2.334)	2.144 (1.118-4.111)*
Ever had boy/girlfriends					
Yes	127	55	1.241 (0.416)	3.458 (2.398-4.986)	1.517 (0.747-3.080)
No	189	283		1	1
Ever had sexual intercourse					
Yes	122	48	1.335(0.669)	3.799 (2.598-5.557)	1.953 (0.938-4.063)
No	194	290		1	1
Discussed with parents on the issue of VCT					
Yes	137	76	0.970 (0.712)	2.638(1.880-3.702)	2.038(1.423-2.920)**
No	179	262		1	1
Media exposure					
Yes	184	183	0.524(0.363)	1.689 (1.164-2.452)	1.437 (0.967-

					2.137)
No	107	63		1	1
High cost for VCT services					
Yes	52	61	0.375 (0. 297)	1.455(0.912-2.321)	1.346 (0.824-2.200)
No	75	128		1	1
Waiting time before got VCT in health institution					
<60 minutes	113	179	0.796(0.561)	2.218(0.953-5.163)	0.571 (0.232-1.401)
≥ 60 minutes	14	10		1	1

Source: Field Survey, 2019

NB 1=reference category= COR=Crude odds ratio, AOR=Adjusted odds ratio*P-value <0.05, **P-value<0.01.

Discussions

This study focus on factors affecting VCT service utilization with associated factors among preparatory school students in Gondar town. VCT service utilization play a great role by controlling different sexual and reproductive health problems and encouraging healthy productive adolescents in the region as well as country level.

The sexual history of study participants result showed that one seventy (26%) of them ever had sexual practice with in the mean age of the fist sexual intercourse was 18.62(with SD±1.714) years which was slightly higher compared to school based study done in Hadiya with prevalence of (22.9%) with the mean age of 16.68(SD±2.32) years and lower than the study conducted in Goba 52.9% (12, 4).

The study indicated that 48.3% of respondents were utilize VCT services which is higher than compared to others studies in Ambo university,Dire Dawa and lower than the study conducted in Goba and Madawalabu University (14, 1). The possible reasons for those difference may be the fact that some studies involved both sexual experienced and inexperienced adolescent. Other may consisted both in school and out schools adolescents.

This study showed that the age of adolescents were significantly associated with VCT service utilization. The finding of this study revealed that the age of adolescents above 18 years were 0.64 time more likely to utilize VCT services than those whose the age was below 18 years old (AOR = 0.642; 95%CI = 0.453–0.909). This study is consistent with the study done at Madawalabu University and Jimma town (8, 3). This might be due to as age increases the exposure for VCT services utilization related issues may also increases.

The study revealed that place of birth was significantly associated with VCT services utilization. Adolescents who lived in urban area were 1.8 times more likely to utilize VCT services than counter parts

of rural area (AOR = 1.785; 95%CI = 1.090–2.921). This study was in line with a study conducted at Bahar Dar University (11). This might be accessibility of services, attitude and cultural acceptance of urban adolescents were better than rural adolescents to utilize VCT services.

The study showed that mother's education was significantly associated with VCT service utilization. The finding of this study indicated that adolescents mothers whose education secondary and above were 2.1 times more likely to use VCT services than who did not have any formal education (AOR = 2.144; 95%CI = 1.118–4.111). This may be mother education is tending to positively associated with adolescent VCT service utilization. Discussion on VCT issue between mother and adolescents help the adolescents develop a clear personal position regarding to their VCT service utilization.

The study indicated that discussion with parents on the issues of VCT was significantly associated with VCT service utilization. Study participants who discussed with their parents about VCT services utilization were 2 times more likely to utilize the VCT services than those who did not discuss with their parents on the issue of VCT (AOR = 2.038; 95%CI = 1.423–2.920) which was consistent with the study done at Madawalabu University and Bahir Dar University (11,8). This may be due to the adolescents discuss with parents on the issues of VCT increases, service utilization related issues may also increases.

Conclusion

This study is aimed to identify factors affecting VCT service utilization among preparatory school students in Gondar town. The findings of the study presented using bivariate and multivariate analysis. Based on the study findings, most of adolescents were not utilize VCT service in the study area. The study revealed that knowledge of VCT services were high. But utilization of VCT service among preparatory school students in the study area was very low. This may lead to makes a difference between knowledge and services utilization. The study indicated that adolescent who discussed with parents on VCT issues has significant effect on utilization of VCT services. Regarding to source of information about VCT service, a large number of respondents have mentioned that media (TV) was the main source of information. Multivariate analysis was done to see the association between VCT services utilization and different demographic, socio- economic, health system and individual factors. Accordingly, mother's education, place of birth, age and discussed with parents were significantly associated with VCT services utilization.

Generally it needs great efforts to design and implement appropriate adolescents and youth VCT service information, education and communication programme in schools to harmonize knowledge and practice of service utilization. Hospital, health center and FGAE should make network to better address the need of adolescent and youth in VCT service. Further study needs to be conducted to evaluate the effectiveness of VCT among adolescents and youth.

List Of Abbreviations

IDS, acquired immune deficiency syndrome; *AOR*, adjusted odds ratio; *CI*, confidence interval; *COR*, crude odds ratio; *CSA* central statistics agency; *ESRDF*, Ethiopia social rehabilitation development fund; *HIV*, human immune deficiency virus; *MTCT*, mother to child transmission; *SPSS*, statistical package for social science; *STD*, sexual transmitted disease; *STI*, sexual transmitted infections; *TV*, television; *UNAIDS*, joint united nations programme on HIV/AIDS; *UNFPA*, United nation population fund; *UNICEF*, United nation international children's emergency fund; *VCT*, voluntary counseling and testing; *WHO* World health organization.

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Declarations

Ethical approval and consent to participate: At the start of the study process, ethical clearance was first obtained from Department of Population Studies at University of Gondar, College of Social Science and Humanities. The support letter was obtained from North Gondar Education Bureau and the next permission was obtained from Gondar town public and private preparatory school director offices in the verbal form. The verbal informed consent was obtained before conducting data collection. They were also informed about their right to participate, not participate or withdraw from the study at any time. The data were collected anonymously to keep the confidentiality of the information. Voluntary consent was obtained from each participant to participate in the study during data collection in a verbal form.

Competing interests: The author declare that they have no competing interests.

Availability of data and materials: The data generated or analyzed during this study are involved in this main manuscripts.

Consent for publication: This manuscript does not contain any individual person's data in the form of image or video because it is not applicable.

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whole activity of the study. All authors read, revised and approved the final content of the manuscript.

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