

NEW RESEARCH LINKS FAMILY PLANNING AND MATERNAL AND CHILD HEALTH TO RESILIENCE

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A peer-reviewed study published in *Population and Environment* provides evidence that voluntary family planning and use of maternal and child health (FP/MCH) care facilities are positively associated with resilience—the capacity to cope and adapt to environmental and other shocks and stressors—at the household and community level.

This study aimed to determine the factors associated with resilience, with the goal of understanding how to build resilience among people in ecologically rich rural regions who rely on natural resources for their livelihoods.

An interdisciplinary research team identified components of resilience that could be measured in integrated community-based health and development initiatives, such as Population, Health, and Environment (PHE) projects. They used data from the Tuungane Project in Tanzania to measure the components of resilience and examine the links between resilience and family planning.

The findings support the importance of including FP/MCH in the design and implementation of holistic, multisectoral projects intended to enhance resilience. Such projects can help communities address multiple development needs, including reproductive health.

Developing a Model of Resilience

Researchers drew on an extensive literature review, interviews with PHE practitioners, and a 2016 expert meeting in Tanzania to identify the components of resilience within the context of the Tuungane Project and create an eight-component resilience model (see box). They then proposed that a more holistic definition of resilience would also include awareness of, attitudes about, and access to FP/MCH care.

Data: Household Survey From the Tuungane Project

Research focused on data from the Tuungane Project in villages adjacent to Mahale Mountains National Park along Lake Tanganyika in western Tanzania. The project aims to improve the health of people, forests, and fisheries.

The researchers used data from a quantitative survey of 1,010 households in 16 villages that measured changes since the 2011 project baseline survey. The 2016 follow-on survey included additional questions to

Components of Household Resilience Model

- 1 Social capital/social cohesion:** Engagement and participation in village government, public meetings, and community organizations; trust in home village, other villages, and village government.
- 2 Natural resources protection attitudes:** Protect and use resources sustainably; appreciate value and benefits of local national park; understand causes and impacts of water pollution.
- 3 Food security, livelihoods, and assets:** Caloric intake, food reserves, and dietary diversity; multiple income sources; assets, crops, livestock, and land.
- 4 Water, sanitation, and hygiene:** Safe water source during dry and wet seasons; improved latrine; handwashing with water and soap/ash/sand.
- 5 Climate change awareness:** Has heard of climate change; has observed weather changes since youth; believes weather changes would negatively affect household.
- 6 Adult use of mosquito nets:** Reflects preventive health behavior.
- 7 Women's highest education level:** Reflects household's education level.
- 8 Changed behavior due to climate change:** Reflects household's adaptive capacity.

Proposed Additional Component of Resilience: Family planning and access to maternal and child health care (FP/MCH): Family planning awareness, attitudes, needs, usage, and access; number and spacing of children; desire for more children; health care home visit; health facility use.

measure household resilience based on the components identified in the model and explored the role of FP/MCH in building resilience.

Analysis and Findings

To confirm that the resilience model components accurately measured potential household resilience, the research team used statistical methods (confirmatory factor analysis in a structural equation modeling context) to examine:

- The interrelationship among the individual factors intended to measure a given component of resilience to create a comprehensive definition of each component.
- The interrelationship among each of the eight components of resilience to provide a broad definition of resilience.

This theoretically driven analysis, which controlled for household differences, suggests that what the eight components share can be defined as resilience.

In further analysis, the researchers examined whether FP/MCH is statistically associated with this resilience model. They confirmed the association, finding that **households that scored higher on FP/MCH measures also scored higher on overall resilience as measured by the eight components of the resilience model** (see box, page 1).

They conducted additional analysis to explore the association between FP/MCH and each individual component of the resilience model. **The results show a significant, positive, direct association between FP/MCH and all but one individual component of the resilience model**, suggesting that FP/MCH is broadly related to the resilience model and the association is not driven by a single component of resilience.

Finally, they examined the association between 1) family planning measures *excluding* maternal and child health care and 2) resilience. They found a **strong and significant association between family planning alone and resilience**, suggesting that the relationship is not driven by the inclusion of broader health care access measures (see box, page 1).

Overall, the research results:

- **Confirm that resilience can be measured through integrated community-based development programs.**
- **Provide evidence that FP/MCH is positively associated with multiple components of resilience**, a link that had been previously suggested but lacked robust quantitative evidence.
- **Demonstrate that family planning alone is also positively associated with all components of resilience in the context of a rural multisectoral community development project** (see box, page 1).

Implications for Resilience and Integrated Development Projects

The findings provide strong evidence to support including FP/MCH in holistic community development programs to build individual, household, and community resilience, particularly where there are unmet needs for voluntary family planning and maternal and child health care.

Measuring the components of resilience over time can help assess whether resilience is increasing in project areas. These results can inform collaboration, learning, and adaptive management to ensure projects deliver effective development outcomes.

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