

Spatio-Temporal distribution of percentage change in Couple Years of Protection by district in Punjab province – Results from Pakistan Contraceptive Performance Reports 2014-15 to 2018-19

Masood Ali Shaikh

Dear Madam, Couple Years of Protection (CYP) is an indirect metric of family planning activities, and defined as “the estimated protection provided by contraceptive methods during a one-year period, based upon the volume of all contraceptives sold or distributed free of charge to clients during that period”.¹ CYP is based on the assumption that all contraceptive methods provided to users were actually used in the correct fashion. CYP has been used in many developing countries for gauging the performance of family planning services.^{2,3}

In this study, yearly percent change data from four Contraceptive Performance Reports (CPR) were used to map the spatio-temporal distribution of CYP by district in the Punjab province. CPR reports are released by the Pakistan Bureau of Statistics, and are freely available on its website.⁴ These reports for the years of 2015-16, 2016-17, 2017-2018, and 2018-19 were downloaded as PDF files and CYP data for percentage change were entered in spreadsheet and joined with the shapefile for the Punjab province using ArcGIS 10.3. Temporal changes were depicted using a user-written programme.⁵ Each report provides data on CYP change as compared to the previous year by district, based on data collected by Population Welfare Departments, Health Departments, and select Non-Governmental Organizations. Hence, the latest CPR report of 2018-19 provides percentage change in CYP from 2017-18. The CPR for the year 2015-16 did not include CYP percentage change data collected by Population Welfare Departments and select Non-Governmental Organizations only. It was collected by Population Welfare Departments, Health Departments, and select Non-Governmental Organizations.

The 36 districts of Punjab were grouped as northern (21) and southern (15) districts, for clearer depiction of spatio-temporal changes in CYP for four years. Map 1 shows Punjab map with these northern and southern districts. Map 2 shows spatio-temporal changes in CYP percentage change by district over the five years. Each map's legend shows five classes of CYP percentage change, using

Independant Consultant, Karachi, Pakistan.

Correspondence: Masood Ali Shaikh e-mail: masoodalishaikh@gmail.com

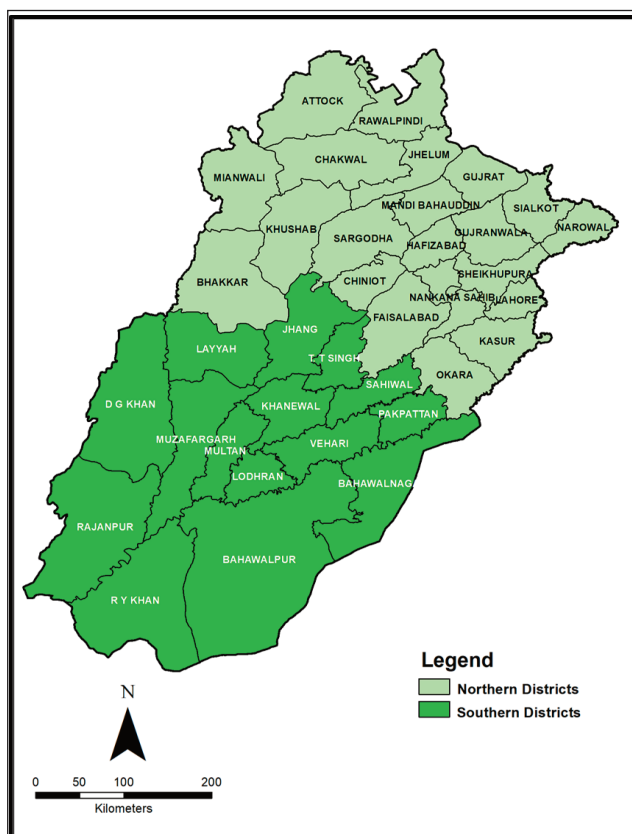


Figure-1: Map showing the districts of Punjab province, Pakistan.

quantile method. Innermost ring shows the CYP percentage change from 2014-15 to 2015-2016, while the outer most ring represents CYP percentage change from 2017-18 to 2018-19.

The CYP percentage change ranged from -51 to 31.7 from 2014-15 to 2015-16, with a mean of -6.6; from 2015-16 to 2016-17 change ranged from -25.1 to 61.2, with a mean of 13.3; from 2016-17 to 2017-18 change ranged from -2.2 to 146.1, with a mean of 41.0; and from 2017-18 to 2018-19 the CYP percentage change ranged from -3.7 to 59.1, with a mean of 18.0. For the northern Punjab districts of Chiniot and Nankana Sahib no data were available for percentage change from 2014-15 to 2015-16, and from 2015-16 to 2016-17.

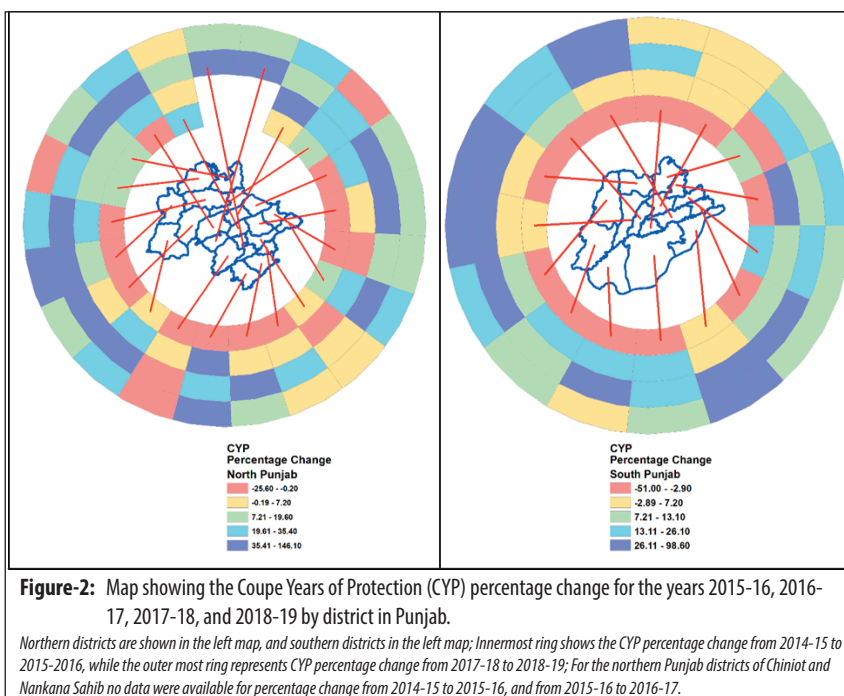
The maps in figure 2 clearly show that from the years CYP percentage change began improving markedly in 2016-17 compared to 2015-16, this improvement was most pronounced next year when comparison was made in 2017-18, compared to 2016-17. In the next two years this improvement in CYP percentage change continued albeit at a slower pace. The results indicate continued and persistent improvement in the provision of family planning activities in the Punjab province. These maps provide useful adjunct for health policymakers and planners to better visualize temporal trajectories for more effective geographic targeting of family planning interventions. However, the CPR reports only provide CYP percentage change data, as such, this analysis and mapping preclude the possibility of addressing drivers of change at the district level in Punjab.

Disclaimer: None.

Funding Sources: None.

Conflicts of interest: None

DOI: <https://doi.org/10.47391/JPM.22-024>



References

1. USAID–Couple Years of Protection (CYP). [Online] [Cited 2021 January 25]. Available from: URL: <https://www.usaid.gov/global-health/health-areas/family-planning/couple-years-protection-cyp>.
2. Lemani C, Kamtuwanje N, Phiri B, Speizer IS, Singh K, Mtema O, et al. Effect of family planning interventions on couple years of protection in Malawi. *Int J Gynaecol Obstet*. 2018; 141:37-44.
3. Postlethwaite D, Trussell J, Zoolakis A, Shabear R, Petitti D. A comparison of contraceptive procurement pre- and post-benefit change. *Contraception*. 2007; 76:360-5.
4. Pakistan Bureau of Statistics. [Online] [Cited 2021 January 25]. Available from: URL: <https://www.pbs.gov.pk/>
5. ESRI. Looking at temporal changes. [Online] [Cited 2020 May 12]. Available from: URL: <https://www.esri.com/~media/Files/Pdfs/news/arcuser/1013/ringmap.pdf>