Did the COVID-19 Pandemic Impact Contraceptive Use?

An Introduction to Longitudinal Analysis using PMA Data

May 18, 2022
Opportunities and Challenges of Delivering Postabortion Care and Postpartum Family Planning During the COVID-19 Pandemic

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Reproductive health under COVID-19 – challenges of responding in a global crisis

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Agenda

• Overview of PMA
• PMA panel membership
• IPUMS’s role
• Creating an extract
• Breakout sessions – longitudinal analysis
  • Two breakout rooms: one for R, one for Stata
  • Self-select your breakout room
• Conclusion
Performance Monitoring for Action (PMA) Overview
KEY ACHIEVEMENTS UNDER PMA AND PMA2020

2013
- Platform launched
- 85+ rounds of data collection completed
- Surveys in 11 countries in Africa and Asia
- 10+ new survey modules

2019
- Revised design launched
- 9,000+ local data collectors trained
- 820,000+ interviews conducted
- 23,000+ datasets downloaded
How PMA Works

- **Data transfer**
  - Central server
  - Aggregation to central database

- **Mobile data collection**
  - by resident enumerators

- **Service delivery points**

- **Households**

- **Data visualization**
  - Reports, fact sheets, interactive dashboards, etc.

- **End users**
  - Data used by decision makers and stakeholders

- **Data management, quality assurance & analysis**
  - Real-time data monitoring for course corrections & updating of tables and graphics
Where We Work

<table>
<thead>
<tr>
<th>Countries/Partners</th>
<th></th>
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</thead>
<tbody>
<tr>
<td>DR Congo</td>
<td>University of Kinshasa</td>
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<tr>
<td>Uganda</td>
<td>Makerere University</td>
</tr>
<tr>
<td>Kenya</td>
<td>International Centre for Reproductive Health</td>
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<tr>
<td>Nigeria</td>
<td>CRERD</td>
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<tr>
<td>Burkina Faso</td>
<td>ISSP/University of Ouagadougou</td>
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<td>Niger</td>
<td>National Statistical Institute (INS)</td>
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<td>India</td>
<td>Indian Institute of Health Management Research</td>
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<td>Côte d’Ivoire</td>
<td>ENSEA</td>
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<td>Ethiopia*</td>
<td>Addis Ababa University School of Public Health</td>
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* Separate grant
PMA Study Design

Panel Enrollment

Open Panel Design

+ Age-in Move-in/out

Household Panel

YR1

X-section results

Linked

YR2

Panel results

Linked

YR3

X-section + panel results

Private

SDP Panel

YR1

SDP + CEI

Public

6 mo.

YR2

SDP interview + client exit interview

6 mo.

YR3

SDP + CEI
PMA Sampling (1)

- PMA’s sampling approach is guided by the goal to estimate the modern contraceptive prevalence rate (mCPR) with a margin of error of ±3 percentage points.

- To achieve this, PMA uses a multi-stage cluster design with urban-rural and major regions as strata.

- A representative sample of enumeration areas (EAs) is drawn from a master sampling frame, usually provided by the national statistical agency in each country.
At the beginning of data collection, PMA’s Resident Enumerators map households and key landmarks in each EA.

At baseline, a random sample of households is selected within each EA—usually 35 households from an EA size of around 200.

All women aged 15-49 at baseline are drawn into the PMA sample.
PMA Sampling (3)

■ At Phase 2, REs returned to the same dwelling units interviewed at Phase 1 and administered the female survey to all consenting women ages 15-49 in the household, regardless of their resident status at Phase 1.

■ Women interviewed in the household in Phase 1 are re-interviewed, and new women can be enrolled in the panel survey.

■ Women who left their Phase 1 household are eligible for follow-up, based on the location of their Phase 2 household.
PMA Weighting Procedures

- **Cross-sectional weights**: Design-survey weights are created as the inverse of the HH selection probability. The weights are further adjusted for non-response at the household level within the EA.

- **Longitudinal weights**: Panel weights are calculated as the baseline female weights, adjusted for loss to follow-up. To adjust, PMA uses the inverse of predicted probability of having a completed the baseline survey- an inverse probability weighting (IPW) approach.

- Finally, the household and female weights are normalized at the national or subnational level.
PMA Panel Membership
Panel Sample

- Dwelling unit-based sampling approach

**Dwelling Unit**  Room or group of rooms occupied by one or more households

- At Phase 2 – RE re-identified the P1 Dwelling Units
Panel Sample

**Female Survey Eligibility**
- Age 15-49 yrs
- Live in selected HHs
- Slept in selected HHs the day before

**Female Panel Questionnaire**
- Women who received baseline survey at Phase 1
- Consented to follow-up

**Female Baseline Questionnaire**
- Age in (Turns 15 after Phase 1)
- New eligible women found
Panel Membership

Panel Women
• Age 15-49 yrs
• Received Female Baseline Questionnaire
• Consented to follow-up

Phase 1

+ Age-in Move-in

Phase 2

Lost to Follow-up

Panel results
Lost to Follow-up

- LTFU
  - Dwelling Unit Level
  - Household Level
  - Household Roster Level
  - Female QRE Level
Lost to Follow-up

- Dwelling Unit Level
  - Destroyed
  - Not found
- Household Level
- Household Roster Level
- Female QRE Level

Barber shop

Replaced

?
Lost to Follow-up

LTFU

Dwelling Unit Level

Household Level

Incomplete Household survey
- HH absent
- Refused participation
- Incomplete HH QRE

Household Roster Level

Female QRE Level
Lost to Follow-up

- LTFU
  - Dwelling Unit Level
  - Household Level
    - Household Roster Level
      - Woman no longer a resident
        - Deceased
        - Moved out of study area
        - Unknown status
      - Female QRE Level
Lost to Follow-up

LTFU

Dwelling Unit Level

Household Level

Household Roster Level

Female QRE Level

Incomplete Female Survey

- Not at home
- Refused
- Incapacitated
- Incomplete
IPUMS: What We Do
What is IPUMS?

IPUMS provides census and survey data from around the world integrated across time and space. IPUMS integration and documentation makes it easy to study change, conduct comparative research, merge information across data types, and analyze individuals within family and community context. Data and services available free of charge.
IPUMS PMA

- Harmonize codes and variable names
- Document variables
- Disseminate custom data files in multiple formats
- Add calculated fields
- Link longitudinal records
FORMATTING MIGRATION RECALL DATA FOR LONGITUDINAL ANALYSIS

Use tidyr::pivot_longer to reshape wide data into a long format.

UNMET NEED FOR FAMILY PLANNING AFTER INTERNAL MIGRATION

Summarized and sourced code from a recent article using...
Research Question

- Did COVID-19 impact contraceptive use? Did restrictions affect fertility-related behaviors in Nigeria?
  - Data visualization
  - Analysis
    - Income loss
    - Concern over infection
Creating an Extract
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<tr>
<td>20608</td>
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Relevant Variables

- **CP**
  - Using a contraceptive method

- **CVINCOMELOSS**
  - If household lost income, was due to COVID

- **COVIDCONCERN**
  - Concerned about becoming infected with COVID
Framework for Today’s Breakout Sessions

Breakout sessions

LONGITUDINAL ANALYSIS
PMA Data

- **PMA data:** in addition to information on COVID-19, PMA collects data on
  - Women’s economic empowerment
  - Women’s sexual and reproductive empowerment
  - Reproductive histories through a two-three year contraceptive calendar
  - Gender-based violence
  - Fertility and contraceptive preferences and intentions
  - Family planning service quality
  - GPS coordinates
- PMA survey instruments are available at: [https://www.pmadata.org/data/survey-methodology](https://www.pmadata.org/data/survey-methodology)
Looking Forward

- **PMA datasets:**
  - Baseline panel data are available for all PMA countries. PMA data can be accessed through [https://pma.ipums.org/pma/](https://pma.ipums.org/pma/) or [https://www.pmadata.org/data/request-access-datasets](https://www.pmadata.org/data/request-access-datasets)
  - Two phases of longitudinal panel data are available for Kenya, Nigeria, DRC, and Burkina Faso.
    - Forthcoming for India (Rajasthan) and Uganda in July 2022, Cote d’Ivoire in August 2022, and Niger in November 2022.
  - Phase three data will be available in the coming months
    - Kenya and Nigeria in August 2022, Burkina Faso in September 2022, DRC in October 2022

- **PMA research:**
  - A complete list of PMA publications (including several on FP and COVID) is available on the [PMA Google Scholar Website](https://pma.ipums.org/pma/).
Questions?

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Thank you!

pmadata.org
pma.ipums.org
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@pm4action
@pm4action