

ORIGINAL RESEARCH ARTICLE

Knowledge of Sexually Transmitted Infections amongst Pregnant Women Attending Antenatal Clinics in West Coast Region of The Gambia

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Abstract

Sexually Transmitted Infections (STIs) during pregnancy remain a public health concern especially in developing countries including The Gambia. This study assessed the knowledge of STIs and its associated factors amongst pregnant women attending antenatal clinics in West Coast region of The Gambia. A descriptive cross-sectional study design was used. Two hundred and eighty pregnant women attending antenatal care in Brikama District Hospital, Brikama, and Bandung Maternity and Child Health Hospital, Bandung, who gave their consent, participated in this study. The instrument for data collection was an interviewer administered questionnaire. Data was analyzed using IBM SPSS for Windows, version 21.0. Level of significance was set at $p < 0.05$. All the respondents were aware of HIV/AIDS and their main source of information was from health care providers. However, most of them 263 (93.9%) had poor knowledge of STIs. Level of education ($p < 0.001$) and employment status ($p = 0.001$) had significant association with level of knowledge of STIs. This study also identified low level of education [AOR: 0.04 (95% CI: 0.01 – 0.35)], and unemployment [AOR: 21.97 (95% CI: 1.57 – 306.65)] as statistically significant predictors of low level of knowledge of STIs amongst the respondents. There is need for mass media campaigns and other public health measures aimed at increasing knowledge of STIs as this will herald effective intervention strategies towards the prevention of STIs. (*Afr J Reprod Health 2019; 23[3]: 49-56*).

Keywords: Knowledge, Sexually Transmitted Infections, Pregnant women, Antenatal Clinic, The Gambia

Résumé

Les infections sexuellement transmissibles (IST) pendant la grossesse demeurent un problème de santé publique, en particulier dans les pays en développement, y compris la Gambie. Cette étude a évalué la connaissance des IST et de ses facteurs associés auprès des femmes enceintes qui fréquentent des cliniques prénatales dans la région de la Côte Ouest de la Gambie. Un plan d'étude descriptif transversal a été utilisé. Deux cent quatre-vingts femmes enceintes qui fréquentent des cliniques des soins prénatals dans des hôpitaux du district de Brikama et la Maternité et l'Hôpital des enfants à Bandung, qui ont donné leur consentement, ont participé à cette étude. L'instrument de collecte de données était un questionnaire administré par un intervieweur. Les données ont été analysées à l'aide d'IBM SPSS pour Windows, la version 21.0. Le niveau de signification a été fixé à $p < 0,05$. Toutes les interviewées étaient au courant du VIH / sida et leur principale source d'information était les fournisseurs de soins de santé. Cependant, la plupart d'entre elles 263 (93,9%) avaient une faible connaissance des IST. Le niveau d'éducation ($p < 0,001$) et le statut professionnel ($p = 0,001$), avaient une association significative avec le niveau de connaissance des IST. Cette étude a également identifié le faible niveau d'éducation [AOR: 0,04 (IC 95%: 0,01 - 0,35)] et le chômage [AOR: 21,97 (IC 95%: 1,57 - 306,65)] comme facteurs prédictifs statistiquement significatifs d'un faible niveau de connaissance des IST chez les interviewées. Il est nécessaire de mener des campagnes dans les médias et de prendre d'autres mesures de santé publique visant à accroître la connaissance des IST, car cela annoncera des stratégies d'intervention efficaces en matière de prévention des IST. (*Afr J Reprod Health 2019; 23[3]:49-56*).

Mots-clés: Connaissances, infections sexuellement transmissibles, femmes enceintes, clinique prénatale, Gambie

Introduction

Sexually Transmitted Infections (STIs) remain a public health problem in the world especially in developing countries¹. In 2013, it was estimated that the number of people living with STIs was 1.3 billion². Women attending Antenatal Care (ANC) in

resource-limited countries are frequently screened for syphilis and human immune-deficiency virus (HIV), but rarely for other STIs³. The attention given to STIs is strongly related to the link between STIs and HIV. STIs are spread predominantly by sexual contact including; vaginal, anal, and oral sex. Some STIs can be spread through non-sexual means such as through

blood or blood products. Such STIs include hepatitis B, HIV, and syphilis and can also be transmitted from mother to child during pregnancy and childbirth⁴.

More than thirty bacteria, viruses and parasites are known to be transmitted through sexual contact. Eight of these pathogens are linked to the greatest incidence of STIs. Of the eight infections, four are currently curable; syphilis, gonorrhea, chlamydia, and trichomoniasis. The other four are viral infections and are incurable; hepatitis B, herpes simplex virus, human papillomavirus (HPV), and HIV⁵.

STIs have been associated with a number of adverse pregnancy outcomes including abortion, stillbirth, preterm delivery, low birth weight, postpartum sepsis, neonatal pneumonia, neonatal blindness, and congenital infection⁵. They have also consistently been ranked among the five most important causes of adults seeking health care and loss of healthy productive life. The morbidity from STIs, excluding HIV in women aged 15 - 45 years, ranks second only to maternal causes⁵. The World Health Organization (WHO) estimate indicates that 498.9 million new STIs occur annually among people aged between 15 - 49 years. Sub-Saharan Africa has an STI incidence of 240/1000 which is the highest in the world⁶. Evidence shows that in Africa, *Neisseria gonorrhoea*, *Chlamydia trachomatis*, and *Trichomonas vaginalis* increase HIV virus acquisition and transmission⁵⁻⁹.

Even though pregnant women are regarded as a low risk group for acquiring infections, the effect and consequences are more serious compared to their non-pregnant counterparts¹⁰. STIs pose special risks for pregnant women and their infants because it can be transmitted to fetus or newborn. Some STIs, including chlamydia, gonorrhea, genital herpes, and cytomegalovirus can be passed from mother to infant during delivery when the infant passes through an infected birth canal. A few STIs, including syphilis and HIV can infect a fetus before birth, during the pregnancy, and during breastfeeding (HIV)¹¹.

It is important for pregnant women to be tested for STIs during Antenatal Care (ANC) as this minimizes the complications and reduces the morbidity and mortality rates. The impact of these infections on the obstetric outcome and management are well known. STI's during pregnancy can cause ectopic pregnancy, miscarriage, preterm labour and delivery, low-birth weight, birth defects; including

blindness, deafness, bone deformities, and intellectual disability, illness in the newborn, and stillbirth¹¹. Other long-term morbidities such as cervical cancers, chronic hepatitis, and chronic pelvic infection are also observed in women with these infections in pregnancy. STIs can be transmitted from a pregnant mother to the baby, during ante partum, intra-partum and postpartum periods^{12,13}.

In the Gambia, a previous study showed that the prevalence of all STIs were higher in women than men and women were much less likely than men to seek treatment for STI symptoms at a health centre¹⁴. Another study carried out to determine the prevalence of HIV-1 and HIV-2 among 1500 Gambians revealed a prevalence rate of 8.4% (78/928) and 4.0% (23/572) in women and men respectively. Over 70% (693/928) of the female participants in this study were antenatal cases¹⁵.

We are not currently aware of any study in The Gambia that assesses the knowledge of STIs amongst pregnant women attending ANC. This underscores the need for this study which may contribute to reducing the burden of STIs in the country. Thus, the aim of this study was to assess the level of knowledge of STIs and its associated factors amongst pregnant women attending ANC in the West Coast region of The Gambia in order to generate local data that will inform the development of effective intervention strategies towards the prevention of STIs in The Gambia.

Methods

Study design and setting

This hospital based cross-sectional study was conducted at Brikama District Hospital, Brikama, and Bandung Maternity and Child Health Hospital (formally Jammeh Foundation for Peace Hospital), Bandung, all in the West Coast Region of The Gambia between June and October 2017. These secondary health facilities offer ANC services to pregnant women. The Gambia is located in West Africa and it is the smallest country on mainland Africa and shares its northern, eastern and southern border with the Republic of Senegal, while the Atlantic Ocean encompasses its western coastline. Its population is estimated at 1.8 million people within an area of almost 10,500 square kilometers. The total fertility rate is 5.4 births per woman, and more than half of the population is under the age of 18 years.

Study population and recruitment

The study included booked pregnant women attending antenatal clinics at the Brikama District Hospital, and Bandung Maternity and Child Health Hospital which are in the West Coast region of The Gambia. Pregnant women who were too ill to participate were excluded from the study. The minimum sample size required for the study, which was calculated using the formula for single proportions ($n = zpq^2/d^2$) and after adjusting for non-response at a rate of 5%, was 273. Pregnant women who met the inclusion criteria were recruited consecutively from the two hospitals during antenatal visits for the study.

Data collection

Data collection was done using a pretested interviewer administered questionnaire which was developed by the researchers. The questionnaire was translated into the three major local languages spoken in the study area namely: Mandinka, Fula and Wolof, and then back translated to English. Respondents were interviewed either in English or any of their preferred local language. Trained research assistants were used to collect data. The questionnaire was used to seek information on the socio-demographic characteristics of the respondents, their knowledge of STIs, its mode of transmission, and factors associated with STIs.

Data analysis

Data obtained from the questionnaire was analyzed using the IBM Statistical Package for the Social Sciences (SPSS) for Windows, version 21.0 (Armonk, NY: IBM Corp USA). Eleven questions were used for assessing the level of knowledge. A correct response was given a score of one while an incorrect response a score of zero. The total score of each pregnant woman was converted to percentage and used to categorize them into those with good knowledge (score ≥ 50) and poor knowledge (score < 50). Chi-square test and the Fisher's exact test were used to test the association between socio-demographic variables and knowledge of STIs. Binary logistic regression was modeled to identify significant independent predictors of knowledge of STIs. The level of significance was set at $p < 0.05$.

Results

Two hundred and eighty pregnant women participated in the study. Table 1 summarizes the socio-demographic characteristics of the respondents. One hundred and fourteen (39.6%) of the respondents were in the age group 15 to 24 years. However, the highest proportion of them 132 (47.2%) were in the age group 25 to 34 years. The median (inter-quartile range) age of the respondents was 25.5 (22.0 – 31.0) years. Almost all the respondents were married 276 (98.6%), Muslim 276 (98.6%), and not employed [276 (98.6%)]. A little more than half had no formal education 148 (52.9%), while three-fifth [168 (60.0%)] were of the Mandinka tribe. One hundred and twenty-six (45.0%) were grand-multipara, 168 (67.2%) had between 1 to 4 surviving children while 161 (64.4%) were at the second trimester as at the time of the study.

All the respondents had heard of STIs and their main source of information was from health care providers 187 (66.8%). The examples of STIs mentioned by the respondents were HIV/AIDS 280 (100.0%), gonorrhoea 29 (10.4%), and syphilis 3 (1.1%). Majority of the respondents, 232 (82.8%), mentioned that a pregnant woman would always have symptoms and about 36 (12.9%) mentioned that a pregnant woman would sometimes have symptoms of STIs. Genital itch was mentioned by 91.1% of respondents as a symptom that may cause a pregnant woman to suspect that she has an STI. Most of the respondents, 222 (79.3%), mentioned that STIs can be transmitted through unprotected sex, 254 (90.8%) knew that STI could be transmitted from mother to child. Majority of respondents, 207 (73.9%), mentioned being faithful to one's partner as a means of prevention of STIs, only 24 (8.6%) knew that STIs makes people more vulnerable for HIV transmission, 177 (63.2%) stated that STIs cannot be cured, and 15 (5.4%) mentioned that some STIs could be cured while majority 263(93.9%) stated that a person with STIs symptoms should seek help from the hospital (Table 2). Overall, only 17 (6.1%) of the respondents had good knowledge of STIs while most of them 263 (93.9%) had poor knowledge of STIs.

The association between the socio-demographic characteristics and knowledge of STIs is shown in Table 3. The proportion of respondents with good knowledge of STIs increased with increasing

Table 1: Socio-demographic characteristics of pregnant women in West Coast Region of The Gambia

Characteristics	Frequency [n=280 (%)]
Age group (Years)*	
15 – 24	114 (39.6)
25 – 34	132 (47.2)
35 – 44	34 (13.2)
Marital Status	
Married	276 (98.6)
Not married	4 (1.4)
Ethnicity	
Mandinka	168 (60.0)
Fula	45 (16.0)
Wolof	29 (10.4)
Jola	24 (8.6)
Others**	14 (5.0)
Level of Education	
None	148 (52.9)
Primary	45 (16.1)
Junior Secondary	74 (26.4)
Senior Secondary	9 (3.2)
Tertiary	4 (1.4)
Religion	
Islam	276 (98.6)
Christianity	4 (1.4)
Employment status	
Not Employed	276 (98.6)
Employed	4 (1.4)
Parity	
Primipara	61 (21.8)
Multipara	93 (33.2)
Grandmultipara	126 (45.0)
Number of children	
0	50 (20.0)
1-4	168 (67.2)
> 4	32 (12.8)
Gestational Age	
First trimester	84 (30.0)
Second trimester	185 (66.1)
Third trimester	11 (3.9)

*median (inter-quartile range) = 25.5 (22.0 – 31.0) years.

**Aku, Manjago, Sererr, Sarahule, Karonika and Bambara

age group, however, this association was not statistically significant ($p=0.563$). Similarly, the association between marital status, ethnicity, religion, parity, number of children and gestational age and the respondent's knowledge of STIs were not statistically significant ($p = 0.223, 0.140, 0.223, 0.806, 0.960$ and 0.785 respectively). There was an increasing trend in respondents' knowledge of STIs from those with no formal education to those with tertiary level of education and this association was statistically significant ($p = 0.001$). Also, the association between employment status of respondents and their knowledge of STIs was statistically significant

($p=0.001$) as 75.0% of the employed respondents had good knowledge of STIs when compared with 5.1% of those who were not employed.

Table 4 shows the logistic regression model of the socio-demographic variable and respondents' knowledge of STIs. The variables in the model explained 11.4% to 31.0% of the variation observed in the respondents' level of knowledge of STIs. The model was statistically useful (Omnibus Tests of model coefficient = 33.86, $p < 0.001$). With a year increase in the age (years) of the respondents, there was a 1.01 (95% CI: 0.91 – 1.11) increase in the knowledge level of STIs of the respondents. The respondents who were married were 8.01 (95% CI: 0.61 – 105.00) times as likely to have good knowledge of STIs compared to those who were not married. The respondents who were not educated were less likely to have good knowledge of STIs compared to those who were educated 0.04 (95% CI: 0.01 – 0.35). The respondents who were Christians were 2.74 (95% CI: 0.08 – 96.64) times as likely to have good knowledge of STIs compared to those who were Muslims. The respondents who were employed were 22 (95% CI: 1.57 – 306.65) times as likely to have good knowledge of STIs compared to those who were not employed.

Discussion

Women are more vulnerable to STIs during pregnancy because of their reduced immunity and these infections can cause adverse effects to the mother and the unborn child thereby increasing the morbidity and mortality rate in this group. The pregnant women that participated in this study were relatively young adults with median age of 25.5 years. This is like findings from studies done in Tete Province in Mozambique in 2008, where the median age of pregnant women attending antenatal clinic was 24.7 years¹⁶. This median age lies within the lower half of the reproductive age bracket of 15-49 years. This may be explained by the fact that The Gambia is one of the developing countries in sub-Saharan Africa and demographers have identified consistent high fertility as one of the main causes of a young population. Women in this age bracket are sexually active and are thus vulnerable to a wide range of STIs. Findings from this study also showed that majority of the respondents were married. This is like findings of a study done in Tanzania in 2011 where

Table 2: Knowledge of mode of transmission and prevention of STIs of pregnant women in West Coast Region of The Gambia

Variables	Frequency [n=280 (%)]
STIs known to the respondents*	
HIV/AIDS	280 (100)
Gonorrhoea	29 (10.4)
Syphilis	3 (1.1)
Knowledge of symptoms occurrence in pregnancy	
Pregnant woman with STIs always have symptoms	232 (82.8)
Sometimes have symptoms	36 (12.9)
Never have symptoms	7 (2.5)
Do not know	5 (1.8)
Symptoms that may indicate an STI in pregnancy	
Genital itch	253 (91.1)
Genital ulcer	9 (3.2)
Knows all	16 (5.7)
Knowledge of mode of transmission of STIs	
Unprotected sex	222 (79.3)
Blood transfusion	15 (3.2)
Hugging	2 (0.7)
Knowledge of consequences of untreated STIs	
Transmission of infection to the newborn	254 (90.8)
Adverse pregnancy outcomes	11 (3.9)
Infertility	1 (0.3)
Ways to prevent STIs	
Be faithful to one's partner	207 (73.9)
Consistent use of condom	33 (11.8)
Getting tested before marriage	30 (10.7)
Abstinence	10 (3.6)
Having an STI makes you more vulnerable for HIV transmission	
Yes	24 (8.6)
Do not know	256 (91.4)
STIs can be cured	
Yes	84 (30.0)
No	177 (63.2)
Some can be cured	15 (5.4)
Do not know	4 (1.4)
Where to treat a case of STI	
Hospital	263 (93.9)
Pharmacy	17 (6.1)

*multiple response

majorities (87.0%) of the respondents were married¹⁷. The findings from this study could be because of the religion of Islam which encourages early marriage and discourages women from having children outside wedlock. Despite international agreements and national laws, marriage of girls less than 18 years of age is still common in sub-Saharan Africa and affects millions. It has been documented that child marriage is a human right violation which hinders the girl child

from been educated, maturing, enjoying optimal health, bonding with others of their own age, and ultimately choosing their spouse. Child marriage has been proven to be driven by poverty and has many effects on girls' health: such as increased risk for STIs, cervical cancer, malaria, death during childbirth, and obstetric fistulas¹⁸.

A little more than half of the respondents (52.9%) had no formal education and this could be because most Gambian women attend Arabic schools and some of them may not proceed to formal education because they have to get married. Education is necessary for every woman as this will empower her economically and help her to make the right decisions. An educated woman is more likely to be able to negotiate for safe sex compared to an uneducated woman who does not know the dangers of unsafe sex. With a low level of education, the awareness and knowledge of STI's was very poor and this shows that the girl child needs to be empowered. Even though in The Gambia, the girl child education is increasing, there is room for much improvement and parents should encourage their daughters to attain tertiary level education before getting married.

Most of the participants were not employed as at the time of the study and this could be because majority of the respondents were not educated. Women need to be educated to get a good job to take care of themselves and their families. Employment reduces the chances that a woman would go into prostitution and thereby predisposing herself to STIs. Job opportunities should be created for women and those who are not educated should be taught a trade so that they can use it as a source of livelihood.

Most of the pregnant women were grand multiparous. This could be because of the sex preference in The Gambia where women keep getting pregnant to have a son that will take over the family name after the husband has passed away. This can also be attributed to the high unmet needs for family planning in The Gambia. Grand multiparity remains a major obstetric problem that is associated with medical and obstetrical complications¹⁹. It is therefore important to address the unmet need for family planning and educate husbands on the need for family planning.

All the respondents had heard of HIV/AIDS and their main source of information was from health care providers. This shows that health education, a basic component of ANC services and Safe Motherhood Initiative, is having the desired impact and should be encouraged. However, more efforts

should be placed on other channels of educating pregnant women such as the media. This will help reinforce good health seeking behaviour during ANC and sustain positive behavioural change.

This study found that majority of the participants had poor knowledge of STIs. The level of poor knowledge was far higher than the estimated 20.4% of people who had a poor knowledge of STIs in a study carried out in 2009, in Moshi, Tanzania²⁰. Most of the respondents were aware of only HIV/AIDs, but not other STIs. This is similar to the findings of a study carried out in Ogun State, Nigeria in 2001 where 90% of the participants had heard of HIV/AIDs but only 27% of them knew that it could be transmitted from mother to child²¹. The low level

of knowledge in this study shows that women need to be educated on other STIs apart from HIV/AIDs. This also goes to show the biased allocation of resources to HIV/AIDs prevention to the detriment of other equally prevalent STIs. There is need to focus on other STIs and to integrate other STIs programmes into the HIV/AIDs control programme.

This study also identified differential distribution of the knowledge of STIs. Most of the women were aware of only one symptom of STIs which genital itching is. In designing any health education programme, focus should be placed on details of STI components with respect to symptoms, mode of transmission, and treatment. Furthermore, attention of the public health community needs

Table 3: Association between socio-demographic characteristics and level of knowledge of STIs among pregnant women in West Coast Region of The Gambia

Variables	Good [n=17 (%)]	Poor [n=263 (%)]	p-value
Level of knowledge			
Age group (Years)			
15-24	5 (4.4)	109 (95.6)	0.563 ⁺
25-34	9 (6.8)	123 (93.2)	
35-44	3 (8.8)	31 (91.2)	
Marital Status			
Married	1 (25.0)	3 (75.0)	0.223 ⁺
Not married	16 (5.8)	260 (94.2)	
Ethnicity			
Wolof	1 (3.4)	28 (96.6)	0.140*
Mandinka	7 (4.2)	161 (95.8)	
Fula	4 (8.9)	41 (91.1)	
Jola	3 (12.5)	21 (87.5)	
Others	2 (14.3)	12 (85.7)	
Level of Education			
None	1 (0.7)	145 (93.3)	<0.001*
Primary	1 (2.2)	44 (97.8)	
Secondary	10 (12.0)	73 (88.0)	
Tertiary	5 (83.3)	1 (16.7)	
Religion			
Christianity	1 (25.0)	3 (75.0)	0.223*
Islam	16 (5.8)	260 (94.2)	
Employment Status			
Employed	3 (75.0)	1 (25.0)	0.001*
Not employed	14 (5.1)	262 (94.2)	
Parity			
Primipara	3 (4.9)	58 (95.1)	0.806 ⁺
Multipara	7 (7.5)	86 (92.5)	
Grandmultipara	7 (5.6)	119 (94.4)	
Number of children			
Nil	3 (5.3)	54 (94.7)	0.960 ⁺
1- 4	12 (6.3)	179 (93.7)	
> 4	2 (6.3)	30 (93.8)	
Gestational Age			
First trimester	4 (4.8)	80 (95.2)	0.785 ⁺
Second trimester	12 (6.5)	173 (93.5)	
Third trimester	1 (9.1)	10 (90.9)	

*Fisher's exact test, ⁺ Chi-square test

Table 4: Socio-demographic characteristics and level of knowledge of STIs among the respondents (logistic regression)

Variables	Regression coefficient	p-value	AOR (95% CI)
Age (Years)	0.005	0.921	1.01 (0.91-1.11)
Marital Status			
Married	2.08	0.113	8.01 (0.61-105.00)
Not married*			1
Ethnicity			
Wolof*			1
Mandinka	-0.454	0.693	0.64 (0.07-6.03)
Fula	0.714	0.547	2.04 (0.20-20.82)
Jola	1.929	0.119	6.89 (0.61-77.91)
Others	-0.486	0.776	0.62 (0.02-17.54)
Level of Education			
Not educated	-3.18	0.003	0.04 (0.01-0.35)
Educated*			1
Religion			
Christianity	1.01	0.579	2.74 (0.08-96.64)
Islam*			1
Employment Status			
Employed	3.09	0.022	21.97 (1.57-306.65)
Not employed*			1
Constant	-2.499		

$R^2 = 11.4\% - 31.0\%$, Omnibus Tests of model coefficient = 33.86 ($p < 0.001$)

*Reference category

to focus on the level of education and employment status when designing interventions for reducing the burden of STIs, because they were identified as factors influencing women's knowledge of STIs in this study. This study further emphasized the role of the girl child education as a necessary component for promoting maternal health. This is in line with the vision of the Sustainable Development Goal (SDG) 4 (Quality Education) which identified education of the girl child as a means to adding health to life and life to years. The specific targets of SDG 4 states that the girl child should have equal access to all levels of education and that gender disparities should be eliminated. Empowering women is another intervention for promoting maternal health at all levels.

Conclusion

Majority of the respondents had poor knowledge of STIs. Although all the respondents had heard of HIV/AIDS, most of them had not heard of any other STIs. This study has identified low level of education, and unemployment as factors associated with the level of knowledge of STIs. Therefore, high premium should be placed on educating the girl child and this should be a priority of the Government of the Gambia.

Ethical considerations

Ethical approval was obtained from Research and Ethics Committee, University of Benin and the Joint

Gambia Government and Medical Research Council (MRC) Ethics Committee. Written informed consent was also obtained from each of the respondents before interviews were conducted as well as ensuring that high level of privacy and confidentiality was respected throughout the study. Codes rather than names were used for the identification of the respondents; Interviews were conducted in a private room to allow the respondent to speak freely. The respondents had the right to participate or not participate in the study. Health education on STIs was given to the participants after the interview session.

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Contribution of Authors

Baldeh conceptualized the idea of the study. All authors contributed to the design, literature review, data collection, analysis and writing of the results. All the authors reviewed and approved the final manuscript.

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