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Exploring how unemployment and grandparental support influence reproductive decisions in sub-Saharan African countries: Nigeria in focus

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The socioeconomic factors driving the adoption of birth limitation and lengthening birth intervals as fertility control mechanisms in sub-Saharan Africa are a subject of debate. There are also arguments over what accounts for the low performance of the adopted fertility control mechanisms, and the break experienced in the fertility transition process. To fill the gaps, the authors work from a life-course perspective and linked data from the National Bureau of Statistics and the National Population Commission to collect retrospective data from 416 participants. Drawing on the socioeconomic framework, the roles of unemployment and grandparental support in reproductive decisions were tested. Results suggest that the unemployment situation is an underlying mechanism that triggered the adoption of birth control measures in Nigeria. The results also suggest that grandparental support accounts for the slow pace of the fertility transition process. This current study concludes that the unemployment situation pressures parents to reduce the number of childbirth. However, where grandparental support for grandchildren is available, parents tend to have a large family size in line with the pro-natalist nature of Nigerians.

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Introduction

The socioeconomic background of people substantially dictates their social class, educational attainment, and the possibility of experiencing joblessness (Verho, 2017; Doku et al., 2018). Research has attempted to provide a clear understanding of the effects of unemployment on the transition to parenthood with the micro-level model as the framework particularly in developed countries (Comolli et al., 2019). The income level, employment situations, and fertility rate in the developed world where the link between unemployment and reproductive decision has been conducted are pretty different from sub-Saharan Africa. Sub-Saharan Africa and indeed Nigeria have high fertility rates despite experiencing high-unemployment rates and low-income levels as opposed to the developed world with low levels of unemployment rates and fertility rates, high-income levels, availability of unemployment benefits, and other generous social welfare programs.

Evidence from demographic studies lends credence to this trend with reports that sub-Saharan Africa had the highest fertility rate with an average of 5.1 children per woman from 2010–2015 compared to the rest of the world (United Nations Population Division, 2017). The mean age of women at first birth in Mali, Burkina Faso, Malawi, Mozambique, Liberia, Niger, and Chad is still below 20 years of age while it is 21–22 in other West African countries such as Senegal, Ghana, and Togo (Lerch and Spoorenberg, 2020). In the Nigerian context, the median age at first marriage among women aged 20–49 stands at 19.1 years; the average age at first birth for women between ages 25–49 is 20.4 years while the average birth interval is 30.9 months (NPC, 2018). Nigeria only witnessed a little drop in the total fertility rate over 28 years with a decrease from 6.0 children per woman in 1990 to 5.3 in 2018 (NPC, 2018).

The emergence of birth limitation and lengthening birth intervals as fertility control mechanisms in sub-Saharan Africa reflect a fluctuating and slow pace of fertility transition to the decline stage. For example, the first wave of the change to a decline stage in the total fertility rate (TFR) began in the 1970s to 1980s and slowed down in the 1990s while the second wave started in the 2000s (Lerch and Spoorenberg, 2020; Caldwell et al., 1992; Timæus and Moultrie, 2008; Hayford and Agadjanian 2019).

The association between fertility and development in Africa is fundamentally different from other developing countries in the world (Bongaarts, 2017) based on the fact that African societies have unique pro-natalist characteristics (Caldwell and Caldwell, 1987, 1988; Caldwell et al., 1992). Grandparental support has been suggested as "the first line of defense" when children are facing economic hardship and social challenges by providing financial resources, caregiving, and emotional support (Mutchler and Baker, 2009). In deplorable unemployment situations, young adults of rich parents are more likely to receive financial aid from parents to cushion the effects of economic hardship (Majamaa, 2015).

African demographic and life-course scholars have investigated the underlying features of lengthening birth intervals, and birth limitation mechanisms deployed to address high fertility rates in Africa such as delayed marriage, use of contraceptives, improved access to education particularly by women, diffusion of innovative small family size idea through social interactions (Lerch and Spoorenberg, 2020; Hertrich, 2017; Bongaarts, 2006; Bongaarts, Mensch and Blanc, 2017; Hayford and Agadjanian, 2019; Timæus and Moultrie, 2008). However, the role of unemployment in the deployment of birth control mechanisms is not fully explained in the literature. Also, the role of grandparental support in the sustained high fertility rate in the face of high unemployment and low-income level in Nigeria despite the deployed birth control mechanisms is not yet clear. This current study provides a clearer understanding of the driving force behind the adoption of lengthening birth intervals and birth limitation mechanisms and the role of grandparental support in the sustained high fertility rate in Nigeria.

This study possesses important theoretical and practical contributions to knowledge. First, this study contributes to the current debate on the socioeconomic variables that drive reproductive decisions in sub-Saharan Africa by deploying the socioeconomic framework to provide new insights into how unemployment and grandparental support play significant roles in reproductive decisions in sub-Saharan Africa. This is a response to the calls for studies on fertility decisions in Africa. For example, a recent study pointed out that "as important as fertility desire is in the determination of fertility rate cum population growth, substantial scholarly inquiries have not been accorded to this germane research focus", (Odusina et al., 2020, p 3).

Second, this study enriches fertility literature globally by demonstrating that grandparental support and unemployment significantly influence reproductive decisions in the sub-Saharan context. For instance, Rutigliano and Lozano (2022) observed that "little is known about the association between grandparental support and fertility intentions", (Rutigliano and Lozano, 2022, p. 2). Further, Rutigliano and Lozano (2022) pointed out that apart from the fact that the influence of grandparental support on reproductive decisions has only got little research attention, the findings are also mixed across countries. For example, while Tanskanen and Danielsbacka (2021) reported no significant link between parental support for their adult children and the adult children's reproductive decision in Germany, Tanskanen and Rotkirch (2014) found a significant positive association between such grandparental support for women's reproductive intentions in both France and Norway. Regarding the link between unemployment and fertility behaviors, Kristensen and Lappegård (2022) have also concluded thus "So far, the findings have been divergent and inconclusive", (Kristensen, and Lappegård, 2022, p. 1038).

Third, by providing new insights into how unemployment situations and grandparental support influence fertility decisions in Nigeria, the governments may now redesign and implement family planning programs in line with these outcomes that will address fertility issues among young adults who are the key drivers of transition in high fertility settings of Sub-Saharan Africa. This answers the calls by researchers that empirical evidence on fertility transition in Sub-Saharan Africa is needed to enable governments to redesign and implement family planning programs in Sub-Saharan Africa (Akinyemi and Odimegwu, 2021). It is observed that an uncontrolled fertility transition could frustrate the government's policies and programs aimed at addressing hunger and poverty (Ibisomi, 2008; Akinyemi and Odimegwu, 2021).

Review of literature

Fertility and unemployment rates in Nigeria. Presently in Nigeria, 70% of women and 57% of men age 15–49 are in a marital union or cohabiting with a partner. The average age at first marriage for women between 20–49 years of age is 19.1 years while the average age at first marriage for men aged 30–59 is 27.7 years. 21% of urban married women have one or more co-wives. The total fertility rate is 5.3 children per woman, with 4.5 in urban areas and 5.9 in rural areas. The average age at first birth for women between the age ranges of 25–49 is 20.4 years. The average birth interval is 30.9 months (NPC, 2018).

The unemployment rate in Nigeria is on the increase since the 2014 economic crisis. According to the National Bureau of Statistics (2018), the unemployment rate in Nigeria is 23.1% while

underemployment is 20.1%. In Nigeria, full-time employment occurs when a person works 40 h plus a week while under-employment arises when a worker gets a minimum of 20 h of work but less than 40 h a week. A worker could also be termed underemployed if the worker gets full-time work better the worker's educational qualifications, skills, and time are under-utilized. An unemployment situation occurs when a person does not have a job or works less than 20 h a week. Comparatively, Nigeria ranks 173rd among countries in the world in unemploy-ment rates. The Republic of Congo ranks highest in the unemployment rate with 46.1% followed by Bosnia and Herzegovinian (35.3%), Namibia (34.0%), and Palestine (31.7%). The countries in the lowest category are Qatar (0.1%), Belarus (0.3%), Cambodia (0.3), and Niger (0.4%) in the unemployment rate comparison.

Theoretical background and previous research

Socioeconomic fertility transition theory. The traditional ferti-lity transition theory was propounded to understand the fall in fertility in Western countries between the late nineteenth century and 1930s (Notestein, 1945, 1953; Davis, 1945). The theory proposes that socioeconomic factors underpin fertility transitions. As such, when the socioeconomic development indicators of societies improve, which include new occupational structure increased access to quality education, industrialization, and urbanization, such improvement will lead to a decline in the mortality rate and a subsequent fall in the fertility rate. The costs of raising children such as healthcare, nutrition, and education coupled with a decline in the economic value of children such as banking on children for family labor supply and parents' security in old age lead to a decline in large family size preference (Bongaarts, 2017). Flowing from the theory, it follows that the cost of raising children and the fall in the economic value of children (e.g., needing children for family labor supply and par-ents' old age security) due to modernity and urbanization is the cardinal force driving fertility transition in Nigeria.

This study is anchored on this conventional transition theory of fertility to understand the Nigerian perspective of the fertility decline based on the inconsistent outcomes of previous studies anchored on the theory. For example, many researchers have used the socioeconomic development indicators to explain fertility decline in developing countries (Bryant, 2007) while others have opposed the use of the theory on the following grounds: first, the conventional socioeconomic theory cannot explain fertility decline in countries with low development situations; second, that the association between development and fertility is insignificant to be explained with socioeconomic theories; and third, that the association between development and fertility has switched from the traditional fertility transition theory to the diffusion of innovation theories (Bongaarts, 2017; Bryant, 2007)

This debate over the strength of socioeconomic development theory to explain reproductive decisions leaves a gap to be filled and providing insights into the Nigerian context of the debate is one of the major theoretical contributions of this paper to the literature. For example, Singapore and Hong Kong began their fertility transition to a decline stage in higher levels of literacy, urbanization, and income situations whereas Indonesia and Bangladesh experienced sharp fertility decline in unfavorable socioeconomic development situations by the 1990s (Bongaarts and Watkins, 1996; Bongaarts, 2017). Bryant (2007) with a sample of 87 developing countries found that a handful of development indicators in developing countries predict the attributes of fertility decline, and concludes that socioeconomic theory predicts fertility decline in developing countries greater than some scholars generally believed. Mixed outcomes were

found in Europe. For example, some studies found a positive link between poor jobs or joblessness and childbearing among women in West Germany and the United Kingdom (Schmitt, 2012; Kravdal, 2002; Andersson, 2000) while in France, a negative link was found (Schmitt, 2012; Comolli, 2017; Del Bono et al., 2015; Hofmann et al., 2017; Huttunen and Kellokumpu, 2016).

In the Sub-Saharan African context, studies have reported that socioeconomic factors such as one's educational level and employment opportunities impact fertility transition (Bongaarts, 2013; Shapiro, 2012). Studies in Nigeria have argued that although females who work in the formal sector usually have fewer numbers of children, unemployment also seems to have a link with lower fertility (Feyisetan and Bankole, 2009). Using a qualitative methodology, Ibisomi (2008) found that although religion and cultural beliefs drive the desire to have a large number of children, challenging socioeconomic factors seriously limit the actual number of children people have in Nigeria. Similarly, Smith (2004) suggests that ordinary Nigerians are pressured by personal hardship resulting from failed economy and development disappointments to limit fertility. A recent study in Nigeria argues that empirical evidence on fertility transition in Sub-Saharan Africa is needed to enable governments to design and implement family planning programs that will address fertility issues among young adults who are the key drivers of transition in high fertility settings of Sub-Saharan Africa (Akinyemi and Odimegwu, 2021).

Relating this conventional socioeconomic fertility transition theory to the fertility transition in Nigeria, the current study expects that the adoption of birth limitation and lengthening birth intervals as fertility control mechanisms in sub-Saharan Africa and Nigeria, in particular, is a result of the unemployment situation. The break between the first wave and the second wave further reinforces our expectation that the break reflected the fluctuating employment situations in Nigeria. Therefore, it is proposed that:

> H1: Unemployment situations significantly influence the adoption of birth limitation as a childbearing decision in Nigeria.

> H2: Unemployment situations significantly influence adopt-ing of lengthening birth intervals as a childbearing decision in Nigeria.

Grandparental support theory and previous research. The theory of grandparental support for grandchildren and their parents provides a much-needed understanding of how grandparents provide such support for their grandchildren and their parents. Researchers have deployed the grandparental support theory to explain how grandchildren and their parents rely on grandparental support to address socioeconomic chal-lenges such as absence or meager state social welfare benefits, unemployment, job security, and single parenting (Casper et al., 2016; Ellis & Simmons, 2014). 31% of US grandparents provide grandchild care while 31 assist with errands and household chores (Livingston & Parker, 2010). Grandparents often assume the full role of grandparenting when adult children are facing tough social and economic challenges not minding the negative social, physical, emotional, and financial consequences on them (Hayslip et al., 2017; Huo et al., 2018).

Grandparental support comes in different forms and this includes co-residential support, which entails grandchildren and their parents moving into grandparents' homes leading to multigenerational households (Casper et al., 2016). Co-residential grandparental supports are associated with economic

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and social-demographic factors such as employment situations, absence or inadequate state welfare benefits, high cost of daycare, and single parenting (Casper et al., 2016; Ellis and Simmons, 2014). In co-residential/compressed multigenerational households, the transition to parenthood among adult children happens much faster, and this often extends grandparental support to the complete assumption of the responsibilities of secondary or even primary parents (Minkler and Fuller-Thomson, 2005; Casper et al., 2016). Grandmothers' supports for grandchildren include feeding, bathing, helping with homework, and watching over kids (Meyer and Mals, 2017).

Long-distance grandparental support entails grandparents providing support for adult children from afar with little or no face-to-face physical contact (Mutchler and Baker, 2009). In custodian grandparental support, grandparents take full custody of grandchildren when parents face harsh socioeconomic and health challenges such as job loss, ailment, and criminal issues (Casper et al., 2016). Custodian grandparental support often entails providing virtually everything grandchildren need (Baker et al., 2008). Grandparents often derive joy and happiness living with and caring for grandchildren (Hayslip and Kaminski, 2005).

Many studies have found family and kin support to have significant effects on the transition to parenthood in low fertility rates countries (Mönkediek, 2016, 2020; Pink, 2018; Schaffnit and Sear, 2017). For post-Soviet Russia, women living in urban areas perceived maternal care to include both the care for one's biological children and "grandchildren, children of relatives and friends, husband, elderly parents and parent in law (Rotkirch; 2000; p. 118)." Some studies attribute the early decision to have first birth and the postponement of subsequent births to grandparental support with childcare (Ghodsee and Bernardi, 2012; Rotkirch and Kesseli, 2010). Tanskanen and Rotkirch (2014) found a significant positive association between such grandparental support for women's reproductive intentions in both France and Norway. Comparing countries' welfare policies, studies found that adult children and grandchildren mostly rely on grandparental support where state-provided supports for working families were meager or unavailable than states where such supports are generously available (Hughes et al., 2007; Igel and Szydlik, 2011). Based on the theoretical considerations of grandparental support in times of harsh economic and social situations, we assume that grandparental support could play a role in the childbearing decisions of young Nigerians. Therefore, it is hypothesized that:

Hypothesis 3:

H3a: *Grandparental support significantly influences the adoption of birth limitation as a childbearing decision in Nigeria.*

H3b: *Grandparental support significantly influences the adoption of lengthening birth intervals as a childbearing decision in Nigeria.*

The outcomes from the tests of these formulated hypotheses provide answers to the following research questions:

1. To what extent does the unemployment situation drive the adoption of lengthening birth intervals as a fertility control mechanism in Nigeria?
2. To what extent does the unemployment situation drive the adoption of birth limitation as a fertility control mechanism in Nigeria?
3. How does grandparental support relate to the adoption of lengthening birth intervals and birth limitation decisions in high-unemployment and low-income situations in Nigeria?

Table 1 Demographic characteristics of respondents.		
	Frequency	**Percent**
Age		
21–30	29	7.0
31–35	95	22.8
36–40	117	28.1
41-above	175	42.1
Total	**416**	**100.0**
Gender		
Male	299	71.9
Female	117	28.1
Total	**416**	**100.0**
Marital status		
Married	381	91.6
Divorced/separated	21	5.0
Widowed	14	3.4
Total	**416**	**100.0**
Level of education		
O' Level	80	19.2
ND/NCE	62	14.9
First Degree/HND	204	49.0
Postgraduate	70	16.8
Total	**416**	**100.0**
Occupation		
Self-employed	269	64.7
Wage employment	111	26.7
Clerical	6	1.4
Others	30	7.2
Total	**416**	**100.0**
Number of children		
One child	8	1.9
Two children	11	2.6
Three children	27	6.5
Four children	58	13.9
Five children	187	45.1
Six children and above	125	30.0
Total	**416**	**100.0**
Age at first birth		
21–25 years	182	43.8
26–30 years	153	36.8
31–35 years	64	15.3
36–40 years	17	4.1
Total	**416**	**100.0**
Age at last birth		
31–40 years	106	25.5
41–50 years	272	65.4
50–60 years	33	7.9
61 years and above	5	1.2
Total	**416**	**100.0**

Methodology
Retrospective data were collected from the participants to understand their lived experience of the adopted births limitation and lengthening birth intervals as birth control mechanisms. The first wave of the drop in the total fertility rate (TFR) began in the 1970s to the 1980s and slowed down in the 1990s while the second wave started in the 2000s (Lerch and Spoorenberg, 2020; Caldwell et al., 1992; Timæus & Moultrie, 2008; Hayford and Agadjanian, 2019). To assess the role of unemployment in the adoption of the two birth control mechanisms in Nigeria, we linked labor data from the National Bureau of Statistics (2018) to the fertility data from the National Population Census's Demographic and Health Survey (2018) to generate retrospective data from the participants based on their lived experience. As a result, only men and women that were captured in the NBS and NPC

Table 2 Number of hours worked in a week when birthing children and demographic profile of respondents crosstabulation.

Occupation		Age					Gender			Level of education				
		21–30	31–35	36–40	41–above	Total	Male	Female	Total	O' Level	ND/NCE	B.Sc./HND	PG degree	Total
Self-employed	Less than 20h	6 (2.2%)	13 (4.8%)	31 (11.5%)	29 (10.8%)	79 (29.4%)	58 (21.6%)	21 (7.8%)	79 (29.4%)	24 (8.9%)	7 (2.6%)	38 (14.1%)	10 (3.7%)	79 (29.4%)
	20h but less 40h a week	5 (1.9%)	29 (10.8%)	34 (12.6%)	64 (23.8%)	132 (49.1%)	95 (35.3%)	37 (13.8%)	132 (49.1%)	14 (5.2%)	24 (8.9%)	73 (27.1%)	21 (7.8%)	132 (49.1%)
	40h and above a week	4 (1.5%)	17 (6.3%)	9 (3.3%)	28 (10.4%)	58 (21.6%)	41 (15.2%)	17 (6.3%)	58 (21.6%)	9 (3.3%)	11 (4.1%)	27 (10.0%)	11 (4.1%)	58 (21.6%)
	Total	15 (5.6%)	59 (21.9%)	74 (27.5%)	121 (45.0%)	269 (100.0%)	194 (72.1%)	75 (27.9%)	269 (100.0%)	47 (17.5%)	42 (15.6%)	138 (51.3%)	42 (15.6%)	269 (100.0%)
Wage employment	Less than 20h.	1 (0.9%)	4 (3.6%)	12 (10.8%)	12 (10.8%)	29 (26.1%)	26 (23.4%)	3 (2.7%)	29 (26.1%)	7 (6.3%)	6 (5.4%)	11 (9.9%)	5 (4.5%)	29 (26.1%)
	20h but less 40h a week	3 (2.7%)	19 (17.1%)	12 (10.8%)	22 (19.8%)	56 (50.5%)	38 (34.2%)	18 (16.2%)	56 (50.5%)	7 (6.3%)	6 (5.4%)	30 (27.0%)	13 (11.7%)	56 (50.5%)
	40h and above a week	6 (5.4%)	4 (3.6%)	6 (5.4%)	10 (9.0%)	26 (23.4%)	15 (13.5%)	11 (9.9%)	26 (23.4%)	9 (8.1%)	4 (3.6%)	8 (7.2%)	5 (4.5%)	26 (23.4%)
	Total	10 (9.0%)	27 (24.3%)	30 (27.0%)	44 (39.6%)	111 (100.0%)	79 (71.2%)	32 (28.8%)	111 (100.0%)	23 (20.7%)	16 (14.4%)	49 (44.1%)	23 (20.7%)	111 (100.0%)
Clerical	Less than 20h a week	0 (0.0%)	1 (16.7%)		1 (16.7%)	2 (33.3%)	2 (33.3%)	0 (0.0%)	2 (33.3%)	1 (16.7%)		1 (16.7%)	0 (0.0%)	2 (33.3%)
	20h but below 40h a week	2 (33.3%)	0 (0.0%)		1 (16.7%)	3 (50.0%)	1 (16.7%)	2 (33.3%)	3 (50.0%)	0 (0.0%)		2 (33.3%)	1 (16.7%)	3 (50.0%)
	40h and above a week	1 (16.7%)	0 (0.0%)		0 (0.0%)	1 (16.7%)	0 (0.0%)	1 (16.7%)	1 (16.7%)	1 (16.7%)		0 (0.0%)	0 (0.0%)	1 (16.7%)
	Total	3 (50.0%)	1 (16.7%)		2 (33.3%)	6 (100.0%)	3 (50.0%)	3 (50.0%)	6 (100.0%)	2 (33.3%)		3 (50.0%)	1 (16.7%)	6 (100.0%)
Others	Less than 20h a week	0 (0.0%)	4 (13.3%)	4 (13.3%)	2 (6.7%)	10 (33.3%)	6 (20.0%)	4 (13.3%)	10 (33.3%)	5 (16.7%)	3 (10.0%)	1 (3.3%)	1 (3.3%)	10 (33.3%)
	20h but below 40h a week	0 (0.0%)	3 (10.0%)	7 (23.3%)	5 (16.7%)	15 (50.0%)	14 (46.7%)	1 (3.3%)	15 (50.0%)	2 (6.7%)	0 (0.0%)	11 (36.7%)	2 (6.7%)	15 (50.0%)
	40h and above a week	1 (3.3%)	1 (3.3%)	2 (6.7%)	1 (3.3%)	5 (16.7%)	3 (10.0%)	2 (6.7%)	5 (16.7%)	1 (3.3%)	1 (3.3%)	2 (6.7%)	1 (3.3%)	5 (16.7%)
	Total	1 (3.3%)	8 (26.7%)	13 (43.3%)	8 (26.7%)	30 (100.0%)	23 (76.7%)	7 (23.3%)	30 (100.0%)	8 (26.7%)	4 (13.3%)	14 (46.7%)	4 (13.3%)	30 (100.0%)

Table 3 Length of unemployment distribution in 2018.	
Length of unemployment	Frequency
6–10 years	114,073.

Table 4 National Population Commission (NPC) (Nigeria) and ICF's (2018) Demographic and Health Survey.			
S/N	Sex	The study sample	Married
1	Men	13,311	7587 (57%)
2	Women	41,821	29,275 (70%)
Total		55,132	36,862

surveys, and who had all their children before the two surveys were included in the sample since they are the unit of our analysis (see Tables 1 and 2). Second, to determine the role grandparental support plays in the childbearing decisions in low-income and high-unemployment situations in Nigeria, data were collected on grandparental support received by the study sample. Collecting life-history retrospective data on a sample in parts or in full is used to analyze and understand the life-course of individuals (Miller, 2000).

The population of the Study. According to the National Bureau of Statistics (NBS, 2018, p. 73), the total number of Nigerian adults who experienced unemployed for 6–10 Years as of 2018 was 114,073 (see Table 3) The total number of married men and women that participated in the National Population Commission (NPC) (Nigeria) and ICF's (2018) Demographic and Health Survey is presented in Table 4.

The sample was taken from the 36,862 married men and women who participated in the National Population Commission (NPC) (Nigeria) and ICF's (2018) Demographic and Health Survey. the sample is taken from this figure to capture only those who experienced long-term unemployment before 2018 (NBS, 2018) and who at the same time had children during that period of unemployment before participating in the National Population Commission (NPC) (Nigeria) and ICF's (2018) Demographic and Health Survey. Yamane (1967) sample size determination technique was applied in determining the sample size as follows:

$$n = \frac{N}{1 + N(e)^2}$$

Where n is the sample size, N denotes the population, 1 is the constant and the small letter e denotes the error margin (taken as 0.05). It yielded 396. However, we increased the sample to 416 for stronger representativeness. Structural equation modeling was used to test the proposed hypotheses. Structural equation modeling is a viable statistical tool for hypothesis testing (Imhanrenialena et al., 2021; Imhanrenialena et al., 2022). The demographic characteristics of the participant were analyzed with percentages.

Measures. The survey questionnaire was used to elicit data on the participants. To achieve a user-friendly questionnaire, the researchers conducted a pilot study involving 15 potential participants after consulting with demographic experts. This approach made it possible to design an organized and acceptable questionnaire. This approach may account for the high response rate recorded.

Demographic characteristics. The demographic characteristics scale was adapted from the National Population Commission (NPC) (Nigeria) and ICF's Demographic and Health Survey (2018). The demographic characteristics of the participants were defined as age, sex, marital status, educational attainment, occupation, daily living expenditure per household member, number of children, age at first birth, and age at last birth.

Grandparental support dimensions. Grandparental support was measured with 9 items on a five-point Likert scale ranging from "Strongly disagree" coded 1 to "Strongly agree" coded 5 to assess the type of support children and grandchildren receive from grandparents that influence childbearing decisions. The five-point Likert scale was used in order to determine the intensity of the grandparental support the respondents received while birthing their children. The three-dimensional scale consisted of constructs derived from the grandparental support conceptual framework in the literature. It included long-distance support (Mutchler and Baker, 2009; Meyer and Mals, 2017), co-residential support (Meyer and Mals, 2017; Casper et al., 2016; Ellis and Simmons 2014; Minkler and Fuller-Thomson, 2005), and custodial support (Hayslip and Kaminski, 2005; Casper et al., 2016). These constructs were used in modifying and adapting Borcherding's et al. (2005) grandparent support scale to suit this current study. The three-dimensional grandparent support scale developed by Borcherding et al. (2005) reported Cronbach's αlpha values of 0.90, 0.76, and 0.70 in each of the dimensions.

Unemployment situations. The unemployment situation was measured using Nigeria's National Bureau of Statistics (2018) criteria for identifying unemployed persons in the Nigerian context. This includes individuals without a job or working less than 20 h a week.

Childbearing decisions. To assess the lived experience of childbearing decisions among the respondents, the authors adapted and modified Söderberg et al.'s (2013) "Attitudes toward Fertility and Childbearing Scale". The scale was adapted in this study because it aligns with the current study and also, the developer of the scale (Söderberg et al., 2013) reported high Cronbach's αlpha values of 0.901, 0.908, and 0.805 for the three components of the scale. It is documented in the literature that childbearing decisions relating to fertility control mechanisms in sub-Sahara Africa are in two dimensions of birth limitation and lengthening birth intervals (Lerch, and Spoorenberg, 2020; Hertrich, 2017; Bongaarts, Mensch and Blanc 2017; Hayford and Agadjanian, 2019). Examples of the items in the lengthening birth interval measures are "My own economic stability considerations informed my choice of birth spacing", "It was important for me to choose when to get pregnant", and "My life would have been hindered if I had not taken the birth spacing decision". Also, the examples of the constructs in the birth limitation are "My own economic stability considerations made me limit the number of births I had", "It was important for me to limit the births I had", and "My life would have been hindered if I had not reduced the number of births I had". The items were measured on a five-point Likert scale ranging from "Strongly disagree" coded 1 to "Strongly agree" coded 5.

Results
Descriptive statistics. The majority of the participants (175 or 42.1%) were aged above 41. This was followed by 36–40 years of age (117 or 28.1%). The participants were predominantly married (381 or 91.6%). As a pointer to the unemployment situation in Nigeria, only 111 (26.7%) were in wage employment. Altogether the results indicate that 312 (75.1%) of the respondents have five

Table 5 Amount of money each household member lived on per day while birthing children and demographic profile crosstabulation.

Occupation		Age					Gender			Level of education				
		21–30	31–35	36–40	41–above	Total	Male	Female	Total	O' Level	ND/NCE	B.Sc./HND	PG degree	Total
Self-employed	Below N 481.25 ($1.25)	1 / 0.4%	25 / 9.3%	41 / 15.2%	63 / 23.4%	130 / 48.3%	98 / 36.4%	32 / 11.9%	130 / 48.3%	20 / 7.4%	22 / 8.2%	75 / 27.9%	13 / 4.8%	130 / 48.3%
	Exactly N 481.25 ($1.25)	6 / 2.2%	16 / 5.9%	13 / 4.8%	23 / 8.6%	58 / 21.6%	39 / 14.5%	19 / 7.1%	58 / 21.6%	9 / 3.3%	8 / 3.0%	32 / 11.9%	9 / 3.3%	58 / 21.6%
	Above N 481.25 ($1.25) but Below N 721.87 ($1.87)	7 / 2.6%	10 / 3.7%	16 / 5.9%	23 / 8.6%	56 / 20.8%	38 / 14.1%	18 / 6.7%	56 / 20.8%	15 / 5.6%	7 / 2.6%	19 / 7.1%	15 / 5.6%	56 / 20.8%
	Above N 721.87 ($1.87)	1 / 0.4%	8 / 3.0%	4 / 1.5%	12 / 4.5%	25 / 9.3%	19 / 7.1%	6 / 2.2%	25 / 9.3%	3 / 1.1%	5 / 1.9%	12 / 4.5%	5 / 1.9%	25 / 9.3%
	TOTAL	15 / 5.6%	59 / 21.9%	74 / 27.5%	121 / 45.0%	269 / 100.0%	194 / 72.1%	75 / 27.9%	269 / 100.0%	47 / 17.5%	42 / 15.6%	138 / 51.3%	42 / 15.6%	269 / 100.0%
Wage employment	Below N 481.25 ($1.25)	3 / 2.7%	12 / 10.8%	13 / 11.7%	25 / 22.5%	53 / 47.7%	39 / 35.1%	14 / 12.6%	53 / 47.7%	12 / 10.8%	6 / 5.4%	26 / 23.4%	9 / 8.1%	53 / 47.7%
	Exactly N 481.25 ($1.25)	0 / 0.0%	7 / 6.3%	10 / 9.0%	10 / 9.0%	27 / 24.3%	21 / 18.9%	6 / 5.4%	27 / 24.3%	4 / 3.6%	3 / 2.7%	14 / 12.6%	6 / 5.4%	27 / 24.3%
	Above N 481.25 ($1.25) but Below N 721.87 ($1.87)	1 / 0.9%	6 / 5.4%	3 / 2.7%	3 / 2.7%	13 / 11.7%	9 / 8.1%	4 / 3.6%	13 / 11.7%	1 / 0.9%	4 / 3.6%	5 / 4.5%	3 / 2.7%	13 / 11.7%
	Above N 721.87 ($1.87)	6 / 5.4%	2 / 1.8%	4 / 3.6%	6 / 5.4%	18 / 16.2%	10 / 9.0%	8 / 7.2%	18 / 16.2%	6 / 5.4%	3 / 2.7%	4 / 3.6%	5 / 4.5%	18 / 16.2%
	TOTAL	10 / 9.0%	27 / 24.3%	30 / 27.0%	44 / 39.6%	111 / 100.0%	79 / 71.2%	32 / 28.8%	111 / 100.0%	23 / 20.7%	16 / 14.4%	49 / 44.1%	23 / 20.7%	111 / 100.0%
Clerical	Below N 481.25 ($1.25)	1 / 16.7%	0 / 0.0%		1 / 16.7%	2 / 33.3%	1 / 16.7%	1 / 16.7%	2 / 33.3%	1 / 16.7%		1 / 16.7%	0 / 0.0%	2 / 33.3%
	Exactly N 481.25 ($1.25)	0 / 0.0%	1 / 16.7%		0 / 0.0%	1 / 16.7%	1 / 16.7%	0 / 0.0%	1 / 16.7%	0 / 0.0%		1 / 16.7%	0 / 0.0%	1 / 16.7%
	Above N 481.25 ($1.25) but Below N 721.87 ($1.87)	1 / 16.7%	0 / 0.0%		1 / 16.7%	2 / 33.3%	1 / 16.7%	1 / 16.7%	2 / 33.3%	0 / 0.0%		1 / 16.7%	1 / 16.7%	2 / 33.3%
	Above N 721.87 ($1.87)	1 / 16.7%	0 / 0.0%		0 / 0.0%	1 / 16.7%	0 / 0.0%	1 / 16.7%	1 / 16.7%	1 / 16.7%		0 / 0.0%	0 / 0.0%	1 / 16.7%
	TOTAL	3 / 50.0%	1 / 16.7%		2 / 33.3%	6 / 100.0%	3 / 50.0%	3 / 50.0%	6 / 100.0%	2 / 33.3%		3 / 50.0%	1 / 16.7%	6 / 100.0%
Others	Below N 481.25 ($1.25)	0 / 0.0%	6 / 20.0%	4 / 13.3%	2 / 6.7%	12 / 40.0%	8 / 26.7%	4 / 13.3%	12 / 40.0%	2 / 6.7%	2 / 6.7%	6 / 20.0%	2 / 6.7%	12 / 40.0%
	Exactly N 481.25 ($1.25)	0 / 0.0%	2 / 6.7%	5 / 16.7%	4 / 13.3%	11 / 36.7%	10 / 33.3%	1 / 3.3%	11 / 36.7%	2 / 6.7%	1 / 3.3%	7 / 23.3%	1 / 3.3%	11 / 36.7%

Table 5 (continued)

Occupation	Age					Gender			Level of education				
	21–30	31–35	36–40	41–above	Total	Male	Female	Total	O' Level	ND/NCE	B.Sc./HND	PG degree	Total
Above N 481.25 ($1.25) but Below N 721.87 ($1.87)	0 0.0%	0 0.0%	3 10.0%	2 6.7%	5 16.7%	4 13.3%	1 3.3%	5 16.7%	4 13.3%	0 0.0%	1 3.3%	0 0.0%	5 16.7%
Above N 721.87 ($1.87)	1 3.3%	0 0.0%	1 3.3%	0 0.0%	2 6.7%	1 3.3%	1 3.3%	2 6.7%	0 0.0%	1 3.3%	0 0.0%	1 3.3%	2 6.7%
Total	1 3.3%	8 26.7%	13 43.3%	8 26.7%	30 100.0%	23 76.7%	7 23.3%	30 100.0%	8 26.7%	4 13.3%	14 46.7%	4 13.3%	30 100.0%

children and above. This is an indication that an underlying mechanism that drives high fertility rates in high unemployment and low-income situations exists in Nigeria. This factor is discussed in detail in the empirical section. Regarding the age at first birth, 182 (43.8%) had first birth between 21–25 while 153 (36.8%) had theirs at 26–30. Similarly, 106 (25.5%) had their first birth at 31–40 while 272 (65.4%) had theirs at 40–50 (see Table 1).

Table 2 shows the crosstabulation of the number of hours worked in a week when birthing children and the demographic profile of respondents. The descriptive statistics depict the four (4) classifications of occupations (self-employed, wage employment, clerical, and others). From the category of self-employed, on average, most of the respondents accounted for 49.1% who worked for over 20 h but less than 40 h in a week. The gender of this category of respondents comprises of 95 (35.3%) male and 37(13.8%) female. The educational qualifications of this category of respondents show that 13(5.2%) had O'Level, 24(8.9%) had NCE/ND, 73(27.1%) had B.Sc/HND or equivalent while 21(7.8%) had postgraduate degrees. This finding implies that most of the respondents are self-employed and well-educated. Therefore, the information provided by the respondents can be adjudged reliable. Similarly, from the category of respondents in wage employment, the finding is not different from the self-employed category. The descriptive statistics also show that most of the respondents, which accounted for 50.5% worked for over 20 h but less than 40 h a week. Out of these 50.5% respondents, 38(34.2%) were male while 18(16.2%) were female. From this number, 7(6.3%) had O'Level, 6(5.4%) had NCE/ND, 30(27.0%) had B.Sc/HND or equivalent while 13(11.7%) had postgraduate degrees.

In a related development, the statistics from the category of clerical respondents is not different from the outcomes of other categories of respondents. The descriptive statistics show that most of the respondents, which accounted for 50% worked for over 20 h but less than 40 h a week. Out of this 50% of respondents, 1(16.7%) were male, while 2(33.3%) were female. From this number, none had O'Level and NCE/ND, and 2(33.3%) had B.Sc/HND or equivalent, while 1(16.7%) had postgraduate degrees.

Table 5 shows the crosstabulation of the amount of money each household member lived on per day while birthing children and demographic profile. The descriptive statistics depict the four (4) classifications of occupations (self-employed, wage employment, clerical, and others) across age groups, gender, and educational qualifications. The result shows that regardless of age group, gender, and educational qualifications, most of the respondents earned below N 481.25 ($1.25). This suggests that most of the respondents lived on four-hundred and eighty-one naira and twenty-five kobo per day (details presented in Table 5).

Measurement model. The measurement model shows the composite reliability, average variance estimate and Cronbach's alpha (see Table 6). The reliability of the instrument was determined using both Composite reliability and Cronbach's alpha techniques. The composite reliability and Cronbach's alpha values of each of the constructs exceed the recommended benchmarks of 0.80 and 0.70, respectively. This indicates internal consistency in the instrument. The factor-loading of all the specific items of each variable is above 0.70. A convergent validity test was performed to determine if the indicators in the scale loaded together on a single construct. The average variance extracted estimate

Table 6 Measurement model.

Variables & constructs	Composite reliability ≥0.80	Average variance estimate ≥0.50	Cronbach's Alpha ≥0.70
Weekly working hours	0.934	0.877	0.859
Adoption of birth limitation as a childbearing decision	0.909	0.769	0.850
Adoption of lengthening birth intervals as a childbearing decision	0.873	0.695	0.782
Grandparental support	0.895	0.740	0.824

Table 7 Path co-efficient.

	Path co-efficient	R-square	Std. dev	T-statistics	P-value	Remarks
US → BL	0.350	0.123	0.080	4.389	0.000	Sig.
US → LBI	0.499	0.249	0.072	6.902	0.000	Sig.
GS → BL	0.525	0.276	0.080	6.882	0.000	Sig.
GS → LBI	0.470	0.221	0.068	7.034	0.000	Sig.

US unemployment situation, *BL* birth limitation, *LBI* lengthening birth interval, *GS* grandparental support.
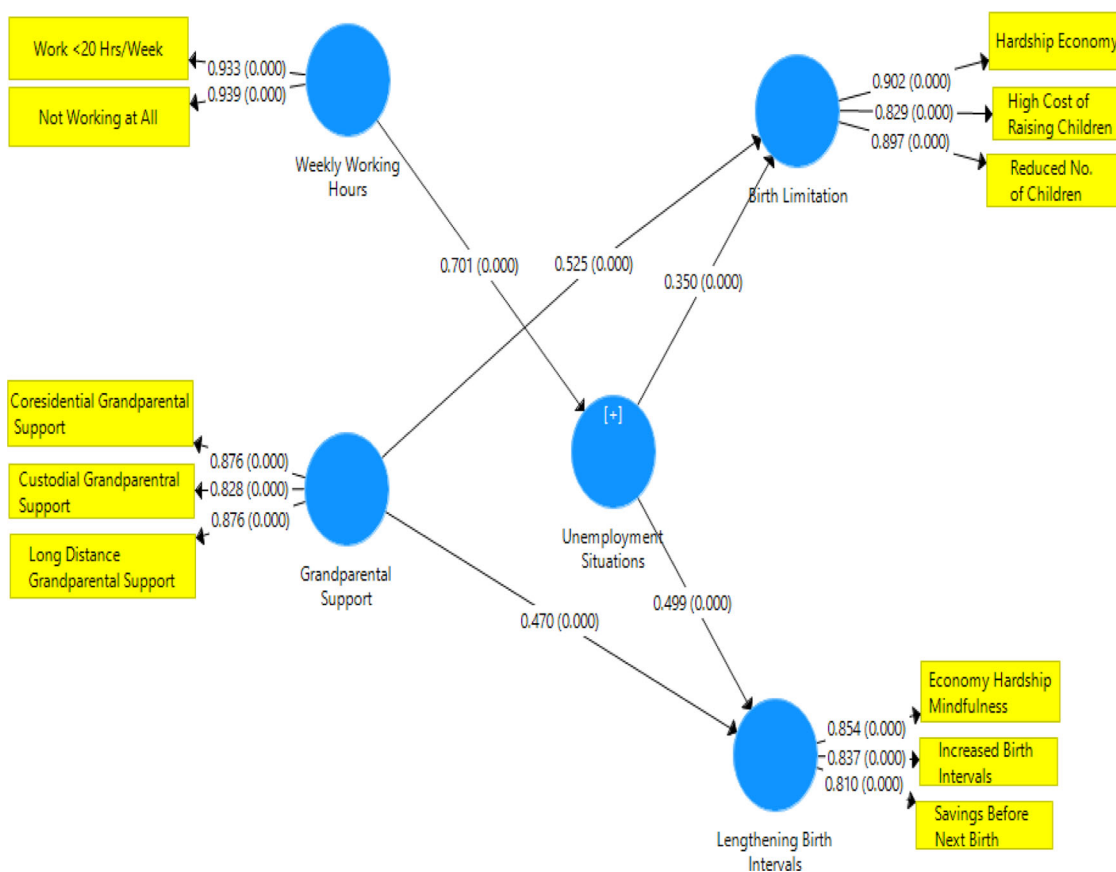

Fig. 1 Model depicting the influence of unemployment situations and grandparental support on childbearing decisions in the Sub-Saharan African.

(AVE) was applied in testing the validity of the instrument. The AVE coefficients for all the constructs are 0.877, 0.769, 0.695, and 0.740, respectively (see Table 6). The AVE values exceed the suggested 0.50 threshold and also greater the cross-loading of the constructs (Hair et al., 2016). The outcomes also meet the convergent validity requirement (Memon and Rahman, 2014).

Results from the test of hypotheses

Table 7 and Fig. 1 depict how the unemployment situations and grandparental support influence childbearing decisions in sub-Saharan Africa as proposed in H1, H2, H3a, and H3b. The outcomes from H1 suggest that unemployment significantly influences birth limitation as a fertility control mechanism in Nigeria ($\beta = 0.350$, $R^2 = 0.123$, P-value = $0.000 < 0.05$). The path co-efficient value of 0.350 is an indication of a fair relationship between unemployment situations and birth limitation. The R^2 value of 0.123 indicates that a 12.3% variance in birth limitation as a fertility control mechanism can be explained by the unemployment situation in Nigeria. Similarly, H2 results indicate that unemployment situations significantly influence lengthening birth intervals as a fertility control mechanism in Nigeria ($\beta = 0.499$,

$R^2 = 0.249$, P-value $= 0.000 < 0.05$). The Path co-efficient value of 0.499 implies a moderate but significant influence of unemployment situations on the lengthening birth interval in Nigeria. An R^2 value of 0.249 suggests that a 24.9% variance in the lengthening birth interval can be explained by the unemployment situation. The results from H3a show that grandparental support significantly influences the adoption of birth limitation as a child-bearing decision in Nigeria ($\beta = 0.525$, $R^2 = 0.276$, P-value $= 0.000 < 0.05$). Similarly, H3b outcomes indicate that grandparental support significantly influences the adoption of the lengthening birth interval as a childbearing decision in Nigeria ($\beta = 0.470$, $R^2 = 0.221$, P-value $= 0.000 < 0.05$). The Path co-efficient value of 0.525 and 0.470 suggest a significant influence of grandparental support on the adoption of birth limitation and lengthening birth interval decisions. The R^2 values of 0.276 and 0.221 indicate that grandparental support can explain 27.6% and 22.1% variances in birth limitation and lengthening birth interval decisions in Nigeria, respectively.

Discussion of findings

This study investigates how unemployment and grandparental support influence reproductive decisions in sub-Saharan Africa with Nigeria in focus. The influence of unemployment situations on the adoption of birth limitation as a fertility control mechanism in Nigeria was captured in hypothesis 1 while the influence of unemployment situations on the adoption of lengthening birth intervals as a fertility control mechanism in Nigeria was treated in the second hypothesis 2. The influence of grandparental support on childbearing decisions in low-income situations in Nigeria was tested in Hypothesis 3a and Hypothesis 3b.

The outcomes from hypothesis 1 indicate that unemployment situations in Nigeria significantly influenced the adoption of birth limitation as a fertility control mechanism. Similarly, hypothesis 2 suggests that unemployment situations in Nigeria significantly influenced the adoption of lengthening birth intervals as a fertility control mechanism in Nigeria. These findings in the two hypotheses contradict Odusina et al. (2020) that found a strong desire to have more children among couples who were not both working. However, our findings align with some similar previous studies outside Africa (Andersen and ¨Ozcan, 2021; Heera, et al., 2021; Iba et al., 2021). For example, Heera et al. (2021) reported that women who are below average in empowerment in terms of employment and income among others significantly use modern contraceptives. Similarly, Iba et al. (2021) found that higher-income households possess the ability to seek medical attention in resolving fertility problems and bear children among women in Japan.

The reason why unemployment situations significantly influence Nigerians in adopting birth limitation and lengthening birth intervals as found in this study may be due to the increasing cost of raising children. Childbearing demands that parents have a basic income that can meet the costs of raising children such as healthcare, nutrition, education, clothing, and housing. The current study argues that the lack of stable and high-paying jobs significantly influences childbearing decisions in sub-Saharan Africa.

The outcomes from hypothesis 3a and hypothesis 3b indicate that grandparental support significantly influences childbearing decisions in Nigeria. Although this result contradicts a recent study conducted in Germany that found no significant link between parental support for their adult children and the adult children's reproductive decision (Tanskanen and Danielsbacka (2021), it aligns with the work of Rutigliano and Lozano (2022) that reported that grandparental support has a significant positive impact on women's fertility intentions in the Spanish context.

This suggests that in the Nigerian context, grandparental support ameliorates economic hardship on grandchildren and their parents, and such support could be playing a role in the high fertility rate being experienced in Nigeria in spite of low-income levels and high unemployment rates.

The positive association between grandparental support and childbearing decision in Nigeria found in this study may be explained by the transactional relationship between many parents and their adult children. Oftentimes, parents who provide support for their adult children and grandchildren often expect future returns. For example, in Nigeria, parents with a large number of wives and children often provide support for their older children and grandchildren. Then, at the parents' old and unproductive age, they assign the responsibility of providing support for younger children to the older ones that have received such support. Such practices have a direct consequence on the transition to parenthood and childbearing decisions among older children. On the other hand, parents with high economic resources may not give such responsibility of training their younger children to the older ones and this may speed up the transition of the older children to parenthood. There is the possibility of rich parents helping their unemployed children to transition to parenthood.

Theoretical implications of findings

The significant influence of unemployment and grandparental support on childbearing decisions among Nigerians found in this study has theoretical implications. First, the outcomes of this research provide new insights into how unemployment and grandparental support influence childbearing decisions in sub-Saharan Africa. This explains the slow pace of fertility decline despite the high unemployment rate and low-income level coupled with the absence of unemployment benefits and generous social welfare programs in Nigeria. This answers the calls for research on fertility desire in Africa (Odusina et al., 2020). These insights are important contributions to the current debate on what drives fertility transition in sub-Saharan Africa. Second, by demonstrating how grandparental support influence fertility decision in sub-Sahara Africa, this study enriches fertility literature globally as a recent has shown that there is a dearth of research on how grandparental support influences fertility intentions", (Rutigliano and Lozano). Third, aside from the paucity of literature on how grandparental support relates to childbearing decisions (Rutigliano and Lozano, 2022), this current study presents the Nigerian context of how unemployment and grandparental support influence childbearing decisions as results from previous studies vary across different countries (Kristensen, and Lappegård, 2022; Rutigliano and Lozano, 2022). Fourth, this study is a response to the call by scholars for empirical evidence on fertility transition in Sub-Saharan Africa to enable the government to design and implement family planning programs that will address fertility issues in Sub-Saharan Africa (Akinyemi and Odimegwu, 2021).

Practical implications of findings

The outcomes of this study have many policy implications for governments in Sub-Saharan African countries particularly Nigerian where the unemployment level is high. First, the government should be aware that the adoption of births limitation and lengthening birth intervals as fertility control mechanisms are significantly influenced by the high unemployment level in the country. Therefore, the government should come up with policies and programs that will stimulate the economy and create jobs for the youth to enable them to get married, birth, and raise children at the appropriate time. This will eliminate the case of parents

struggling to raise children in old age when their income is low. Also, addressing the problem of unemployment will enable the youths to birth and train their children in schools which will, in turn, reduce the level of illiteracy occasioned by a lack of resources for people to train their children in old age.

Second, the outcomes of this study suggest that where grandparental supports are available for grandchildren and their parents, the influence of unemployment on reproductive decisions is either lessened or disappears whereby young Nigerians revert to their pro-natalist nature. Therefore, the Nigerian government should, through the National Orientation Agency embark on public enlightenment campaigns on the advantages of having an ideal family size irrespective of the availability of grandparental support for grandchildren and their parents. This could lower the desire of young people in Nigeria to have a large number of children and thereby result in achieving a sustainable population level without the unfavorable economic situations driving fertility control.

Limitations of the study

This study provides insights into how unemployment drives the adoption of birth limitation and lengthening birth intervals as birth control mechanisms in Nigeria as well as how the availability of grandparental support makes Nigerians revert to their pro-natalist nature. However, it is important to disclose the limitations of the study and suggest gaps for future research. First, this study did not compare the cultural differences in the adoption of birth limitation and lengthening birth intervals as birth control mechanisms in Nigeria. Therefore, it will be interesting if future research could investigate the differences in the adoption of birth limitation and lengthening birth intervals as birth control mechanisms among the three major ethnic groups (Hausa, Igbo, and Yoruba) in Nigeria. This will enable the government to understand how culture affects fertility transition. Second, we adopted self-report measures for data collection in this study which is prone to a measurement bias (Imhanrenialena et al., 2021). For instance, the possibility exists that the participants might have exaggerated or understated their child-bearing experience. To overcome this limitation, future research may consider the use of longitudinal design involving the use of secondary data collected on the number of children people have in the intervals between births from official records.

Conclusion

This current study contributes to the existing literature by investigating the concept of childbearing decisions from the unemployment dimension and grandparental support dimensions in Nigeria. Previous reproductive decision research in sub-Saharan Africa basically used increased access to education, declining economic value of children, and the diffusion of small family size innovative ideas to explain the adopted fertility control mechanisms. This study argues that if truly improved access to education and other advancements in socioeconomic development indicators were responsible for the adoption of birth control measures, the fertility decline process would not have experienced a break in the transition process. Similarly, previous studies have attributed the slow pace of fertility transition in sub-Saharan Africa in the face of high unemployment rates, unemployment benefits, and low-income levels to the pro-natalist nature of the African people. Our outcomes suggest that grandparental support partly accounts for the slow pace of fertility decline in Nigeria. Grandparental support has filled the social welfare program gaps in the life of grandchildren and their parents and this encourages childbearing. Nigerian government agencies such as the National Orientation Agency should intensify enlightenment campaigns on the benefits of small family size and the consequences of placing the responsibility of raising grandchildren on grandparents.

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Conceptualization: IBO and EW. Data curation: EW, AAA, and EAA, Formal analysis: IBO and EW. Funding: IBO, EW, AAA, and EAA. Investigation: IBO, AAA, and EAA. Methodology: IBO, AAA, EAA, and EW. Software: IBO, AAA, EW. Supervision: IBO, AAA, and EAA. Validation: EW, AAA, and EAA. Writing—original draft: AAA, IBO, and EW. Writing—review & editing: AAA, IBO, and EAA.

Competing interests
The authors declare no competing interests.

Ethical approval
This research was conducted in strict compliance with the 1964 Helsinki Declaration and its later amendments as well as the researchers' institutions (University of Nigeria Nsukka, and Edo State University, Uzairue, Nigeria). This research was not a medical study nor did it involve human experimentation as contained in the Declaration of Helsinki. All the respondents in the study were well above 18 years of age and they voluntarily answer the research questionnaire. The information provided by the respondents was strictly used for this study and also treated with utmost confidentiality and anonymity.

Informed consent
The purpose of the research, guaranteed respondents' anonymity, the confidentiality of supplied information, voluntary participation, and the liberty to opt out of the study if desired was duly communicated to the respondents before the commencement of the study. The consent of the respondents was sought and obtained through the question "Do you truly agree to provide sincere answers to questions in this survey". If they indicated "Yes, I agree to provide sincere answers to questions in this survey", the

respondents could go on to participate in the survey. The respondents voluntarily signed a consent letter to take part in the study and also to have their provided information processed in the study.

Additional information

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