

PEER REVIEW HISTORY

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ARTICLE DETAILS

TITLE (PROVISIONAL)	Maternal education, empowerment, economic status and child polio vaccination uptake in Pakistan: a population based cross sectional study
AUTHORS	Khan, Tahir; Zaheer, Sidra; Shafique, Kashif

VERSION 1 - REVIEW

REVIEWER	Prof. Dr. Minsoo Jung Dongduk Women's University, South Korea
REVIEW RETURNED	29-Sep-2016

GENERAL COMMENTS	<p>This is a very well written article dealing with an important topic, the association of maternal education and empowerment with childhood polio vaccination using nationally representative data of Pakistani mothers. The paper presented interesting results of health inequality in reproductive age group and statistical analyses are robust. Thus, it appeal to readers' interest and/or help to understand that illiteracy and empowerment of women remained significant factors linked with poorer uptake of routine polio vaccination. However, several limitations may be noted. For example, the present study used cross-sectional data to analyze only correlation, not causation. While DHS has the advantage of being able to conduct interstate analysis of data collected through standardized questionnaires and methods, it is impossible to control qualitative heterogeneity entirely among the sample. It creates possibly biases in the research model's estimated coefficients. Thanks for your outstanding contributions.</p>
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REVIEWER	Aiko Kaji Tulane University School of Public Health and Tropical Medicine, USA
REVIEW RETURNED	06-Oct-2016

GENERAL COMMENTS	<p>The study is informative for readers who are interested in Polio vaccination and Pakistan.</p> <p>RESULTS Table 1 and 2: The authors may need to control for provinces. There might be regional disparities. For example, children in border regions are unlikely to receive polio vaccine compared to children in other provinces.</p> <p>Place of delivery may be also associated with polio vaccination uptake (mothers who delivered at a healthcare facility versus mothers who delivered at their home). Likewise, the authors may need to control for antenatal visits as well as postnatal visits.</p>
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	<p>If a mother is household head (an empowered woman), is her child likely to receive polio vaccine?</p> <p>DISCUSSION The authors need to state one of limitations that recall bias should be considered.</p> <p>Quality of written English: Please correct grammatical errors.</p>
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REVIEWER	Susan Goldstein Soul City Institute and University of the Witwatersrand
REVIEW RETURNED	25-Nov-2016

GENERAL COMMENTS	<p>The limitations are not fully discussed. the reasons for non immunisation are complex and include migrancy and inaccessibility. At this point of the epidemic one needs a more finely tuned approach.</p> <p>I was also concerned that the data was only available for around 50% of the sample what was the reason for that?</p> <p>In the discussion I think the issue of migrancy needs to be part of the discussion of the rural vs urban lack of difference.</p> <p>There should be some discussion of the age of the child in relation to mothers age. Was mothers age related to the child being older and thus having more opportunities for polio vaccination? so the question is what was the age of the children in question?</p> <p>I wonder if referring the the more recent Harvard polls and to previous findings in DHS' wouldnt give some trend data?</p> <p>Although I completely agree with empowerment of women in this context on needs to understand whether it is the lack of empowerment which prevents vaccination or co-factors such as lack of access to services or migrancy and of course religion.</p>
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VERSION 1 – AUTHOR RESPONSE

Reviewer: 1

Reviewer Name: Prof. Dr. Minsoo Jung

Institution and Country: Dongduk Women's University, South Korea

Competing Interests: None declared

This is a very well written article dealing with an important topic, the association of maternal education and empowerment with childhood polio vaccination using nationally representative data of Pakistani mothers. The paper presented interesting results of health inequality in reproductive age group and statistical analyses are robust. Thus, it appeal to readers' interest and/or help to understand that illiteracy and empowerment of women remained significant factors linked with poorer uptake of routine polio vaccination. However, several limitations may be noted. For example, the present study used cross-sectional data to analyze only correlation, not causation. While DHS has the advantage of being able to conduct interstate analysis of data collected through standardized questionnaires and methods, it is impossible to control qualitative heterogeneity entirely among the sample. It creates possibly biases in the research model's estimated coefficients. Thanks for your outstanding contributions.

Response:

Thank you very much for your supportive comments and your suggestion is duly noted. We have now

acknowledged the limitation of qualitative heterogeneity in the manuscript.

Reviewer: 2

Reviewer Name: Aiko Kaji

Institution and Country: Tulane University School of Public Health and Tropical Medicine, USA

Competing Interests: None declared

The study is informative for readers who are interested in Polio vaccination and Pakistan.

RESULTS

Table 1 and 2: The authors may need to control for provinces. There might be regional disparities. For example, children in border regions are unlikely to receive polio vaccine compared to children in other provinces.

Response:

Thank you for your comment regarding regional differences in vaccination uptake. Pakistan has been mainly divided into four provinces which are considerably large in size both in terms of population and area. Considerable heterogeneity exists within the provinces both in terms of socioeconomic variations, educational level, healthcare services as well as population differences. Regional disparities in terms of health in general and vaccination in particular are more prominent in this part of the world between urban and rural regions rather than between these provinces [1]. Furthermore, the quality of healthcare services (both public and private) are considerably better in urban areas compared with rural and been repeatedly reported in published literature [2 3]. We therefore, controlled for the effect of regional disparities using urban/rural residence rather than the residence in a particular province. Additionally, adjustments to characteristics like education, wealth index, place of delivery, antenatal and postnatal visits, could potentially control a lot of variations which may have been caused by regional/provincial differences.

Place of delivery may be also associated with polio vaccination uptake (mothers who delivered at a healthcare facility versus mothers who delivered at their home). Likewise, the authors may need to control for antenatal visits as well as postnatal visits.

Response:

Thank you for your comment. We have taken your advice and re-ran the analysis to adjust for antenatal and postnatal visits, as well as place of delivery and the tables have also been update accordingly. The overall findings of the study remained similar after these additional adjustments and reanalysis.

If a mother is household head (an empowered woman), is her child likely to receive polio vaccine?

Response:

Univariate analysis showed no statistically significant difference in the polio vaccination uptake whether the head of household was mother herself or any other. Therefore it was not shown to affect the polio vaccination uptake in our study.

DISCUSSION

The authors need to state one of limitations that recall bias should be considered.

Response:

Point taken, the limitation has now been addressed in the manuscript.

Quality of written English: Please correct grammatical errors.

Response:

The manuscript has been fully revised for grammatical corrections.

Reviewer: 3

Reviewer Name: Susan Goldstein

Institution and Country: Soul City Institute and University of the Witwatersrand, South Africa

Competing Interests: None

The limitations are not fully discussed. the reasons for non immunization are complex and include migrancy and inaccessibility. At this point of the epidemic one needs a more finely tuned approach.

Response:

This is indeed a very valid point, we assessed the association between different independent variables and uptake of polio vaccination in both urban and rural areas and found similar results across both which might be due to increased urbanization. Since we did not have any information regarding migration status, this is a potential limitation of our findings and acknowledged in the manuscript accordingly.

I was also concerned that the data was only available for around 50% of the sample what was the reason for that?

Response:

Since we only included mothers with children aged up to five years, the analysis was done on the sample qualifying this criteria hence the number was reduced. This point has now been duly acknowledged in the manuscript.

In the discussion I think the issue of migrancy needs to be part of the discussion of the rural vs urban lack of difference.

Response:

Discussion part is accordingly modified. The lack of difference between polio vaccination uptake between urban and rural areas is likely to be caused by increased urbanization and internal migration.

There should be some discussion of the age of the child in relation to mothers age. Was mothers age related to the child being older and thus having more opportunities for polio vaccination? so the question is what was the age of the children in question?

Response:

The sub-sample of women included in the analyses was those having children aged up to five years thus making the children's age group uniform across the sample. Further we adjusted for the mothers' age to observe any possible association. The results showed a positive association between mothers' older age and full vaccination probably due to the better understanding of the child's health. This has now been discussed in the manuscript.

I wonder if referring the more recent Harvard polls and to previous findings in DHs' wouldnt give some trend data?

Response:

Despite the differences in methods, the knowledge, attitude and practices polls on Polio shows similar findings regarding the parental factors associated with polio vaccination in Pakistan. This has been discussed in the manuscript.

Although I completely agree with empowerment of women in this context on needs to understand whether it is the lack of empowerment which prevents vaccination or co-factors such as lack of access to services or migrancy and of course religion.

Response:

Thank you very much for your valuable comments. These points have now been addressed in the

manuscript.

References:

1. Malhotra C, Do YK. Socio-economic disparities in health system responsiveness in India. Health policy and planning 2012;czs051
2. Singh PK. Trends in child immunization across geographical regions in India: focus on urban-rural and gender differentials. PloS one 2013;8(9):e73102
3. Miyahara R, Jasseh M, Gomez P, et al. Barriers to timely administration of birth dose vaccines in The Gambia, West Africa. Vaccine 2016

VERSION 2 – REVIEW

REVIEWER	Aiko Kaji Tulane University School of Public Health and Tropical Medicine
REVIEW RETURNED	04-Feb-2017

GENERAL COMMENTS	The authors state in Introduction that Significant regional and sociodemographic disparities exist in polio vaccination uptake in Pakistan. However, the authors did not control for regions (e.g. Punjab, Sindh etc) in analyses.
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VERSION 2 – AUTHOR RESPONSE

Thank you very much for your support in reviewing our manuscript and our sincerest gratitude to the reviewers for their extremely valuable comments throughout the review process which have helped us improve our manuscript significantly. Regarding our statement that 'Significant regional and sociodemographic disparities exist in polio vaccination uptake in Pakistan.' we aimed to point towards the disparities existing between the urban and rural population in terms of vaccination uptake in general and polio in specific. However, we have modified the statement in the manuscript to clarify our point. Thank you once again.