Contraception and Unintended Pregnancy in Sub-Saharan Africa: Explaining the Unexpected Relationship

Eliud Wekesa, PhD (ewekesa@aphrc.org ; eliudwekesa@yahoo.co.uk)

Extended Abstract

Background

Contraceptive use allows women and couples to achieve their desired fertility preferences through spacing and limiting of births and thus reduces the total number of births and unintended pregnancies. Contraception is increasingly being recognised as an integral part development not least because it holds the key to accelerating fertility decline and creating the conditions for a demographic dividend (Bongaarts 2017). This emphasis is reflected by the prominence of family planning in the funding and policymaking efforts of governments, multilateral agencies, and international donors. As family programmes have expanded, researchers have debated the effectiveness of such programs in helping women achieve their fertility and pregnancy preferences that is reducing the number of total births and unintended pregnancies. Numerous analyses of the relationship between the relationship between contraceptive prevalence and the total fertility rate of developing countries have shown the expected inverse correlation (Bongaarts 2017; Westoff and Bakole 2001; Tsui 2001). However, two recent analyses of the relationship between contraceptive prevalence and unintended pregnancies in developing countries have produced counter-intuitive results: modest and positive correlation (Tsui et.al 2011; Wekesa 2016). These studies thus found that unintended pregnancy levels rise, rather than fall with modern contraceptive prevalence rate.

Research objectives/questions

This paper investigates two questions that arise from these results: (1) Does the relationship observed globally hold for different world regions? (2) And, if so, what explains the positive relationship in the region(s) that this obtains? A number of possible explanations are statistically evaluated in sub-Saharan Africa (SSA): 1) Whether running separate correlations of the two types of unintended pregnancies: mistimed and unwanted would change the strength and direction of the correlations 2) Whether running separate correlations for different groups of countries according to their stage in the fertility transition would change the magnitude and direction of the correlations.

Methods:

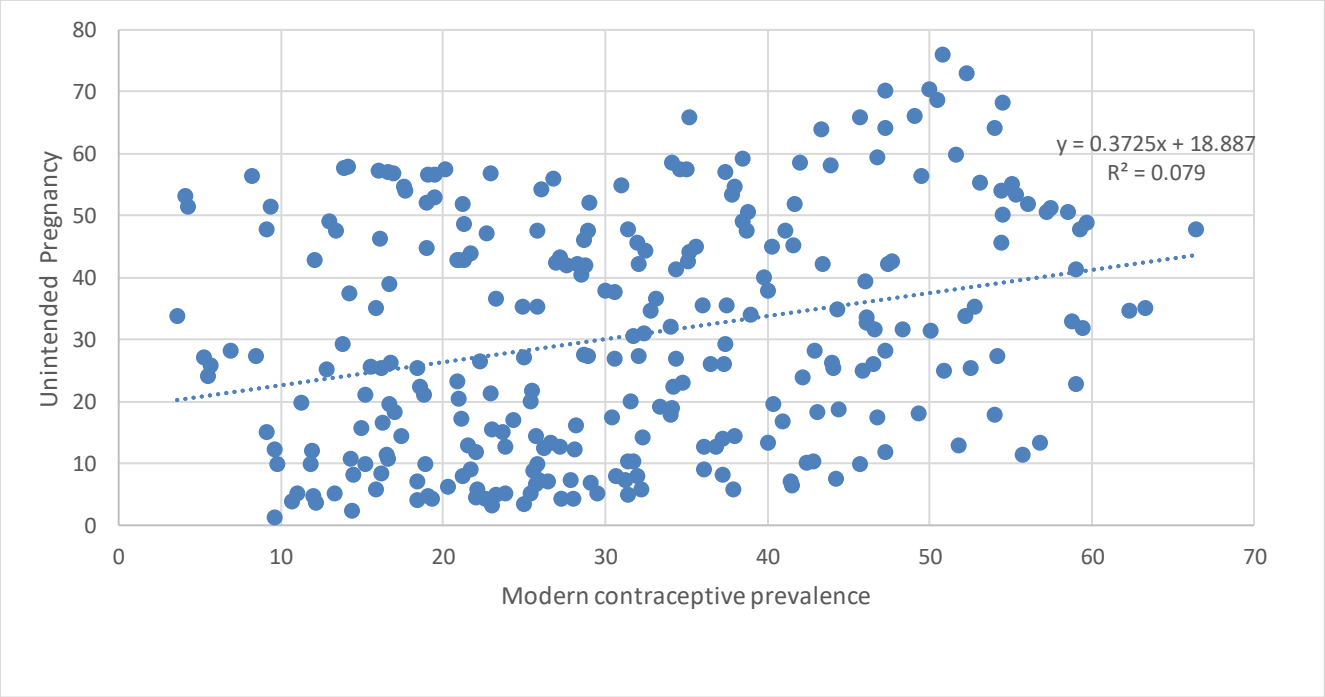
This study draws on Demographic and Health Survey data from 277 country surveys from 88 developing countries between 1991 and 2022 to explore the relationship between modern contraceptive prevalence (mCPR) and unintended pregnancies (UP). The analysis consists of three steps: 1) examine the global and regional relationships; 2) Derive different correlations between mCPR and 2 types of UP (mistimed and unwanted pregnancies) all the regions); and 3) Analyse correlations between UP and mCPR by different groups of countries in the region with unexpected relationship (SSA) by stages of their demographic (fertility) transitions.

Results

Global patterns

The first step in this analysis is to update the cross-sectional plots used by Tsui (2001) and Wekesa (2016) to demonstrate the unexpected positive relationship between modern contraceptive use and unintended pregnancy in the developing world. Analyzing the relationship with more recent DHS data, the same trend obtains globally; national rates of unintended pregnancies are positively associated with contraceptive prevalence rates (Figure 1)

Figure1**: Relationship between contraceptive use and Unintended pregnancy in developing world**



However, the correlation coefficients with recent data are substantially lower than those reported in the earlier studies, suggesting that the relationship is moving towards the expected direction with time (Table 1).

Table 1: Correlations of Contraception and Unintended pregnancy in Developing countries

Type	Unintended Pregnancies	Mistimed	Unwanted
All Methods(CPR)	0.279	0.067	0.421
Modern methods(CPR)	0.281	0.096	0.375

The same trend obtains even when mistimed and unwanted pregnancies are analyzed separately (Table 1). There is, however, a lower positive correlation coefficient between mistimed pregnancies than unwanted pregnancies, which implies that unexpected relationship is stronger for unwanted pregnancies.

Regional patterns

The next question is whether the direct (positive) relationship between unintended pregnancy and contraceptive prevalence still obtains when the analysis is disaggregated by world major regions: Sub-Saharan Africa; Arab world, Latin America and Asia (see table 2).

Table 2: Correlations of Contraception and Unintended pregnancy in major Regions

Region	Modern CPR & Unintended pregnancy	Demand satisfied by modern methods	Total fertility rates
Sub-Saharan Africa	**0.542**	35.54	5.2
Asia	**-0.176**	58.06	3.1
Latin America	**-0.102**	60.13	3.2
Arab world	**-0.147**	54.61	3.1

A different picture, however, emerges when a regional analysis of the relationship is done for Sub-Saharan Africa; Latin America, Asia and Arab world (see table 2). While a strong positive association is observed in sub-Saharan Africa the reverse is true for Latin America and Asia. There is a negative relationship as expected in Asia and Latin America, although the correlation coefficients show that the relationship is weaker in Asia than Latin America

Sub-Saharan Africa Patterns

The third question is what explains the unexpected relationships in SSA? Two possible explanations for the counter-intuitive relation between contraception and unintended pregnancies in SSA are statistically evaluated: mistimed and unwanted pregnancies and stage of the demographic transition.

Mistimed and unwanted pregnancy in SSA

Table 3 explores this relationship further by deriving correlations between type of unintended pregnancy (mistimed and unwanted) and modern contraception, by subregions (Eastern and Southern Africa (ESA) and Western and Central Africa (WCA). The unexpected (positive) relationship still applies even when the analysis is done by type of pregnancy and modern methods in all the major subregions in SSA, and even in countries in SSA where the countdown (CD) to 2030 project is being implemented. However, the counter-intuitive relationship is much more pronounced among unintended pregnancies as a whole in comparison with its types (mistimed and unwanted).

Table 3: Correlations between Contraception and type of Unintended pregnancy in subregions in SSA.

Region	Unintended	Mistimed	Unwanted
SSA	0.594	0.479	0.498
ESA	0.407	0.395	0.205
WCA	0.309	0.275	0.281
CD to 2030	0.488	0.476	0.343

Stage of the demographic transition in SSA

This leads to our last hypothesis, which is the stage of the demographic transition. Sub-Saharan Africa currently exhibits two unique demographic characteristics. First, it is the only region in the world that is still at a very early stage of the demographic transition. Secondly, there is heterogeneity in the transition with some countries far along the transition, while others exhibiting delays, stall and lags in the transition (Bongaarts 2017). There are broadly 3 groups of countries. There is one group with very high fertility exceeding 6 children per woman. Another group has total fertility rates of less than 4 per woman. Between these extremes are countries at varying levels of fertility (4 and 5 per woman).

Table 4: Correlations between Contraception and Unintended pregnancy at stage of transition

TFR	Unintended pregnancy	Mistimed pregnancy	Unwanted pregnancy	Demand satisfied by modern methods
6 and above	0.627	0.605	0.592	24.0
5	0.541	0.463	0.410	36.1
4	0.257	0.087	0.308	43.9
Less than 4	-0.104	0.800	-0.104	68.2

By comparing the correlation coefficients of the relationship by countries in Sub-Saharan Africa by stage of the demographic transition, we are able to discern a clear trend where the relationship is strongly counter-intuitive at pretransition or the early stages of the transition. At the onset of fertility transition, the increased demand for contraception to limit or space is not satisfied. The demand satisfied by modern contraceptives method is only 24% for TFR of 6 compared to 68% for TFR of 3. This implies that as the demographic transition develops, with family planning programs strengthening and modern contraceptive use increasing, the correlation coefficients drastically reduces, suggesting that the relationship between the two is moving in the expected trend and direction. Indeed, countries in SSA with an average of less than 4 have the expected negative correlation between unintended pregnancy and modern contraceptive prevalence.

Conclusion

The counter-intuitive relationship between contraception and unintended pregnancy only holds for Sub-Saharan Africa. By comparing the correlation for countries at different stages of the fertility transition, we are able to discern a clear trend in sub-Saharan Africa toward a lower correlation with progress in fertility transition. Countries in SSA that are more advanced in demographic transition (TFR of less than 4) have started to show the expected relationship. The implication of this trend is that the relationship between contraception and unintended pregnancy will eventually be the same in sub-Saharan Africa as elsewhere.

References

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