



COUPLE CONCORDANCE INDEX

Construction of the couple concordance index and its relationship with contraceptive use

MOMENTUM Country and Global Leadership



MOMENTUM works alongside governments, local and international private and civil society organizations, and other stakeholders to accelerate improvements in maternal, newborn, and child health services. Building on existing evidence and experience implementing global health programs and interventions, we help foster new ideas, partnerships, and approaches and strengthen the resiliency of health systems.

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BACKGROUND

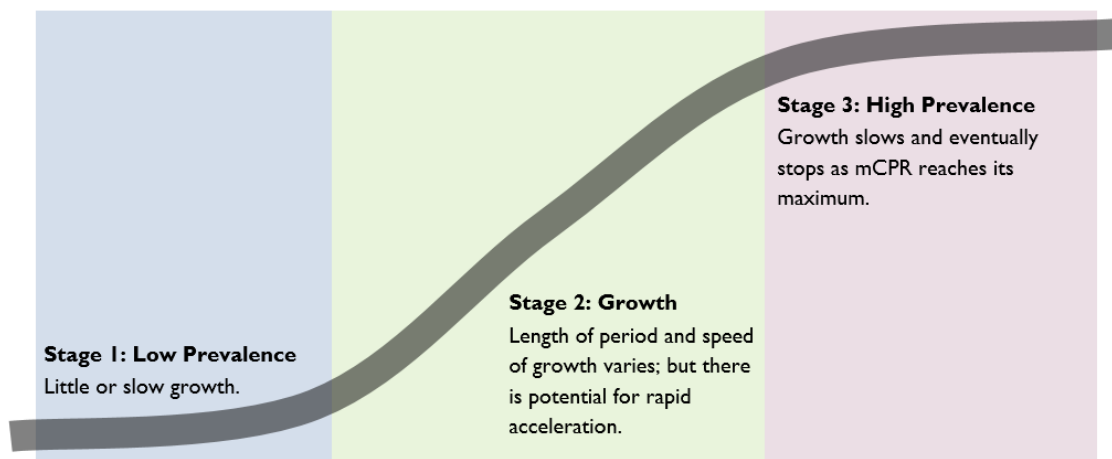
Over the last three decades, there has been a greater emphasis globally on the right to reproductive health and gender equity and a greater interest in the provision of contraceptive services within these frameworks. The voluntary use of modern contraception by women is increasingly understood as an important signal of progress on reproductive health outcomes and women's and couples' capacity to manage their reproductive lives in a changing context of educational attainment and labor force participation for women. The monitoring framework of the Sustainable Development Goals acknowledges the relationship between contraceptive use and women's rights and development in its use of met demand for family planning as a metric for monitoring progress toward gender equality and female empowerment.¹ FP2030 promotes the rights and principles for family planning, with individuals empowered to make decisions about their reproductive lives.²

Study Questions

How do levels of couples' concordance differ across countries?

What is the relationship between couples' concordance and position along the mCPR S-curve?

FIGURE 1. MODERN CONTRACEPTIVE USE S-CURVE



We know that changes in contraceptive prevalence follow an S-shaped curve starting with low contraceptive use when preferences for large family size dominate and norms relating to women's participation in schooling and work are inequitable.³ As norms shift and preferences for regulating fertility change, countries move from low levels of contraceptive use to higher levels and modern contraception use becomes more acceptable and/or accessible. This analysis examines levels of concordance between couples on demographics, family preferences, knowledge, and empowerment (i.e., couple concordance index [CCI]) and its relationship with country groupings along the S-curve.

The purpose of this study is to understand country-level differences in couples' concordance and the relationship between concordance and country position on the modern contraceptive prevalence rate (mCPR) S-curve.

METHODS

Because of the multidimensional nature of couples' concordance, we construct an index to group indicators into domains, and domains into the CCI. Composite indices allow for cross-country comparison of a single measure that combines many facets.⁴

DATA AND INDICATORS

To create the CCI, we began by looking at all Demographic and Health Surveys (DHS) that included interviews with men and women, linked husbands' and wives' questionnaires together, and created couples' recoded files. From 1990 to 2018, 182 surveys from 65 countries met these criteria. For this analysis, we focused on the most recent survey from each country, ranging from 1994 to 2018. The timeframe was not limited so that we could include as many countries as possible. Countries were from Central and Southern Asia, Eastern and South-Eastern Asia, Eastern Europe, Latin America and the Caribbean, Northern Africa and Western Asia, Oceania, and sub-Saharan Africa.

We identified four domains as key themes of couples' concordance: demographics, family size preferences, knowledge resources, and empowerment and beliefs. We split empowerment and beliefs into three subdomains: personal autonomy, sexual autonomy, and physical autonomy. Each domain was chosen because it highlights a different aspect of a couple's relationship. Differences in demographic characteristics such as age can cause power imbalances within couples. Sharing family preferences is essential for communication on contraceptive use and decisions about family size. Knowledge resources are necessary to act on desires to use contraception and achieve desired family size. Finally, beliefs about women's autonomy (held by both partners) allow couples to have freedom in their relationship.

We chose 12 variables to create the four domains of concordance (see Figure 2 and Table 1). Across the 12 indicators we identified, some countries were missing data. The number of countries missing data for each indicator ranged from 0 (differences in spousal age) to 15 (the belief that women are justified in asking for condoms if men are unfaithful). We employed a hot deck imputation approach for missing data, creating subregional and regional averages of non-missing observations and assigning the mean to the country with missing data. For 87% of the missing data, subregional averages were used. For the remaining 13%, regional averages were used—this was because the subregion only contained one or two countries with a DHS.

CONSTRUCTING THE INDEX

In order to combine multiple indicators together to form an index, all indicators need to be scaled to range from 0 to 1. To do this, we selected a minimum and maximum value for each variable (see Table 1). For this index, the minimum is the lowest observation in the dataset; when rescaled, that country will have a "0" for the indicator. Given that reaching 100% would be ideal for most indicators, the maximum for all but two indicators was set to 1. For the remaining two indicators (percentage of husbands 5 or fewer years older than wife and percentage of couples that share the same ideal family size), the highest observation of each variable was chosen for rescaling. Once we selected the maximum and minimum values, we rescaled the indicators using the following equation:

$$\text{SCALED INDICATOR} = \frac{\text{Indicator} - \text{ScaleMin}}{\text{ScaleMax} - \text{ScaleMin}}$$

For example, across all countries, the highest value for the percentage of couples in which the husband is 5 or fewer years older than the wife is 85% and the lowest value is 19%. Therefore, the country with 85% would be rescaled to 1. But for a country in which 45% of couples have a husband 5 or fewer years older than the wife, the rescaled value would be $(.45 - .19 \div .85 - .19)$ or $\frac{.45 - .19}{.85 - .19} = 0.39$.

TABLE 1. DOMAINS, SUBDOMAINS, AND INDICATORS OF THE CCI

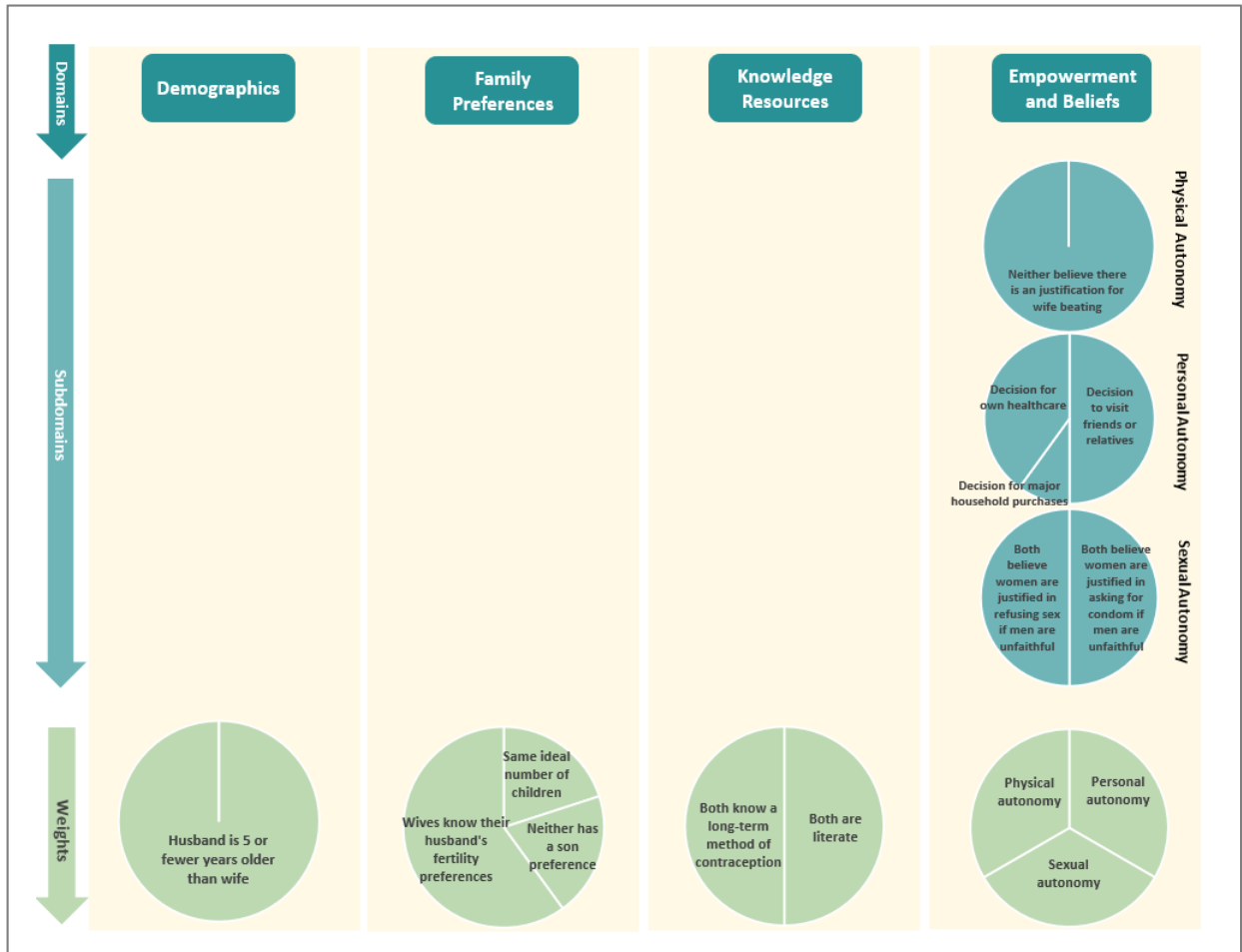
Domain	Subdomain	Indicator	Subdomain weight	Domain weight	Scale minimum	Scale maximum
Demographic		Proportion of couples where husband is 5 or fewer years older than wife	1	1	0.19	0.85
Family Preferences		Proportion of couples with same ideal number of children	1	0.2	0.11	0.67
Family Preferences		Proportion of couples where neither has a son preference	1	0.2	0.22	1
Family Preferences		Proportion of wives who know their husband's fertility preferences (in relation to their own)	1	0.6	0.05	1
Resources		Proportion of couples where both are literate	1	0.5	0.04	1
Resources		Proportion of couples where both know a long-term method of contraception	1	0.5	0.2	1
Empowerment/ Beliefs	Personal Autonomy	Proportion of women who can make decisions to visit friends or relatives	0.5	0.333333	0.26	1
Empowerment/ Beliefs	Personal Autonomy	Proportion of women who can make decisions for major household purchases	0.1	0.333333	0.15	1
Empowerment/ Beliefs	Personal Autonomy	Proportion of women who can make decisions for their own health care	0.4	0.333333	0.17	1
Empowerment/ Beliefs	Sexual Autonomy	Proportion of couples where both believe women are justified in asking for condoms if men are unfaithful	0.5	0.333333	0.09	1
Empowerment/ Beliefs	Sexual Autonomy	Proportion of couples where both believe women are justified in refusing sex if men are unfaithful	0.5	0.333333	0.07	1
Empowerment/ Beliefs	Physical Autonomy	Proportion of couples where neither believe there is any justification for wife beating	1	0.333333	0.06	1

Although we theorize that all measures capture their assigned domains, according to expert consultations, some indicators are better at representing their domain than others, thus we employ weights to indicators when forming subdomains and domains (see Figure 2 and Table 1). As percentage of husbands 5 or fewer years older than the wife is the only indicator for the demographic domain, it is assigned a weight of 1. For

family preferences, communication between husband and wife—illustrated by the indicator of wives correctly knowing their husband’s fertility preferences (asked in the DHS as if her husband wants the same number of children as her, more, or less)—is assigned a higher weight than the preference for a son or ideal number of children, which are weighted equally. Wives correctly knowing their husband’s fertility desires requires a high degree of couple communication and may therefore be the indicator that most captures concordance. Literacy and knowledge of a long-term method of family planning both capture knowledge useful in achieving desired family size and are equally weighted in the knowledge resources domain. The three empowerment subdomains are equally weighted to create the empowerment domain though, in the personal autonomy subdomain, women’s ability to make decisions to visit friends and relatives is given the most weight. Previous research suggests that unproductive freedoms, such as the ability to visit friends and relatives, are more strongly correlated with reproductive health outcomes than other empowerment indicators, such as making decisions about household expenditures and child health care.⁶ After the ability to make decisions to visit friends and relatives, the next highest weighted variable in the personal autonomy subdomain is women’s ability to make decisions about their own health care, followed by decisions of major household purchases.

Following the creation of individual domains, we formed the CCI by taking the geometric mean of the four domains. This calculation multiplies each domain together, then takes the 4th root to create an index between 0 and 1. A geometric mean is preferable to an arithmetic mean for this index because it offers non-compensability between domains; in other words, high performance in one domain does not compensate for poor performance in another.

FIGURE 2. DOMAINS, SUBDOMAINS, AND WEIGHTS FOR EACH INDICATOR



RESULTS

We present results for the CCI for 65 countries. Full results for each country are available in the appendix.

CCI GLOBAL RESULTS

The minimum possible CCI is 0 and the maximum is 1. The average score is 0.48, with a standard deviation of 0.17. Ukraine has the highest score of 0.84 and Guinea has the lowest score of 0.08. Regionally, Eastern Europe has the highest mean CCI (0.76) and Western Africa has the lowest mean CCI (0.27).

FIGURE 3. GLOBAL RESULTS OF THE CCI

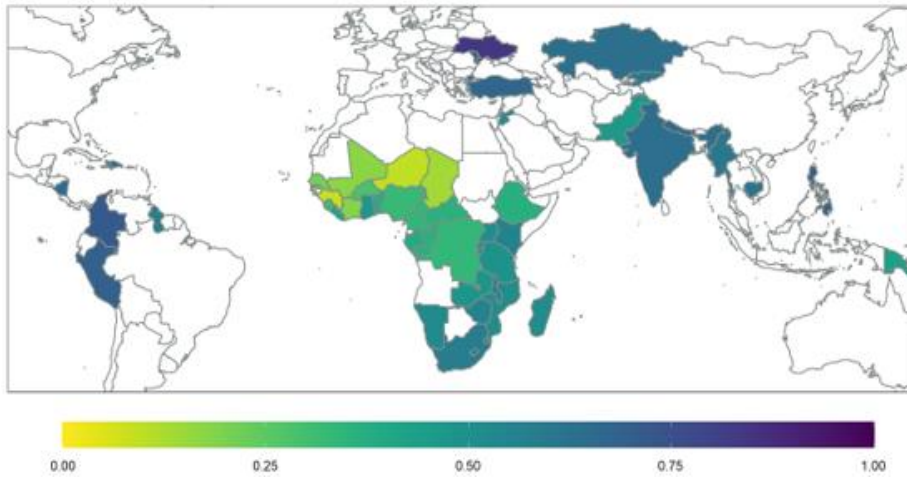
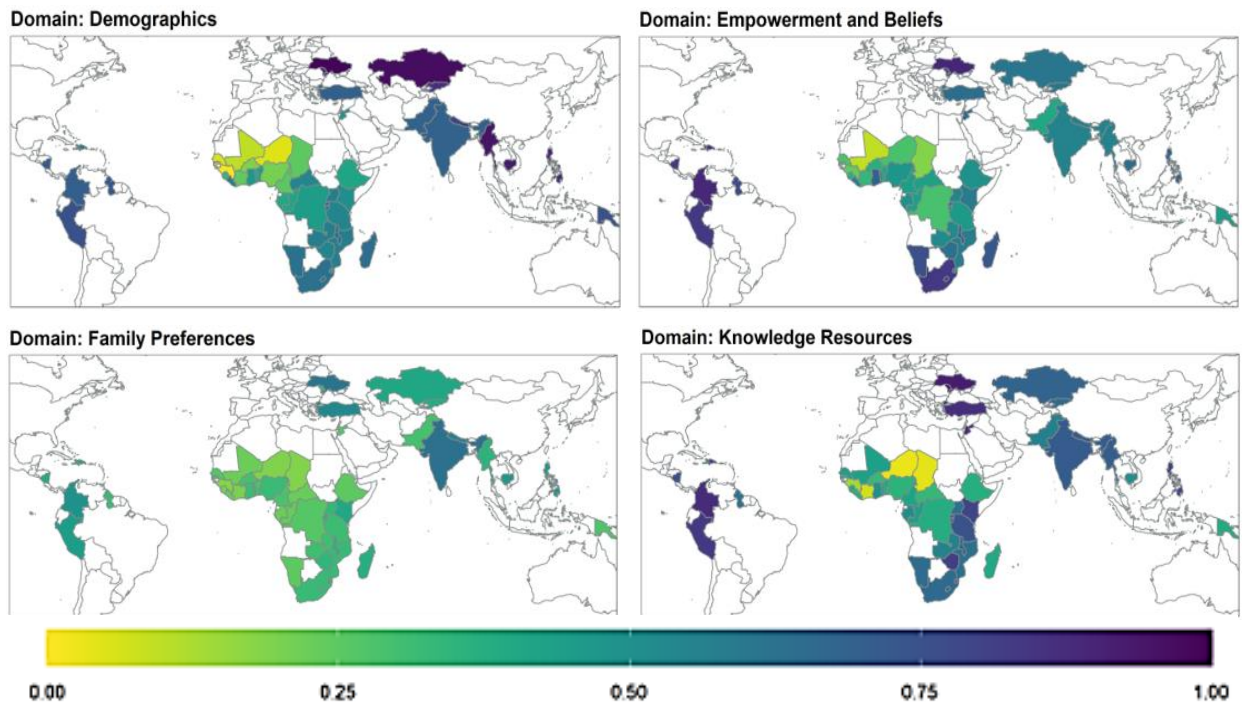


FIGURE 4. GLOBAL RESULTS OF THE CCI, BY DOMAIN



Looking at the individual domains, which like the CCI have a minimum score of 0 and maximum score of 1, average scores for demographics, empowerment and beliefs, and knowledge resources are grouped together at 0.56–0.57. Family preference scores are much lower, averaging only 0.34. All but five countries have a family preference domain score below 0.5, and the highest is 0.71 for Bangladesh (the lowest is Comoros with 0.17). Demographics have the largest range—from 0.01 in Guinea (predominantly 6+ years of difference in age) to 0.99 in Ukraine (predominantly 5 or fewer years difference in age between spouses). The empowerment and beliefs domain is lowest in Mali (0.09) and highest in the Dominican Republic (0.91). Knowledge resources varies from 0.03 in Niger to 0.96 in Moldova.

CONCLUSIONS

The construction of the CCI and its strong relationship with mCPR offers policymakers a tool to capture a nuanced measure of interpersonal relationships. It allows one to observe changes at the macro level, which is where the combined effects of drivers of norms—education, skills, labor force participation—are felt substantially and create the space for movement from low prevalence to rapid growth along the S-curve. Further disaggregation of the CCI into the four domains allows policymakers to identify areas of focus for couples programming. Countries interested in couples programming should look at what domains are driving down the overall CCI and identify the aspects of those domains that are actionable through programming. Then, they can focus on more than just couples’ communication around family planning, but also other aspects of their relationships.

Results show that most countries fall within the midrange of the CCI, with the lowest overall CCI scores being concentrated in sub-Saharan Africa, particularly Western and Central Africa. Overall, countries tend to score lowest in the family preference domain, though the demographic domain has the widest range of scores.

Although we cannot determine causality between CCI scores and mCPR, it is still valuable to know that these two indicators appear to be positively correlated in most contexts. This finding emphasizes the need for inclusive family planning programs that emphasize the role that both men and women play in contraceptive decision-making.

REFERENCES

1. Leadership Council of the Sustainable Development Solutions Network. 2015. “Indicators and a Monitoring framework for the Sustainable Development Goals: Launching a Data Revolution.” <https://sdgs.un.org/sites/default/files/publications/2013150612-FINAL-SDSN-Indicator-Report1.pdf>.
2. Family Planning 2030. 2021. Rights and Empowerment Principles for Family Planning. <https://commitments.fp2030.org/principles>
3. Track20 Project. 2017. “The S-Curve: Putting mCPR Growth into Context.” http://www.track20.org/pages/data_analysis/in_depth/mCPR_growth/s_curve.php.
4. Organisation for Economic Co-operation and Development. 2008. “Handbook on Constructing Composite Indicators: Methodology and User Guide.”
5. Basu, Alaka Malwade and Koolwal, Gayatri Brij. 2005. “Two Concepts of Female Empowerment: Some Leads from DHS Data on Women’s Status and Reproductive health.” In *A Focus on Gender: Collected Papers on Gender using DHS Data*. Sunita Kishnor (editor), 15-53. Calverton: ORC Macro.



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