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FACTORS AFFECTING EXPOSURE OF HIV/AIDS AMONG SCHOOL YOUTH, METTU TOWN, SOUTH WEST ETHIOPIA

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Abstract:

Back ground: *Young people between the age of 15 and 24 years are both the most threatened population, accounting for half of all new cases of HIV and the greatest hope for turning the tide against AIDS.*

Objectives: *The aim of this study was to assess factors influences school youth exposure to HIV/ AIDS, in the study area.*

Methods: *School based cross-sectional study was employed. Sample size was determined by using single population proportion formula and four hundred twenty three youths from grade nine to twelve was selected by Simple random sampling technique from registration books. Self administered questionnaires were employed. All explanatory variables that were associated with the outcome variable during bivariate analysis were included in the final logistic model. A multivariate logistic regression analysis was made to identify factors that influence school youths exposure to HIV/AIDS at the p-value of < 0.05.*

Result: *In this study 51 (12.9%) of the respondents reported that they practiced sexual intercourse. All students engaged in sexual activity, 51 (100%) reported to have one sexual partner. All students were aware of HIV/AIDS and all of them knew that HIV is transmitted through sexual intercourse. Condom utilization, having sexual intercourse, drinking alcohols and smoking were found to be the independent predictor for HIV/AIDS.*

Conclusion and recommendation: *It was concluded that school youths have risky behaviors like beginning sexual intercourse earlier, low proportion of condom use, alcohol consumption and smoking. So that education on sexual issue should be given by all concerned bodies.*

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BACKGROUND

Over the past decade, adolescent sexual and reproductive health concerns have increasingly been on national agendas. For many countries, this concern has been driven by the high prevalence of HIV/AIDS among young people. In other countries, a central concern has been early childbearing; and still others have focused predominantly on sexual behaviors among adolescents. Today's youth generation is the largest in history: nearly half of the global population being less than 25 years old. *(1).*Young people are at the center of the HIV/ AIDS epidemic. An estimated 10 million young people aged 15-24 years are living with HIV/AIDS and more than 6000 contract the virus every day *(2.)* Due to high prevalence of HIV among the youth aged 15-24 years; various governments have diverted their strategies to emphasize on social behavioral change other than the focus on curative and hospitalization measures. Youth, even when aware of HIV risk, often do not consider this risk and stay with steady partners. Ethiopia is among the highly HIV/AIDS infected and affected countries with 790000 HIV patients in the world in general and the region in particular. As is the case elsewhere in Africa, transmission is almost exclusively through heterosexual contact. A large proportion of new HIV infection is occurring in young people less than 25 years old *(*3, 4*).*

In Ethiopia, according to the first National Behavioral Surveillance Survey, significant proportion of the population, particularly the youth were indicated to be at risk of HIVinfection despite high level of knowledge about HIV/AIDS *(5).*

The national HIV incidence rate in Ethiopia is leveling off and the rate at which it is progressing is declining over the last few years and the epidemic appears to be stabilizing, particularly in urban areas, indicating some behavioral change in the population. The indirect evidences of behavioral modification are the increase in distribution of condoms and substantive increase in voluntary and premarital HIV testing. *(6)*

Globally, 34.0 million [31.4 million–35.9 million] people were living with HIV at the end of 2011. An estimated 0.8% of adults aged 15-49 years worldwide are living with HIV, although the burden of the epidemic continues to vary considerably between countries and regions.*(7).* Adolescents and young adults aged 15–24 years account for 45% of new HIV infections worldwide. In other side the prevalence of HIV/AIDS among young people of the same age is 3.1 for women and 1.3 for male or 2.6-3.9 million and 1.1-1.7 million female and male respectively.(8)

Sub-Saharan Africa remains most severely affected, with nearly 1 in every 20 adults (4.9%) living with HIV and accounting for 69% of the people living with HIV worldwide. Although the regional prevalence of HIV infection is nearly 25 times higher in sub-Saharan Africa than in Asia, almost 5 million people are living with HIV in South, South-East and East Asia combined. After sub-Saharan Africa, the regions most heavily affected are the Caribbean and Eastern Europe and Central Asia, where 1.0% of adults were living with HIV in 2011 *(7)*

In Ethiopia according to mathematical modeling estimates there are nearly 789,900 people currently living with HIV/AIDS (607,700 adults and 182,200 children aged 0-14 years); and 952,700 AIDS orphans *(9)*

Result from EDHS 2011 showed that a prevalence of HIV/AIDS 1.5%. For both men and women HIV prevalence levels rise with age, peaking among women in their early to mid-30s and among men in their late 30s. The age patterns suggest that young women are particularly vulnerable to HIV infection compared with young men. *(10)*

Findings from the most recent ANC sentinel surveillance data show a declining prevalence of infection rates among women age 15-24 years attending ANC, from 5.6% in 2005, to 3.5% in 2007, to 2.6% in 2009. This trend was marked both in urban and rural areas. In urban centers the prevalence has halved, declining from 11.5 % in 2003 to 5.5% in 2009. The declining trend is even steeper in rural areas where prevalence declined from 4% in 2003, to 1.4% in 2009. *(11)* Hence, this study aims at assessing factors, which exposes school youths to HIV/AIDS, the knowledge towards the disease in high schools found in Mettu town.

LITERETURE REVIEW

Risky Sexual Behaviors among School Youths

According to CDC's 2009 National Youth Risk Behavior Survey (YRBS), many adolescents begin having sexual intercourse at early ages: 46.0% of high school students have had sexual intercourse, and 5.9% reported first sexual intercourse before the age of 13. Of the 34.2% of students reporting sexual intercourse during the 3 months before the survey, 38.9% did not use a condom *(12).*

Study conducted in Nigeria revealed that, those who had ever had sexual intercourse were 74.9%. Of these, 56.5% used no protection while 29.0% used condoms. Up to 78.6% have had sex within the preceding 12 months with 38.9% condom use. The commonest reason for non-condom use was that it reduces sexual enjoyment *(13).*

Another finding showed that, the mean age for first sexual intercourse was 14.8 years (14.4 years for boys and 15.1 years for girls). Among the sexually experienced, 31% had multiple sexual partners *(14).* Similarly, study conducted in Agaro on high school students indicated that, among all study participants 25% of them had history of sexual intercourse. The average age of sexual debut was 16.74 years. Among those who had previous sexual exposure, 54.4% used condom at least once. Of these, 46.9% were using condom always *(15).* A cross sectional study conducted in North East Ethiopia indicated that, about half, 51.3% of the youths have ever had sex. The median age at sexual debut was 16 years for rural and 17 years for urban *(16).*

Another finding from North West Ethiopia showed that, Of the 628 study subjects, 64.8% had experienced sexual intercourse at the time of the survey. The mean age at first sexual commencement was 17.7 (+2) years. Of those sexually active, 33% had sexual intercourse with non-regular partners (the proportions were 40.6% among males and 24.7% among females *(17).* Another study conducted in Bahir Dar reported that, multiple sexual partners and unprotected sex were reported by 45.3% and 38.8% respondents respectively *(18).*

Knowledge of School Youths on Ways of HIV Transmissions and Prevention

According to UNAIDS, only 44% of men and 38% of women aged 15 to 24 correctly identify ways to prevent HIV (UNAIDS, 2007) and about only 1 out of 5 had what can be classified as having high knowledge *(19).*

Study conducted in Nigeria showed that overall, knowledge of HIV transmission and Prevention was high. Another study conducted in Nigeria revealed that, about half believed that HIV can be contracted via mosquito bites and 53.7% believed via kissing. Half of the respondents agreed that a person who looks healthy can be infected and possess the ability to describe the look of an infected person *(20).* Similarly, one study conducted in Benin reported that, 56% of study participants have heard about HIV/AIDS, 44% had no knowledge of HIV/AIDS at all. 42.1% had some knowledge; 29.9% had adequate knowledge and only 28.0% had sufficient knowledge *(21).*

Finding from Butajira revealed that the study participants had above average comprehensive knowledge about the mode of prevention of HIV/AIDS. However, a substantiate proportion of the youth (49%), had misconception about the mode of transmission *(22).* A cross-sectional school-based study conducted in Eastern Ethiopia indicated that, only about one in four, 677 (24.5%), in-school adolescents have comprehensive HIV/AIDS knowledge *(23).*

Factors that influencing school youth exposure to HIV/AIDS

Study conducted in North East Ethiopia indicated that, rural youths initiate sexual intercourse at lower age than their urban counterparts with mean (±SD) (16.49+2.11) for rural and (17.18+2.32) for urban youths. Multivariate analysis showed that being female by gender (AOR [95% CI]=1.56 [1.11,2.19]), chewing *Khat* (AOR [95% CI] = 2.05 [1.05, 3.96]), drinking alcohol (AOR [95% CI] = 2.16 [1.12, 4.18]), watching pornographic materials at age < 18 years (AOR [95% CI] = 24.13 [3.28, 177.80]) and being less connected with parents (AOR [95% CI] =2.30 [1.35, 3.91]) were associated with early sexual initiation *(16).*

Study conducted in Canada revealed that, living both with lone mother and in any family arrangement other than with both parents was associated with smoking, using marijuana, and early sex. Higher risk score was associated with living with a lone mother or other family arrangement. Lower risk score was associated with father having more than high school education and mother not working *(24).* Males tended to be about two times more likely to have sex with non-regular sexual partners than females (odds ratio = 1.78, with 95% confidence interval 1.16-2.73). Furthermore, consistent condom-use among those who had sex in exchange for money was low (36%). Alcohol intake, chewing of khat (a green leaf), low educational background, and being male were significantly associated with having sex with either a commercial or a non-regular sexual partner *(17).*

Having multiple sexual partners was associated with alcohol use and having a close friend who started sex. Unprotected sex was associated with marital status and alcohol intake *(18)*. Older age (OR = 3.4, 95% CI = 1.7-3.4) and rural residency (OR = 1.5, 95% CI = 1.1-2.1) were independently associated with sexual debut while only older age (OR = 2.4, 95% CI = 1.7-3.4) was associated with condom use. Additionally, smoking (OR = 3.7, 95% CI = 2.0-6.8), tobacco use (OR = 2.8, 95% CI = 1.7-4.7) and drunkenness (OR = 1.7, 95% CI = 1.1-2.8) were independently associated with sexual debut. Furthermore, all substance uses studied were associated with having one or multiple sexual partners **(14).**

Finding from Tanzania reported that, among males, age was positively correlated with actual condom use, while being a Catholic and having multiple concurrent sexual partners were negatively correlated with actual condom use.

Among females, being a protestant was positively related with actual condom use, while being a catholic, reporting multiple sexual partnerships, and perceived barriers to condom were negatively correlated with actual condom use *(25).*

A cross-sectional school-based study conducted in Eastern Ethiopia indicated that, the knowledge was better among in-school adolescents from families with a relatively middle or high wealth index (adjusted OR [95% CI]=1.39 [1.03–1.87] and 1.75 [1.24–2.48], respectively), who got HIV/AIDS information mainly from friends or mass media (adjusted OR [95% CI]=1.63 [1.17–2.27] and 1.55 [1.14–2.11], respectively) and who received education on HIV/AIDS and sexual matters at school (adjusted OR [95% CI]=1.59 [1.22–2.08]). The females were less likely to have comprehensive HIV/AIDS knowledge compared to males (adjusted OR and [95% CI]=0.60 [0.49–0.75***]*** (23).

METHODS AND MATERIALS

The Study Area and period

This study was carried out in Mettu town, Illu-ababora zone of Oromia Regional State located in the Southwest part of Ethiopia. It is the capital of the Zone located 600 km away from Addis Ababa. Based on the 2007 National Census and using population projection, Mettu town has an estimated total population of 1.5 million. According to Illuababora Zone education office, 3164 students with 9-12 grades in this town were registered to attend school in the 2012/13 academic year.

Study design

The study design was crossectional study with quantitative data collection method.

Population

The source population for the study were all school youths age 15-24 in Mettu town attending their high school (secondary [9-10] and preparatory [11-12]) level education by the year 2012 to 2013.

Study population

The study populations were randomly selected school youths aged 15-24 years in Mettu High schools that enrolled secondary (9-10) and preparatory (11-12) level.

Inclusion: Students those have regular class.

Sample size determination

Sample size was calculated by using single population proportion formulae and considering the following parameters and assumption.

P =50% (assuming Proportion of exposure students to HIV/AIDS)

d = margin of error of 0.05 with 95% confidence level.

Z α/2 = 1.96 (level of significance)

n = 384 individuals

Considering **10%** possible non-response rate, the final sample size was **423** youth students.

Sampling techniques

A simple-stage stratified sampling procedure was employed to draw a representative sample of all students in grades 9-12 youth in Mettu town. Study participants were selected randomly among all students that full fills the inclusion criteria from registration books of respective grade. To determine number of individual selected from each grade proportional probability allocation method was used.

Study variables

Dependent variable: exposure to HIV/AIDS.

Independent variables: were classified in to:

Socio-economic and demographic variables: Age, Sex, Educational Level, Family income, Ethnicity, Religion, Family size, Parents Marital Status and Habits (Alcohol, Drugs, Khat and Cigarette) Knowledge of H IV/AIDS, sexual activities(sexual exposure, condom use, type of individual with whom they did sex)

Data collection techniques and instrument

Data was collected by using structured self-administer questionnaire adopted from different literatures and modified according to the local context by the investigators. The questionnaire was translated first to Afan Oromo language to make data collection process simple and translated back to English language to check its consistency by language experts.

Data collectors

Facilitators were assigned for the data collection process.

Data quality control

To ensure the quality of data to be gathered from the study subjects, a range of mechanisms were employed to address major areas of bias introduction during the data collection process. First, data collection instrument was pre-tested on 5% of the sample size in the study area out of the selected schools and necessary modifications were made based on the nature of gaps identified in the questionnaire. Students were informed about how to fill the questioner's and facilitators were trained one day training before data collected how to gather the appropriate information, procedures of data collection techniques on the whole contents and subject matter of the questionnaire.

At the end of each day, questionnaires were reviewed and cross checked for completeness, accuracy and consistency by the investigators and corrective discussions were under taken with all facilitators. Data was cleaned and edited after it was entered in to the software (SPSS version 16.0).

Data processing and analysis

Data was entered, cleaned for outliers, missed values and missed variables and analyzed using SPSS for windows version 16. Different frequency tables, graphs and descriptive summaries were used to describe the study variables. Bivariate analysis was conducted to see the existence of association between dependent and independent variables and.

Then those variables that show significant association with the outcome variable were included in a final model and binary logistic regressions was performed to see the independent effect each variable which reveal association with the dependent variable. Finally only those independent variables that maintain their association with outcome variables in multiple variable regressions were used to construct the final models. Odds ratio with its p- value (<0.05) and confidence interval (95%) were used or reported in each logistic regression analysis.

Dissemination of findings

The findings will be presented to the Mettu University scientific community and it will also be communicated with local health planners and other relevant stake holders in the area to enable them take recommendations in to account during their planning.

Ethical Consideration

The study was conducted after getting official permission from an ethical clearance committee of Mettu University. Data were collected after getting official permission from Mettu zone education office. Informed verbal consent was obtained from each study Participant before data was collected and each respondent was informed about the objective of the study and their right to quit from the study. Confidentiality was held.

RESULT

Socio-demographic characteristics

The total size of the study units who were actual respondents was 394. The response rate was 93.14%. The median age of the study subjects is found to be 17 years with (SD ±1.26). 98.2% of them were unmarried. Oromo is the dominant ethnic group (81.2%). **(Table 1).**

Table 1: Socio-Demographic Characteristics of The Respondents in Mettu town Ilu-ababora zone, Ethiopia, May, 2013

Back ground variables	Categories	Frequency	(%)	Remark
Marital status	Married	7	1.8	
	Single	387	98.2	
	Total	394	100	
Religion	Orthodox Tewahido	175	44.4	
	Protestant	170	43.1	
	Catholic	25	6.4	
	Islam	19	4.8	
	Others	5	1.3	
	Total	394	100	
Ethnicity	Oromo	320	81.2	
	Amara	58	14.8	
	Gurage	8	2	
	Tigre	8	2	
	Total	394	100	
Educational status of fathers	Non formal education	52	13.2	
	Formal education	342	86.8	
	Total	394	100	
Educational status of mothers	Non formal education	140	35.5	
	Formal education	254	64.5	
	Total	394	100	

Sexual activity of students

Sexual History

In this study 51 (12.94%) of the respondents reported that they practiced sexual intercourse. Among those who had practiced sexual intercourse, 29 (56.8%) were males. The most common reasons for the initiation of the first sexual encounter were: personal desire (36, 70.6%), and peer pressure (15, 29.4%). Of those students who have reported to have sexual intercourse, 14 (27.5%) of them received money/ gift in favor of sex.

Risky Sexual behavior

All students were engaged in sexual activity, 51 (100%) reported to have one sexual partner. In their sexual intercourse episodes, majority (31, 60.8%) have never used condom, while only 9 (17.64%) of them used consistently. Among the students who have reported to have sexual intercourse history no one has any contact with commercial sex worker.

Table-2 Sexual Behavior of School Youths, Mettu Town, May 2013

Variables	Numbers	%
Ever practice sex n=394		
Yes	51	12.94
No	343	87.06
No of sexual partner		
One	51	100
More than one	0	0
Condom utilization during first sex		
Yes	14	27.45
No	31	60.78
Don't remember	5	9.80
Frequency of condom utilization		
Never used	31	60.78
Some times	3	5.88
Most of the time	2	3.92
Always	9	17.64
Don't know	5	9.80

Table 3: Knowledge on HIV/AIDS Transmission and Prevention and Magnitude of Substance use Mettu Town, May 2013

Variables	Number	%
Mode of transmission		
Sexual intercourse	394	100
Blood transmission	394	100
Mother to child	306	77.6
Contaminated injection	226	57.3
From asymptomatic person	274	69.5
Mode of prevention		
Abstinence	344	87.3
With one faithful partner	285	72.3
Condom use	394	100
Alcohol conception		
Never Drunk	332	84.3
Drunk	62	15.7
Khat chewing:		
Never chewed	372	94.4
Chewed	22	5.6
Cigarette Smoking:		
Never Smoke	346	87.8
Smoked	48	12.2
Shisha/ Cannabis use		
Never used	394	100

Knowledge on HIV/AIDS and magnitude of substance use

All of them knew HIV or the disease of AIDS and all of them heard diseases that can be transmitted through sexual intercourse. The main mode of transmission of HIV known by the students were blood transmission (394, 100%), mother to child (306, 77.6%) and contaminated injection needles (226, 57.3%). Eating meals cooked by HIV infected person was the major misconception on transmission. In other ways 274 (69.5%) mentioned that they know that a person who have the virus but looks healthy can transmit the virus. Three hundred forty four (87.3%) of the study subjects reported that sexual abstinence protects from HIV. Additionally, 285 (72.3%) of the students indicated that people can protect themselves from the infection by having one uninfected faithful sexual partner. Among the study subjects majority 332 (84.3%) of them didn't drank alcohols and no one of them exposed to shisha.

Risk factors

In bivariate analysis variables like age of students, marital status, mothers' education, having sexual intercourse, condom utilization status, drinking alcohols, chewing chat and smoking showed as risk factors for HIV/AIDS.

For the final model all variables which had shown statistically significant association during the bivariate analysis included in the model. Finally, condom utilization, having sexual intercourse, drinking alcohols and smoking were found to be the independent predictor for risk factors of HIV/AIDS after controlling other variables as confounders.

As shown in table 4 Students those engaged in sexual intercourse were 3 times more likely to have exposure for HIV/AIDS as compared to those were not engaged in sexual intercourse (AOR= 3.36, 95% CI (3.061, 7.664)). Using condom during sexual intercourse showed as protective effect for the occurrence of HIV/AIDS. Accordingly, students those who were not use condom during sexual contact were 3 times more likely to have exposure for HIV/AIDS as compared to those who use it (AOR=3.011, 95%CI(2.371, 9.541)).When students drink alcohol the probability of having exposure for HIV/AIDS increase. Compared to those students who do not drink alcohol, those drink alcohols were 2 times more exposed for HIV/AIDS (AOR= 2.035, 95%CI (1.009, 4.132)). Smoking also considered as risk factor for HIV/AIDS as compared to not smoked students in this study.

Table 4: Independent Predictors for HIV/AIDS Risk Factors

Variables	COR	AOR
Age of students		
13-17	0.01	0.431
18-24	1	1
Marital status		
Married	0.043	0.061
Unmarried	1	1
Mothers education		
Unable to read and write	0.003	0.132
Read and write	0.001	0.379
1-6	0.405	0.691
7-8	0.531	0.670
9-12	0.083	0.836
Above grade 12	1	1
Having sexual intercourse		
Yes	0.042	0.021(3.061, 7.664) 3.361
No	1	1
Condom use		
No	0.014	0.031 (2.371, 9.541) 3.011
Yes	1	1
Drinking alcohols		
Yes	0.036	0.000 (1.009, 4.132)2.035
No	1	1
Chewing chat		
Yes	0.054	0.534
No	1	1
Smoking		
Yes	0.000	0.000 (5.890 8.712) 6.477
No	1	1

DISCUSSION

In this study only 12.9% of the respondents reported that they had practiced sexual intercourse. But, it is much lower than study conducted else were; 25%, 46% and 51.3% ***(12, 15, 16)*** respectively. The possible explanation for these variations may be, in this study area there is high risk perceptions as well as due to differences in geographical locations and differences in the study period /time. This finding revealed that, the majority (60.8%) of the study participants who had history of sexual exposure did not use condom. This result is comparable with other finding 56.5 % ***(*16*)***. But, it is inconsistent with other findings; 38.9% and 38.8% (**12, 18**) respectively.

Surprisingly, in this study among the sexually experienced individuals, no one had history of sexual contact with multiple sexual partners/commercial sex workers. But this result is inconsistent with other finding which show 31% of sexually experienced individuals had history of sexual contact with multiple sexual partners ***(*14*)***. The reason for this inconsistency may be, in this study area, all sexually experienced individuals aware of ways to prevent transmissions' of HIV/AIDS or of the importance's of being faith to prevent HIV/AIDS transmissions. One encouraging result from this finding is, all study participants aware of HIV or the disease AIDS and all of them had heard diseases that can be transmitted through sexual intercourse.

But, still considerable amounts of study participants (39.1%) have misconception which says HIV/AIDS transmissions. In this study, 39.1% of individuals reported that, HIV/AIDS can be transmitted while eating meals cooked by HIV infected person. This finding is supported by another study which showed that, a substantiate proportion of the youth (49%), had misconception about the mode of transmission ***(*22*)***.

In other way, majority of study participants (69.5%) reported that they know that a person who have the virus but looks healthy can transmit the virus. This finding is higher than study conducted in Nigeria in which half of the respondents agreed that a person who looks healthy can be infected and possesses the ability to describe the look of an infected person ***(*20*).***It is higher may be due to differences in sample size as well as differences in socio-cultural conditions. The most important findings depicted by this study is, marital status, condom utilization, having sexual intercourse, drinking alcohols and smoking were found to be the independent predictor for risk factors of HIV/AIDS after controlling other variables as confounders. These findings are supported by other studies conducted elsewhere ***(*17, 16, 14, 18*)***.

CONCLUSION

Even though all the study participants aware of the HIV or the disease AIDS and all of them had heard diseases that can be transmitted through sexual intercourse, among the sexually experienced individuals the majority (60.8%) did not use condom. But none of sexually experienced individuals have sexual contact with commercial sex workers. On the other way, misconceptions on ways of HIV/AIDS transmissions are common among these study participants. Finally, in this study, condom utilization, having sexual intercourse, drinking alcohols and smoking were found to be the independent predictor for risk factors of HIV/AIDS exposure.

RECOMMENDATIONS

Based on the findings of this study the following recommendations forwarded.

1. Respective schools have to aware their students on the importances of condom use to prevent exposure not only HIV/AIDS but also other sexually transmitted infections.
2. The schools have to be establish different clubs to create awareness for the students
3. Youth center have to be established in the school for easily access of different services.
4. Since misconceptions on the ways of HIV/AIDS transmissions are common among study participants all stake holders (schools, Zonal health office and Mettu University) have work on this to prevent stigma and discriminations related with HIV/AIDS.
5. Further researches (e.g. pure qualitative study) are needed to explore the influence of factors like condom utilization, having sexual intercourse, drinking alcohols and smoking on exposure to HIV/AIDS.

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Authors' contributions

All authors' participated in all phases of the study including topic selection, design, data collection, data analysis and interpretation. Zenebu Begna contributes to write this manuscript.

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