

Examining the Determinants of Contraceptive Use in Northern Nigeria

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Abstract

Background: The Northern part of Nigeria, has higher rates of child marriage, lower levels of contraceptive use, lower rates of antenatal care, fewer births delivered in a health facility, and higher total fertility rates and adolescent fertility rates than Southern regions. The purpose of this study is to identify predictors of current and intentions to use contraception, among young women of Northern Nigeria.

Methods: The data analyzed in this study are from 2018 Nigeria Demographic and Health Survey, part of the Demographic and Health Survey by USAID.

Results: Participants (N = 10066) ranged in age from 15 to 24 (mean = 19, sd = 2.76) from the three northern regions of Nigeria, primarily lived in rural areas (68.7%, n = 7107). We found that, 83.3 percent of the sample had heard of modern contraceptive methods, though only 3.6 (n = 357.2) were currently using a modern contraceptive method, and 43.4 (n = 4286.4) intended to use them.

Conclusion: The primary predictors of contraceptive use include literacy, wealth, educational levels, being the decision maker regarding contraceptives, age of first sex, wanting more children, and decisional autonomy in the home. Since the literacy is low, interventions should utilize pictures and radio programs, traditional and religious leaders, and incorporate men.

Summary

This research analyzes a 2018 study from Nigeria Demographic and Health Survey, part of the Demographic and Health Survey by USAID, to identify predictors of current use and intentions to use contraception among young women in Northern Nigeria. The Northern region of Nigeria has higher rates of child marriage, higher total fertility rates, lower levels of contraceptive use, lower rates of antenatal care, and fewer births delivered in a health facility than Southern regions. The results of this analysis suggest that, among other factors, the more literate, wealthy and educated women were, the more likely they were to use contraception. The research also suggests that there is reasonable knowledge of contraception in the region, but this has not been sufficient to impact behavior. This implies that methods that are unique to the nature of the region need to be employed to bring about a positive impact. These methods could include interventions that utilize traditional and religious leaders, due to the strong religiosity in the region.

Background

Gender inequality and violence are evident throughout the life cycle many of women and girls, in many respects gender inequality is accepted as a normal part of what it is to be a woman. Social norms can allow practices that may undermine gender equality including early marriage, early and unspaced child bearing, female genital mutilation, widowhood rites, and disinheritance [1]. Nigeria is not considered a country with a high level of gender equality, ranking 128 out of 153 countries on the Gender Equality Index [2]. Gender-based violence (GBV) is widespread and 30 percent of women aged 15–49 have

reported experiences of sexual abuse, with a marked divide between girls and women in urban (33 percent) and rural (24 percent) areas. Approximately 24% of women in Nigeria have reported ever experiencing intimate partner violence [1]. There is also a high fertility rate, a low use of maternal care and family planning services, and a high maternal mortality rate [3].

Cultural and religious law can sometimes permit discriminatory cultural and religious practices to persist, particularly in the realm of gender justice and sexual and reproductive health and rights [1]. Nigeria is characterized by religious, ethnic, and legal pluralism [1], and has the largest number of child brides in Africa and one of the highest prevalence rates in the world: 23 million girls and women were married as children [4]. Currently, 43 percent of girls are married before age 18, and 17 percent are married before they turn 15. In Northern Nigeria, 48% of girls in the Northwest region were married by age 15 and 78% were married by age 18 [1]. Once girls in Nigeria are married, very few use contraception or have their contraceptive needs met (13.1%).

In 2013, Nigeria accounted for approximately 14% of the global burden of maternal mortality [1]. Despite high rates of maternal mortality, modern contraceptive use is relatively low [5], while desire for more children is high. An estimated 16% of women report using any contraceptive method, which is far below the global level of 63.3%, and below the African country average of 31% [3].

The Northern part of Nigeria, has higher rates of child marriage, lower levels of contraceptive use, lower rates of Northern antenatal care, fewer births delivered in a health facility, and higher total fertility rates and adolescent fertility rates than Southern regions [1]. Understanding the ideal family size, the way people think about contraception and fertility, and the role of sociodemographic characteristics is necessary to be able to address the contraceptive needs [6]. The level of unmet contraceptive need suggests need for fresh initiatives in Northern Nigeria to reduce unmet need for family planning among childbearing women in the region [7]. The purpose of this study is to identify predictors of willingness to use contraception, among women of Northern Nigeria.

Methodology

The data analyzed in this study are from 2018 Nigeria Demographic and Health Survey (NDHS) which was part of the Demographic and Health Survey (DHS) being implemented across developing countries to provide national estimates of basic demographic and health information such as fertility, family planning, maternal and child health, female genital mutilation/cut-ting, and domestic violence. The DHS are nationally representative surveys based on similar methodology and design across the developing countries [8]. In each country where the surveys are conducted, the national population or statistical agency is usually the agency to implement the survey with technical and financial support from the USAID through MEASURE DHS. All DHS surveys are approved by ICF international as well as an Institutional Review Board (IRB) in the host country to make sure that the protocols are in compliance with the U.S. Department of Health and Human Services regulations for the protection of human subjects. All participants gave informed consent before taking part in the survey. In this study, further ethical

approval was not necessary as the analysis was based on secondary data available in the public domain in anonymized form [8]. The request to access and analyses the dataset was processed formally through online submission of abstract detailing the objective and methodology of the study to MEASURE DHS, Authorization was granted without delay [9]. In Nigeria, the surveys are implemented by the National Population Commission with the financial and technical assistance by ICF International provisioned through the USAID-funded MEASURE DHS program. It provides population and health information at national, zonal and state levels. It is a cross-national survey of reproductive behavior in Nigeria. Eligible women are in the age range of 15–49 who are permanent residents of the households or visitors in the households on the night before the survey. In a subsample of half of the households, all men in the age range 15–59 who are permanent residents or visitors to the households present on the night before the survey are eligible for interview.

Analyses are performed at univariate, bivariate and multivariate levels. Univariate analysis in form of frequency distribution examines selected background characteristics, contraceptive use and other variables of interest. Multivariate analyses were employed to examine the determinants of contraceptive use among women. Weighting is used to correct sampling variability.

Demographic information such as current age, educational level, literacy, living in an urban or rural area, ethnicity, religious identification, owns a mobile phone, and wealth index were included in the analysis. The physical violence was assessed through questions such as ever been pushed, shook or had something thrown at her, ever been slapped, and ever been threatened with a knife/ gun or other weapon [10]. Information about partner's control issues, emotional, physical, and sexual abuse were also examined. Women were asked how many children they have given birth to, the concordance between their desire for family size and their husband's. Questions regarding who made majority of decisions regarding health care and allocation of funds within their family unit– large purchases, small purchases, visits to family, cooking food, how money will be spent, as well as earning power was assessed. In addition, questions about if participants can refuse sex, and if they can request that a partner to use a condom. Questions about age at first sex, number of sex partners including spouse, and the relationship with most recent sex partner were also included in the analysis. Finally, the questions pertaining to current and intentions to use contraception were assessed.

Results

Participants (N = 10066) represented young northern women, ranged in age from 15 to 24 (mean = 19, sd = 2.76), primarily lived in rural areas (68.7%, $n = 6791.8$), and from three regions North central (22.5%, $n = 2225.4$), North East (27.3%, $n = 2696$), and North West (50.2%, $n = 4958.7$). The majority primarily identified as one of three ethnic groups- Hausa (50.8%, $n = 5020$), Fulani (10.2%, $n = 1009.8$), and one that was not presented (25.8%, $n = 2550.9$). A majority of the population were married 51.7% ($n = 5109.9$), either had secondary level of education 39.5% ($n = 3906.6$) or no education 43.4% ($n = 4286.369458$), and the majority could not read at all 54.6% ($n = 5395.265875$). Among participants 79.5% ($n = 7851.670319$) identified as Muslim and the majority are considered poor or very poor 73.7% ($n = 5179.8$).

Demographics- Northern Nigerian Women, Between the ages of 15 and 24 (N = 10,066)							
Variable	Overall No. (%)	Regional- Weighted n (%)					
		Urban			Rural		
		North Central	North East	North West	North Central	North East	North West
Marital Status							
Single/ Never Married	4539.6 (45.9%)	504 (71.8%)	555.3 (68.2%)	988.8 (62.9%)	809.9 (53.2%)	741.1 (39.4%)	940.5 (27.8%)
Married	5109.9 (51.7%)	184.9 (26.3%)	228.1 (28%)	548.5 (34.9%)	678.9 (44.6%)	1073.8 (57.1%)	2395.8 (70.7%)
Living with Partner	45.9 (0.5%)	7.3 (1%)	7.7 (0.9%)	3.4 (0.2%)	6.9 (0.5%)	16.2 (0.9%)	4.3 (0.1%)
Widowed	15.7 (0.2%)	0 (0%)	3.9 (0.5%)	0 (0%)	5.9 (0.4%)	4.7 (0.2%)	1.2 (0%)
Divorced	133 (1.3%)	1.9 (0.3%)	18 (2.2%)	31 (2%)	1.8 (0.1%)	40 (2.1%)	40.4 (1.2%)
Separated	35.9 (0.4%)	4 (0.6%)	0.8 (0.1%)	0.6 (0%)	19.9 (1.3%)	6.4 (0.3%)	4.2 (0.1%)
Highest Level of Education Completed							
No Education	4286.4 (43.4%)	76.1 (10.8%)	238.8 (29.3%)	302.6 (19.2%)	374 (24.6%)	1095 (58.2%)	2199.9 (65%)
Primary	1208 (12.2%)	66.3 (9.4%)	62.6 (7.7%)	127 (8.1%)	258.8 (17%)	272.1 (14.5%)	421.3 (12.4%)
Secondary	3906.6 (39.5%)	466.8 (66.5%)	390.7 (48%)	974.2 (62%)	837 (54.9%)	493.5 (26.2%)	744.3 (22%)
Higher	479.1 (4.8%)	92.9 (13.2%)	121.7 (15%)	168.6 (10.7%)	53.6 (3.5%)	21.5 (1.1%)	20.8 (0.6%)
Religious Identity							
Catholic	522 (5.3%)	61.3 (8.7%)	2.4 (0.3%)	23.1 (1.5%)	370 (24.3%)	19.3 (1%)	45.9 (1.4%)
Christian	1474.7 (14.9%)	213.3 (30.4%)	99.2 (12.2%)	64.5 (4.1%)	563.4 (37%)	350.9 (18.6%)	183.3 (5.4%)
Muslim	7851.7 (79.5%)	427.5 (60.9%)	712.3 (87.5%)	1484.8 (94.4%)	587.7 (38.6%)	1511.9 (80.3%)	3127.6 (92.4%)
Traditionalist	31.8 (0.3%)	0 (0%)	0 (0%)	0 (0%)	2.2 (0.1%)	0 (0%)	29.6 (0.9%)

Demographics- Northern Nigerian Women, Between the ages of 15 and 24 (N = 10,066)							
Wealth Index							
Poorest	2461.4 (24.9%)	39 (5.6%)	20.7 (2.5%)	73.5 (4.7%)	254.2 (16.7%)	873.6 (46.4%)	1200.4 (35.4%)
Poorer	2718.4 (27.5%)	22.9 (3.3%)	100.1 (12.3%)	211.1 (13.4%)	520.8 (34.2%)	603.2 (32%)	1260.3 (37.2%)
Middle	2103.2 (21.3%)	126.8 (18.1%)	214.8 (26.4%)	374.8 (23.8%)	457.1 (30%)	306.1 (16.3%)	623.5 (18.4%)
Richer	1581 (16%)	271.2 (38.6%)	286.8 (35.2%)	451.4 (28.7%)	224.2 (14.7%)	83.6 (4.4%)	263.8 (7.8%)
Richest	1016.1 (10.3%)	242.3 (34.5%)	191.4 (23.5%)	461.5 (29.4%)	67 (4.4%)	15.6 (0.8%)	38.3 (1.1%)
Owns a mobile phone	3671.1 (37.2%)	448.3 (63.8%)	466.5 (57.3%)	826.1 (52.5%)	570.7 (37.5%)	503.4 (26.7%)	856.2 (25.3%)
Literacy							
Cannot read at all	5395.3 (54.6%)	154.4 (22%)	263.5 (32.4%)	374.5 (23.8%)	717.9 (47.1%)	1366.1 (72.6%)	2518.8 (74.4%)
Partially- parts of sentences	1693.9 (17.1%)	176.9 (25.2%)	141.5 (17.4%)	277 (17.6%)	445.3 (29.2%)	249.2 (13.2%)	404 (11.9%)
Can read whole sentences	2784.1 (28.2%)	369.7 (52.7%)	408.8 (50.2%)	916.2 (58.3%)	359 (23.6%)	266.9 (14.2%)	463.5 (13.7%)
No card with required language	3 (0%)	1.2 (0.2%)	0 (0%)	1.8 (0.1%)	0 (0%)	0 (0%)	0 (0%)
Blind or Visually Impaired	3.8 (0%)	0 (0%)	0 (0%)	2.8 (0.2%)	1 (0.1%)	0 (0%)	0 (0%)

The most frequent type of domestic violence reported by the sample was a controlling partner (66.4%, $n = 923.515272$), 9.2% ($n = 118.349767$) experienced sexual violence, 13.7% ($n = 183.492593$) experienced less severe physical violence, 4.9% ($n = 63.979993$) experienced severe physical violence, and 28% ($n = 382.610337$) experienced emotional violence. While a majority of the sample have not given birth (56.9%, $n = 5624.636932$), 14.2% ($n = 1407.324658$) had given birth to two, and (0.5%, $n = 50.587564$) had given birth to 5. When asked about the ideal number of children that they would like to have 58.1% ($n = 5743.415494$) responded that six or more children is ideal, 56.8% ($n = 2929.996756$) said that their husband would like to have more children than them, and 1.1% ($n = 107.346802$) would like to have more children but unsure when.

Within the family unit, women were asked who makes decisions about the allocation of funds. Husbands primarily made the decisions for large purchases (80.4%, $n = 4143$), visits to family (56.4%, $n = 2908$), how money that the husband earns will be spent (86.4%, $n = 4455$), and the majority reported that they made

less than their husbands (93.6%, $n = 1858$). The majority reported that they alone decided how to spend their earnings 81.5%, ($n = 1618$). The majority of the population (78.9%, $n = 4068$) reported that their husbands or partners made the majority of health care decisions alone, 55.8% ($n = 150$) reported that the decision to use contraception was a joint decision, and 14.8% ($n = 282$) reported that not using contraception was a personal decision. In terms of sexual autonomy, the majority of women reported that they could not refuse sex (56.6%, $n = 2917$) and 68.6% ($n = 3535$) felt that they could not ask their partners to use a condom.

The majority of the sample were married (51.7%, $n = 5110$), though almost as many had never been married (45.9%, $n = 4540$). While a large proportion of the sample were not sexually active (38.7%, $n = 3822$), 31.5 percent ($n = 3113$) reported having sex for the first time at or before the age of 15 and the vast majority reported having only one sex partner in their lives (57%, $n = 5633$). In addition, 4.7% ($n = 268$) reporting using a condom during the last time that had intercourse. While the majority of women said there is no unmet need for family planning (42.5%, $n = 4196$), 6.7% ($n = 666$) reported that there is an unmet need for spacing, and 6% ($n = 597.236048$) reported having an abortion at some point. In addition, 83.3 percent of the sample had heard of modern contraceptive methods, though only 3.6 ($n = 357.2$) were currently using a modern contraceptive method. Within the population, 43.2 ($n = 4264$) do not intend to use any contraception, while 43.4 ($n = 4286.4$) intend to use some contraception later.

Factors influencing Contraception Use			
		95% Confidence Interval	
Variable	Relative Risk	Lower	Upper
Currently Using Contraception			
Intercept	0	0	0
Education Level	1.564	1.225	1.995
Wealth Index	1.14	0.992	1.309
Marital Status	0.361	0.191	0.681
Earns more or equal to husband	2.242	0.511	9.839
Decision Maker on contraception	8973053238.118	5841224698.372	13784041630.266
Who decides to visit family	0.732	0.542	0.988
Ideal Number of Children	1.1	0.957	1.264
Wants more children	1.517	1.273	1.807
Age at first sex	1.287	1.258	1.317
Intending to Use Contraception			
Intercept	0.552	0.406	0.752
Literacy	1.406	1.279	1.546
Educational Level	1.276	1.173	1.388
Wealth Index	1.14	1.087	1.196
Decision Maker about own Healthcare	1.282	1.127	1.459
Decision Maker for large household purchases	0.829	0.725	0.948
Decision Maker on Contraception Use	0	0	0
Ideal Number of Children	0.947	0.911	0.985
Wants more Children	0.936	0.887	0.988
Can ask Partner to Use a Condom	1.716	1.472	2
Age at first sex	0.984	0.976	0.992

The multivariate results for currently using contraception are shown in Table 2. In the univariate analyses currently using contraception was positively and significantly associated with literacy (OR = 1.631, CI = 1.439 to 1.849), educational level (OR = 1.863, CI = 1.643 to 2.111), wealth index (OR = 1.371, CI = 1.269 to

1.48), marital status (OR = 1.243, CI = 1.129 to 1.368), income (i.e. makes the same or more money than partner) (OR = 2.833, CI = 1.386 to 5.79), makes health care decisions (OR = 1.773, CI = 1.54 to 2.041), makes decisions about large purchases (OR = 1.571, CI = 1.354 to 1.823), makes decisions about being on contraception (OR = 2.031483910^{9}, CI = 1.624240510^{9} to 2.540834710^{9}), makes decisions about visiting family (OR = 1.594, CI = 1.418 to 1.792), can refuse sex (OR = 2.598, CI = 2.05 to 3.294), can ask partner to wear a condom (OR = 3.558, CI = 2.778 to 4.557), age of first sex (OR = 1.26, CI = 1.228 to 1.294), experienced emotional violence (OR = 2.26, CI = 1.191 to 4.291), experience less severe physical violence (OR = 2.186, CI = 1.225 to 3.9), and experienced severe physical violence (OR = 2.287, CI = 1.079 to 4.845). While ideal number of children was inversely significantly associated with currently using contraception (OR = 0.893, CI = 0.837 to 0.952).

The multivariate results for intending to use contraceptive are shown in Table 2. In the univariate analyses for intending to use contraception was positively and significantly associated with literacy (OR = 1.926, CI = 1.823 to 2.036), education level (OR = 1.749, CI = 1.667 to 1.835), wealth index (OR = 1.435, CI = 1.384 to 1.489), wants more children (OR = 1.165, CI = 1.116 to 1.217), and can ask partner to use a condom (OR = 0.917, CI = 1.003 to 1.302). Living in a rural area (OR = 0.495, CI = 0.447 to 0.547), marital status (OR = 0.678, CI = 0.619 to 0.744), responsible for the decision to not use contraception (OR = 0.713, CI = 0.641 to 0.792), make the decision to visit family (OR = 0.879, CI = 0.825 to 0.936), ideal number of children (OR = 0.861, CI = 0.828 to 0.894), and age of first sex (OR = 0.968, CI = 0.962 to 0.974) were inversely associated with intending to use contraception.

Discussion

Understanding the ideal family size, the way people think about contraception and fertility, and the role of sociodemographic characteristics is necessary to be able to address the contraceptive needs of a population, especially in Northern Nigeria [6]. Innovative initiatives are needed to address the level of unmet contraceptive and family planning needs among young childbearing women in the region [7]. The purpose of this study was to identify associations that affect the willingness to use contraception among young women in Northern Nigeria.

About 80% of the population identified as Muslim, so given the strong religious inclinations of the country, any program that is focusing on contraceptive use in the North should be faith based or faith aware. A significant segment identified as Hausa or Fulani, 50.8% and 10.2% respectively, future studies should examine how Muslim men who are Fulani or Hausa perceive contraceptive use in order to create men centric contraceptive interventions. Similar to other research, this study found a strong association between educational levels, wealth, literacy and both intention to and actual contraception use [3], [5], [10]. Living in rural areas was associated with a decreased likelihood to use contraception. The majority of the population lived in rural areas, which may make it more difficult for any potential intervention to access the population. Literacy was found to be fairly low, with 54.6% of the population unable to read at all, potential interventions should focus on presenting information about contraception in ways that do not require words on pamphlets, like using images, utilizing the radio, or working with local traditional and

religious leaders. Ongoing efforts to increase the level of education and literacy to women and girls in the North should be supported. The population accessed in this study was fairly young, between the ages of 15 and 24, and often this segment is considered very tech savvy. Interventions for this group often focus on tech-based solutions, however 63% of the women in this region do not own a mobile phone, thus a tech-based solution would not be viable. The weak mobile network strength in addition to the low wealth index of much of the population may contribute to low mobile phone uptake, in coming years as the price of mobile phones, cost of data, and the improved strength of the mobile networks increases, tech solutions may become a viable solution.

This study found that for many women, the ideal number of children was six or more and that the majority has husbands that want to have more children than them. We found an inversely proportional association between contraceptive use and desire for more children [11]. Previous research has found that maternal grand multiparity is negatively associated with intention to use contraceptives in Nigeria, which indicates that there is unlikely to be a rise in future contraceptive use and a decline in the fertility rates in the near future [12]. Given the importance of religiosity and the how children are viewed within regional social norms, a culturally and religiously sensitive framing of contraception may be necessary. Specifically, framing contraception not as a way to limit the number of children you can have but rather as choosing when to have children. Since Nigeria has one of the one of the highest global burdens of maternal mortality, low contraceptive use, and a high desire for more children, choosing when to have children and proper spacing can help reduce birth complications that lead to death [1], [5].

We found that decision-making autonomy is significantly related to both the intention to and actual contraceptive use. As a country with very minimal gender equality [2], it is thought that social norms both inside and outside the home may limit or conversely empower women's decision making relating to contraceptives [1], [3], [6], [13]. Being able to make decisions about large purchases in the home, when to visit family, personal health, and personally or jointly making the decision to use contraceptives made a woman significantly more likely to use or intend to use contraceptives. Less decision-making autonomy was associated with less intention to use contraception [3], which points to the need to incorporate men in contraceptive focused interventions. Contrary to other research, women reporting more interpersonal violence had a higher chance of using contraception [10]. However, more research should be conducted around the acceptability of domestic violence among men and women and its' relationship to contraception. The sexual and reproductive autonomy-related issues that usually arise from general power imbalance, marital discord, and spousal abuse are often tied to socioeconomic determinants of modern contraceptive use [3]. It is important to point out that 81.5% of women said that they alone decided how to spend their earnings. In Islam, a husband's money is the family's money, but a wife's money is her own. This emphasizes the need for creating culturally and faith-based programs that address decision making autonomy, more efforts are needed to support the economic empowerment of women in this region.

Social norms can allow practices that may undermine gender equality including early marriage and unspaced child bearing [1]. There is a suggested indirect relationship via norm setting, between the

cultural and religious law and child marriage, early childbearing, and number of births [1]. A majority of women felt that they could not refuse to have sex nor ask their partners to use a condom, this lack of sexual autonomy is especially concerning given the relationship between sexual autonomy, partner phobia, and contraceptive use [6], [10]. This connection points to the need for more men focused interventions addressing women's autonomy.

Almost a third of the population reported having sex for the first time at or before the age of 15, which is lower than what similar research has found in the area [1]. Future studies should look at the age between women who had sex at age 15 or younger and the ages of their sex partners. Low contraception use is cited as a side effect of child marriages. This study found that the older a woman was when she first had sex, the more likely she is to use or intend to use contraception. The study also found extremely low levels of contraception use (3.6%), lower than the Nigerian average (16%), which is already lower than both the global (63.3%) and continental (31%) averages [3]. In addition, we found extremely low levels of condom usage, which suggests that there is a population of single sexually active young women not using contraception and who are at risk of contracting a sexually transmitted infection.

Conclusions

This study found that while a majority of the population has heard of contraception, the number of people who are using it is very low, this supports the caveat that knowledge alone is not sufficient to change behavior. Northern Nigeria, has a high fertility rate, a low use of maternal care and family planning services, and a high maternal mortality rate [3]. The amount of people who think spacing is important suggests that how we frame contraception, making it more culturally and religiously acceptable, is vital for this population

Abbreviations

DHS

Demographic and Health Survey

GBV

Gender-based violence

NDHS

Nigeria Demographic and Health Survey

Declarations

Ethics approval and consent to participate

Not applicable

Consent for publication

Not applicable

Availability of data and materials

The datasets generated and/or analyzed during the current study are available in the DHS repository, <https://dhsprogram.com/Data/>

Competing interests

The authors declare that there are no competing interests

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Authors' contributions

NAA is the primary author, she conducted the literature review, analyzed the data, and drew conclusions. JA is the senior author, she mentored, edited, and gave recommendations on the manuscript. OI reviewed the conclusions. FY and MF interpreted the results and reviewed the manuscript. All authors read and approved the final manuscript.

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