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### Title:

Differentials in Childhood Immunization Coverage Among Three South Asian Countries, Bangladesh, Pakistan, and Nepal

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### ACCEPTED

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### Session Title:

Clinical Poster Session 1 (Saturday/Sunday, 16 & 17 November)

### Slot:

CLIN PST1: Sunday, 17 November 2019: 11:45 AM-12:15 PM

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### Abstract Describes:

Completed Work/Project

### Applicable Category:

Clinical, Students, Researchers

### Keywords:

Childhood immunization, Immunization coverage and South Asian countries

### References:

1. Shah, Krupa. "Child Mortality in South Asia: Preventable Diseases and Scaling up Immunisation Efforts." *South Asia @ LSE Blog*, 6 Nov. 2016, [blogs.lse.ac.uk/southasia/2016/11/07/child-mortality-in-south-asia-preventable-diseases-and-scaling-up-immunisation-efforts/](https://blogs.lse.ac.uk/southasia/2016/11/07/child-mortality-in-south-asia-preventable-diseases-and-scaling-up-immunisation-efforts/).

2. Liu L, Shefali O, Hogan D Et Al. *Global, Regional, and National Causes of Child Mortality in 2000-2013, with Projections to Inform Post-2015 Priorities: An Updated Systematic Analysis. Lancet.* 2015;385(9966):430-440.

3. World Health Organization, . *Global Vaccine Action Plan 2011-2020.* World Health Organization, 23 Nov. 2017, [www.who.int/immunization/global\\_vaccine\\_action\\_plan/GVAP\\_doc\\_2011\\_2020/en/](http://www.who.int/immunization/global_vaccine_action_plan/GVAP_doc_2011_2020/en/).

4. Wiysonge, Charles S et al. *A bibliometric analysis of childhood immunization research productivity in Africa since the onset of the Expanded Program on Immunization in 1974* *BMC medicine* vol. 11 66. 14 Mar. 2013, doi:10.1186/1741-7015-11-66

5. World Health Organization, . *World Immunization Week 2016: Immunization Game-Changers Should Be the Norm Worldwide - World.* *ReliefWeb*, [reliefweb.int/report/world-immunization-week-2016-immunization-game-changers-should-be-norm-worldwide](http://reliefweb.int/report/world/world-immunization-week-2016-immunization-game-changers-should-be-norm-worldwide).

6. UNICEF, WHO, World Bank, UN-DESA Population Division. *Levels & Trends in Child Mortality 2015 (Estimates Developed by the UN Interagency Group for Child Mortality Estimation).*

7. Legesse E, Dechasa W. An assessment of child immunization coverage and its determinants in Sinana District, Southeast Ethiopia. *BMC Pediatrics.* 2015;15: 31.

### **Abstract Summary:**

This study aimed to explore the potential differences and associations with childhood immunization coverage based on selective socio-cultural and socio-economic factors among three South Asian countries, namely, Bangladesh, Pakistan and Nepal.

### **Content Outline:**

1. Background
2. Methods
3. Results
4. Conclusion

### **Topic Selection:**

Clinical Poster Session 1 (Saturday/Sunday, 16 & 17 November) (25741)

## **Abstract Text:**

### **Background**

Globally 6 million under five children died in 2015 and more than 30 percent of the deaths came from South Asian region which could have been prevented through proper vaccination. It has been found that estimated two to three million lives have been saved globally in every year as a positive outcome of the vaccination program. This statistic indicates that worldwide 11 children are dying in every single minute and if we fail to pull up the trend immediately, around 4.4 million children ( $\leq 5$  years) will die in 2030. The recent Global Vaccine Action Plan (GVAP 2011-2020), initiated by World Health Assembly, has determined a goal to reach  $>90\%$  national coverage all over the world targeting children aged 19-35 months. Despite the benefits, there are some barriers which interrupted to introduce such disease prevention approach and implement the vaccination programs such as, socio cultural barriers (level of parents' education, low socioeconomic status, and birth order etc.), populations living in difficult-to-reach areas, programmatic challenges like- insufficient or limited vaccine supplies and healthcare services, conflicts etc. As a result, the childhood immunization coverage in South Asian countries specially Bangladesh, Pakistan and Nepal are still far from the GVAP goals and seems to go a long way to catch the universal standard. Considering all these issues this study aimed to explore the potential differences and associations with childhood immunization coverage based on selective socio-cultural and socio-economic factors among three South Asian countries, namely, Bangladesh, Pakistan and Nepal.

### **Methods**

The analysis uses data pooled from last round of DHS for Bangladesh (2014), Pakistan (2012-2013) and Nepal (2016) to attain an adequate sample size. Immunization status was defined according to either the vaccination card for each living child or when unavailable, as reported by the mother. The study considered children between 12–23 months of age for the analysis because, according to WHO guidelines, children across this age range are not rebuffed vaccination in a field situation. Thus, mothers with kids aged 12–23 months, were extracted from the children's data set.

This study exploited numerous exposure variables, namely, the age of children (12–23), gender (male, female) birth order (1, 2–3, 4–5, 6+), place of residence (urban, rural), mother's education (no education, primary complete, secondary and higher) and wealth index (poorest, poorer, middle, richer and richest). The full immunization coverage status was the outcome variable in this study. Full vaccination was defined as having received all eight EPI-recommended vaccine doses (one dose of BCG, three doses of pentavalent vaccine (DPT-HepB-Hib), three doses of OPV, and one dose of measles/rubella, in accordance with the WHO definition of full vaccination coverage.

#### *Statistical analysis*

Whole analyses were carried out utilizing the SPSS software (24.0 version) and Epi Info (7.0 version).

#### *Ethical issues*

Our study is based on secondary data (DHS). The data is available in the public domain and was taken from the Measure DHS website (<http://dhsprogram.com/>). Therefore, ethical clearance is not required for this study.

## Results

This study was limited to data collected about the children who were 12-23 months of age at the time of the survey, resulting in a total sample of 4626 children among the three South Asian countries. There were increasing trends found on immunization coverage in the South Asian countries Pakistan, Nepal and Bangladesh. In comparison to three South Asian countries, total immunization coverage was much better in Bangladesh (Male = 52.8, Female = 47.2) than Nepal (Male = 50.4, Female = 49.6) and Pakistan (Male = 50.6, female = 49.4). Our study results revealed that factors such as child's residence, mother's education, birth order had a significant effect on immunization coverage among Bangladesh, Pakistan and Nepal. Moreover, there was a strong association observed on child's residence, mother's education and birth order between these three countries. Urban-rural differences on immunization coverage were quite visible in Bangladesh vs. Pakistan (unadjusted OR = 1.27 (1.10–1.47)  $P < 0.001$ ), Bangladesh vs. Nepal (unadjusted OR = 3.31 (2.79–3.92)  $P < 0.001$ ) and Pakistan vs. Nepal (unadjusted OR = 2.59 (2.21–3.04)  $P < 0.001$ ). Marked association were observed on child's maternal education (none to primary and some secondary levels) with immunization coverage between Bangladesh vs. Pakistan (none to primary: unadjusted OR = 0.65 (0.54–0.79)  $P < 0.001$  and none to secondary: unadjusted OR = 7.47 (5.93–9.41)  $P < 0.001$ ), Pakistan vs. Nepal (unadjusted OR = 1.74 (1.42–2.14)  $P < 0.001$ ) and some secondary: unadjusted OR = 0.37 (0.28–0.49)  $P < 0.001$ ) and Bangladesh vs. Nepal (only none to secondary: unadjusted OR = 2.81 (2.21–3.57)  $P < 0.001$ ). Children's from households in the poorer wealth quintile (Bangladesh vs. Pakistan: unadjusted OR = 0.72 (0.58–0.89)  $P = 0.003$  and Bangladesh vs. Nepal: unadjusted OR = 0.65 (0.49–0.85)  $P = 0.002$ , were less likely to be immunized than those from the households in the richest quintiles.

## Conclusion

This study focused on three South Asian countries and found that childhood immunization coverage in Bangladesh was highest among the three South Asian countries. While this is encouraging and may not be surprising given Bangladesh's rapidly growing economy, significant disparities in coverage by wealth status and by healthcare access remain. Geographical and demographic differences in vaccination may portend difficulties in eliminating preventable diseases within South Asian region. Future success in increasing childhood vaccination coverage will require improvement in healthcare access to reach the poor and undeserved population.