REVIEW ARTICLE

Socio-Economic and Demographics Estimate of Child Mortality Rates from 1989 to 2013: A Review of Literature

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ABSTRACT

Objective: Child health in Pakistan is the greatest significant national issue that needs to take serious attention. Pakistan ranks is 23rd in global under-five mortality. In terms of development, the country is ranked at 125 out of 169 countries. This study aims to highlight the matter of under-five mortality and related government practices.

Materials and Methods: This is a review, to assess child mortality trends in Pakistan. We analyzed results from surveys, reports, journals that were related to child survival and death. We have selected data from 1989 to 2013 and recent researches from different data bases and gray literature like demographic, health and socio-economic surveys. We analyzed socio-economic and health indicators to assess the current situation.

Results: It was found that under-five mortality in Pakistan is 117 per thousand live births in 1990-91. Mortality rate decreased to 94 per thousand live births in 2007 demographic health survey. In 2012-13, this rate declined to 89 per thousand live births. At the provincial level, we found the highest child mortality in Punjab where under-five child mortality rate was 133 and 105 in 1991 and 2013 respectively.

Conclusion: We want to lessen child Mortality through given human services offices and their uses, instruction, mindfulness projects and neediness eradication. Although Pakistan could not achieve the millennium development goals for child mortality, sustainable development goals provide another opportunity to urgently work towards reducing child mortality at the national level.

Key Words: *Indicator, Maternal Health, Mortality, Socio-Economic.*

Introduction

The child mortality rate is one of the health indicators that signifies the national status of health. Pakistan has poor health indicators as infant mortality rate is 74 per 1,000 live births and under-five mortality rate is 89 per 1000 live births.[1] Pakistan's child mortality rate is second highest after India in the south Asian region.[2]

According to WHO health statistics of 2014, Pakistan spends only 2.6% of its GDP on health.[3] Out of this, public sector spending accounted for 1.16% while a larger share (1.17%) is spent by private sector.[4]

The ebb and flow wellbeing circumstance in Pakistan is best portrayed as one where illnesses related with a work in progress (irresistible sicknesses and nourishing lacks) have yet not been controlled and these records for right around 46% of weight of diseases.[5] As indicated by UNICEF, in Pakistan three million youngsters are conceived each year.[6] Almost 400,000 babies deaths occur in the initial twelve months of their life.[7]

"Health for All" its signatory particular after Alma-Ata Declaration in 1978, Although, Pakistan has demonstrated its dedication to the United Nations' in the most recent plan of Millennium Development Goals (MDGs) into the 21st century. Pakistan's child mortality goal Under MDGs was to reduce child mortality by three quarters between 1990 and 2015.[8] We can assess national wellbeing matters through this marker in like manner. Still, that basic to genuine consideration. Globally, Pakistan's rank is 23rd in under-five mortality[9] while, in terms of development, it is ranked at 125 out of 169 countries.[10]

In this study, we review various factors that influence child mortality in Pakistan including socio-economic factors, demographic child health indicators, lack of knowledge and practices of the parents, and barriers in the health care delivery system, which hinder progress towards MDG 4 and Alma Atta declaration goals.

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Objective

To review the trend of child mortality in Pakistan from 1989 to 2013 and find out the situation during this time series and to highlight Socio-economic and demographic indicators as well.

Demographic Indicators

Pakistan is the sixth most populated country in the world with a population of approximately 180 million. About 37% of Pakistan's population is below 14 years of age, 59% is between 15 and 64 years of age while 4% is above 65 years of age. Two-third of Pakistanis live in rural areas.[11] Average life expectancy has increased from 34 years in 1947 to 65 years in 2015. Between 1950 and 2011 Pakistan's urban population expanded over seven fold and total population increased by over four fold. Currently, annual population growth rate stands at 1.45%.[12]

Socio-economic Indicators

Pakistan has poor child health indicators despite a higher per capita income than the average for low-income countries. According to Pakistan's Economic Survey 2012, Pakistan's economic growth is slow having average annual growth rate of 3.7% in 2012. Gross National Income (GNI) per capita in Pakistan is US$ 1,120, still, approximately one quarter (23%) of the population lives below the international poverty line of US$ 1.25 purchasing power parity (PPP).[13]

Table I: Demography and Social Health Status

Social Indicator	Urban	Rural	Total
Adult Literacy Rate %[1]	66	53	57
Average Household Size[1]	-	-	6.2
Access to piped water % HH[1]	51	13	27
Toilet Facility % HH[1]	97	60	73
Fully Immunized Recorded Children %[1]	70	56	60
Married Women % (aged 15-49)[1]	86	67	73

Source: 1. PSLM 2014-15

Above displayed pointers completely make to uncertainty to decrease child mortality, in these table investigate the education status is still low notwithstanding monstrous increment in the general Adult mindfulness, 57% in 2015. Female literacy level is low at 45% particularly as compared to male literacy rate of 68%., which is an expression of low social development.[14] Only about 27% of population has access to tap water as the main

source of drinking water. This proportion drops to 19% for rural population who rely mainly on unprotected surface sources with inadequate chlorination putting them at risk of water-borne diseases. Thirteen percent resident use non-flush toilet and 13% of population has no access to toilet facility.[15] however, this sanitation situation is promotes infectious disease.

MDG4 Achievements

Many countries have achieved MDG Goal 4 to reduce child mortality and improving child survival through major reduction in some of the leading causes of under-five deaths such as diarrhea, pneumonia, and measles even before 2015. Pakistan has not been able to meet the deadline of 2015 even in the presence of several child survival programs implemented with the collaboration of UNICEF such as oral rehydration, Integrated Management of Neonatal and Childhood Illness IMCI, breastfeeding promotion, immunization, and growth monitoring. Other programs also contribute to improvement in child survival such as WHO Control of Diarrheal Disease, Extended Program on Immunization (EPI) and Acute respiratory Infections-ARI, Government of Pakistan National program for family planning and primary health care (NPFP) also known as Lady health worker (LHW) Program, Maternal Newborn and child health care Program (MNCH), and National Nutrition Program (NNP). Almost programs focus on primary findings and management of the maternal and childhood illness.

Presently, impulse to all projects development main drivers of mortality under five years and grown-up mortality related with social causes in like manner drinking water sources, sanitation and hygienic condition, human services practices and practices in regards to basic leadership, medicinal services getting and regenerative wellbeing. It is source foundations of youngster passing and furthermore known to the social causes.

Ecological Background

Pakistan has a 1,046 kilometer (650 miles) long coastline along the Arabian Sea and Gulf of Oman in the south. It is bordered by Iran and Afghanistan in the west, India in the east and China in the north. Pakistan's economy is predominantly agrarian about and 75% population lives in rural areas.[16]

Pakistan is administratively divided into four

provinces: Sindh, Punjab, Baluchistan and Khyber Pakhtunkhwa (KPK).

Fig 1: Map of Pakistan with Child Mortality Rate

The above map shows the current status of child mortality in various regions of Pakistan. Punjab is the most populous province and produces most of the country's agricultural output. Punjab also has the highest under-five mortality rate of all provinces. Baluchistan has a dry desert climate and it is rich in natural resources including contains natural gas and minerals. Baluchistan has the second highest child mortality rate in the country. Sindh is Pakistan's second largest province known for its agricultural output. It is bound in the west by the Indus River and Baluchistan, in the north by Punjab, in the East by the Indian states of Gujarat and Rajasthan, and in the south by the Arabian Sea.[17] Child mortality rate in Sindh is lower than Punjab and Baluchistan. However, developmental indicators such as access to tap water, toilet facility and literacy rate are lower in Sindh than other provinces.[18] Kyber Pakhtun Khwa (KPK) produces timber as well as citrus and dried fruits. KPK has a lower child mortality than other provinces.[19] There is a need to explore the social causes of child mortality at the national level and follow specific strategies to reduce child mortality.

Materials and Methods

Design

This is a review paper to explore socio-economic and demographic indicators of child mortality and designed for awareness and improvement concerning child mortality trends in Pakistan. It is based on observational research strategy and chose meta-Analysis with the fixation well-being pointer accomplishments for think about it.

Sources

We considered both gray literature and electronic data bases searched by PubMed [http://www.ncbi.nlm.nih.gov/pmc/], MEDLINE [https://www.ncbi.nlm.nih.gov/pubmed/] and UNdata [http://data.un.org/] and gray literature i.e. surveys, statistical, developmental and gazette reports was manually searched from various governmental institutions and international non-governmental organizations.

Inclusion

We included all those publications that were published in English from 1989 to 2015 and that were about child and maternal health indicators. We also included maternal health studies that identified socio-economic and demographic causes and consequences of under-five mortality. We contemplated 16 investigate articles and others were 24 surveys, reports and polices that all were fulfill the walled in area to models.

Exclusion

Abstracts, editorials, clinical trials and reports were not part of our review. We also excluded conference papers and proceedings.

Presentation

In this study we analyzed trends of child mortality and related indicators extracted from child health studies. We examined all data in four categories by age, year, ecological background, and socio-economic and demographic indicators. The reference management software EndNote version X6 was used to manage all literature for this review.
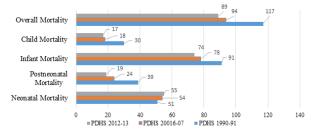
Results

Our findings show the trend of child mortality in Pakistan from 1989 to 2013. We examined all data in various countries in the region. Data assembled from different sources is presented in table I.

Table I: Progress toward Millennium Development Goal 4

South Asian Countries	Population (Million)[1]	1990[2]	2010	Progress	MDG 2015[3]	MDG Need	MDG4 Status
Afghanistan	33.4	192	101	0.1	64	8.4	on track
Bangladesh	153	139	46	5.2	46	3.6	on track
Bhutan	0.7	136	54	4.7	46	4.1	on track
India	1,260	114	61	2.3	38	6.3	off track
Maldives	0.3	105	11	3.3	35	5.4	on track
Nepal	30.9	135	48	3.9	45	4.9	on track
Pakistan	180.4	122	72	1.6	41	7.0	off track
Sri Lanka	21.2	29	12	1.6	10	6.9	on track

1. Population Reference Bureau 2012
2. Child mortality report 2012, available at: www.childinfo.org/files/Child_Mortality_Report_2012.pdf
3. Source: UNICEF child survival Report

Pakistan has committed to the United Nations "Health for All' declaration. As part of this declaration, Pakistan aims to achieve reduction of its under-five mortality ratio from 140 per 1000 live births to 43 per 1000 live births between 1990 and 2015. However, above data shows Pakistan's progress towards MDG4 has not been on track. While under-five mortality declined from 117 per 1000 live births to 89 per 1000 live births between 1990 and 2014, Pakistan's under-five mortality is still higher than most others countries in the region.

Fig 1: Trends of Child Mortality in Pakistan
Source: Pakistan Demographic Health Survey 2013-14

In the above figure we see the data of child mortality from 1990 to 2013. For comparison, mortality has been distributed into four categories by age group. Neonatal mortality was highest (55/1000 live births) in 2013. Although it was low (51 /1000 live births) in 1990-91 PDHS. Post-neonatal mortality was highest (39/1000 live births) in the period of first PDHS (1990-91) and declined (19/1000 live births) in current PDHS (2013-14). We found Infant mortality was highest (91/1000 live births) in first PDHS (1990-91) and declined (74/1000 live births) in PDHS 2013. Similarly, child mortality was highest (17/1000 live births) in 1990-91 and declined (17/1000 live births) in PDHS 2013. Overall under-five mortality rate was highest (117/1000 live births) in 1990 and decreased (89/1000 live births) in PDHS 2013.

We examined provincial distribution of child mortality according to PDHS information. We discovered territory of Punjab had most noteworthy rate (133/1000 live births) of general mortality amid first PDHS 1990-91, despite the fact that it declined (97/1000 live births) in the PDHS 2007. Its shows

Table II: Provincial Distribution of the Child Mortality

Provinces	PDHS Surveys	Neonatal	Post Neonatal	Infant	Child	Overall
Punjab	1990-91	58	46	104	32	133
	2006-07	58	23	81	18	97
	2012-13	63	25	88	18	105
Sindh	1990-91	44	36	81	27	106
	2006-07	53	28	81	22	101
	2012-13	54	20	74	20	93
KPK	1990-91	48	31	80	20	98
	2006-07	41	22	63	13	75
	2012-13	41	17	58	13	70
Baluchistan	1990-91	46	26	72	31	101
	2006-07	30	18	49	11	59
	2012-13	63	34	97	15	111

disturbing state of the youngster mortality in the Punjab territory at 105/1000 live births. Tragically, watched poorest outcomes in the Baluchistan there was pattern proceed onward most astounding (111/1000 live births) death rate according to last PDHS 2012-13 as contrast with first PDHS information that was discovered (101/1000 live births) Mortality proportion in 2006-07. While, region of Sindh had most noteworthy rate (106/1000 live births) in PDHS 1990-91 and PDHS 2007 discovered (101/1000 live births) and further declined (93/1000 live births) in PDHS 2013. KPK likewise on a similar tract we discovered most astounding rate (98/1000 live births) in PDHS 1990-91 while PDHS 2007 discovered (75/1000 live births) and declined in (70/1000 live births) death rate in the PDHS 2013.

Discussion

Association with Maternal Health

The child morbidity and mortality rate is associated with high fertility which is considered to be a risk factor of newborn mortality. Maternal health status is significant in child health and mortality. Antenatal Care (ANC) allows skilled health personnel to instruct

mothers about how to take care of themselves and their baby during and after pregnancy. The World Health Organization (WHO) recommended at least three and preferably four ANC visits[20] to identify any pregnancy and delivery complications. Overall, in Pakistan, only 28.4% women receive four or more ANC visits. 70.1% women only receive less than four ANC visit. However, in rural areas of Pakistan only 19.8% women acquired WHO recommended number of visits and 78.9% obtain less than three visits.[21] Low birth spacing has been found to increase the risk of infant and child mortality in many studies.[22]

Association with Morbidity and Immunization
Globally, morbidity is substantially reduced among children that received vaccines. In developing countries where vaccine-preventable diseases are the main causes of mortality among infants and children, it increasingly significant to demonstrate the effect and value of immunization programs, which must compete with other cost-effective interventions for extremely limited resources.[23]

A report from Guinea-Bissau showed lower than expected mortality associated with BCG and measles vaccines, and increased mortality after diphtheria-tetanus-pertussis (DTP) and oral poliovirus vaccine (OPV) vaccinations. According to WHO guidelines, parents should give the children a BCG vaccine, three doses of DPT, Polio vaccine, and measles vaccines from birth to 23 months.[24] In Pakistan the proportion of fully immunized children increased from 78% in 2008-09 to 81% in 2010-11.[14-15] Moreover, breast feeding has been found to be protective against child mortality and preventive for diarrhea and ARI deaths.[25]

According to demographic surveys broke-down make mindfulness about significance of child vaccination over the land zones of provincial and urban ranges of the Pakistan then it is watched that is similarly more remarkable to the zones of country territories.[26,27]

Association with Nutrition
Deaths among children under five years of age were found to be associated with self-reported poor maternal health. It may also be associated with low birth weight, under-nutrition or illness exposure among children of mothers in poor health. As expected, child's age remained the most powerful determinant of child's death.[28] This could be due to greater susceptibility of infants to communicable childhood illnesses.[29] In Pakistan, poor nutrition effects at least 10 million children and avoid almost 123,000 deaths each year.[30] Although, estimated proportions of deaths are associated with under nutrition and it is linked to an underlying cause of death.[31,32]

Association with Education
Pakistan's situation of health and literacy rate of mothers is not satisfactory. Although literacy level has been increasing in population aged 10 years and above, unfortunately overall literacy rate in Pakistan is low when compared to other South Asian Association for Regional Cooperation (SAARC) countries. Overall, Pakistan has a literacy rate of 58 percent.[33] Mother's education has very strong association with child mortality and maternal health. Women who at least have basic education are more likely than illiterate mothers to adjust the size of their families according to their capabilities, and are more likely to provide better care for their children and send them to school.[34]

Association with Family Planning
In preventing child deaths family planning is also a significant variable. Socio-economic factors such as the family's place of residence, spouse education, and employment have also been correlated with family planning. A long time period between births allows a mother more time to recover from gestation and delivery. This also provides opportunity to provide breastfeeding, proper food and nutrition to existing children.[35] A Korean study found that some maternal education is associated with shorter birth spacing.[36] The effects of birth interval are fundamentally associated and dependent on the use of family planning methods of the mothers. Children born after a short interval of one year have a higher mortality rate, suggesting child should be born after more than one year.[37,38]

Health System
In Pakistan, the provincial health department is responsible for making provincial health policy in accordance with national health policy and to translate it into strategic plans, whereas the primary implementation responsibility lies with districts within each province. Provincial governments are also responsible for providing funds to districts for

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health execution and for supervising district government performance.

The District Health Department is an effective part of the public health sector in Pakistan. It is responsible for management of budget, establishment of routine curative besides preventive, annual district health planning and promotion of healthcare services. Planning functions spread out to designing healthcare services in accordance with community needs and formulation of policies pertaining to institution of user charges in health facilities in districts.[39]

The public sector in Pakistan consists of physically established health care network, comprising of more than 13,663 health facilities ranging from primary to tertiary care centers. There are approximately one thousands two hundred seventy beds per 83,028 population. While there are 5,377 dispensaries included with 1,179 beds. There are about 602 rural health centers (RHCs) with 10,377beds. Additionally, there are 5,428 basic health unit/ sub health centers with 6,581. There are also 697 maternal and child health centers with 345 beds.[40]

Still, this expanded infrastructure is ineffectively equipped and poorly maintained resulting in low utilization, limited coverage and inadequate access to essential basic services. To fill this space, private sector serves about 70% of population health needs, with a fee-for-service system. Private sector facilities range from nursing homes, dispensaries, small clinics, drug sellers, traditional healers, to big tertiary care hospitals offering varying quality of services.

Specialist discovered genuine and open perceptions of different markers amid the information audit and assess the raw numbers identified with general and maternal wellbeing, for example, pregnancy, labor and delivery period, and also child wellbeing sicknesses, treatment, health facility centers execution and socio statistic profile of the family. These survey exhibited the genuine state of the country that occupant in lower groups. To rehash comes about now request is expanding for a National passing registry framework and set up database on the reasons for child mortality.

Conclusion

Health and education indicators have improved in Pakistan over the last decade. Key improvements recorded in rates of newborns, infant, less five years and maternal mortality but still, off track on the MDGs 2015 targets. Pakistan had lagging or making slow progress in 23 of the 32 MDG targets stated on, these targets are associated to education and health. Badly, needed efforts for implementation on the SDGs targets for achievement of reduce child mortality by 2030. While, we had been want to decrease Child Mortality through given medicinal services, instruction, awareness projects and deprivation eradication. In spite of the fact that Pakistan couldn't accomplish the MDGs objectives for child mortality, yet now feasible improvement objectives gave another chance to direly work towards diminishing child mortality in the nation.

REFERENCES
1. NIPS. Pakistan Demographic Health Survey 2013-2014. In: Studies P, editor. Islamabad: International Inc. Calverton 2014. p. 120.
2. Progress Report 2013-15 [Internet]. 2015. Available from: http://www.unicef.org/pakistan/Decrease_Child_Death.pdf.
3. Pakistan Statistic Summary, Health Indicator [Internet]. [Cited 30-October-2016]. Available from: http://www.who.int/countries/pak/en/.
4. Zaidi S. Pakistan Health \Economic Network: Landscaping Health Financing Work in Pakistan Report Islamabad: 2010; p. 12.
5. Masud H. Health Policy: What does it mean in Pakistan? Policy Actors' Perspectives [MPH]: UMEA University. 2011: p: 4.
6. Universal Children's Day – Children in Pakistan have the right to be counted [Internet]. UNICEF. 2011.
7. One child dies every minute in Pakistan [Internet]. 2011 [cited 28-1-2016]. Available from: https://tribune.com.pk/story/131565/one-child-dies-every-minute-in-pakistan-report/.
8. Commission P. Medium Term Development Frame Work 2005-2010. Islamabad: Government of Pakistan. 2005; p: 85-91.
9. Under Five Mortality [Internet]. UNICEF. 2012 [cited 28-01-2016]. Available from: https://www.unicef.org/sowc2012/pdfs/UNDER-FIVE-MORTALITY-RANKINGS.pdf.
10. Human Development Report [Internet]. UNDP. 2010. Available from: http://passthrough.fw-notify.net/download/677722/ http://hdr.undp.org/sites/default/files/reports/270/hdr_2010_en_complete_reprint.pdf.
11. The world fact book: Population growth [Internet]. cia. 2002 [cited 27-July-2016]. Available from: https://www.cia.gov/library/publications/the-world-factbook/fields/2002.htmll.
12. The world Fact book: South Asia [Internet]. cia. 2002 [cited 27-September-2016]. Available from: https://www.cia.gov/library/publications/the-world-factbook/geos/pk.html.

13. Highlight Pakistan Economic Survey 2011-12. Islamabad: Government of Pakistan. 2012.

14. Pakistan Social and living Standard Measurement Survey 2014-15 [Internet]. Government of Pakistan 2015 [cited 25-October-2016]. P. 338. Available from: http://www.pbs.gov.pk/sites /default/files/pslm/ publications/PSLM_2014-15_National-Provincial-District_report.pdf.

15. Pakistan Social and living Standard Measurement Survey 2014-15 [Internet]. Government of Pakistan 2015 [cited 25-October-2016]. P. 16-130. Available from: http://www.pbs.gov.pk/sites/default/files/pslm/publicatio ns/PSLM_2014-15_National-Provincial-District_report.pdf.

16. Pakistan Statistics [Internet]. UNDP. 2012 [cited 25-October-2016]. Available from: http://undp.org.pk/about-pakistan.htm.

17. Baig, Saima R. A study of social causes involved in child mortality with Special Reference to Peri-Urban areas of Karachi. [PhD]. Karachi: University of Karachi. 2014.

18. Division S. City Report Karachi Population and Housing Census 1998. Islamabad: Statistical Division. 2004.

19. NIPS. Pakistan Demographic Health Survey 2006-2007. In: Studies P, editor. Islamabad: International Inc. Calverton. 2008.

20. USAID. Family Advancement for life and Health: Baseline Household Survey Karachi. 2010; p. 43.

21. NIPS. Pakistan Demographic Health Survey 2006-2007. In: Studies P, editor. Islamabad: International Inc. Calverton. 2008: p. 104.

22. D'Souza RM, Bryant JH. Determinants of childhood mortality in slums of Karachi, Pakistan. Journal of health & population in developing countries. 1999; 2: 33-44.

23. Henderson RH. Vaccinations in the health strategies of developing countries. Scandinavian journal of infectious diseases. 1990; 76: 7-14.

24. Kristensen I, Aaby P, Jensen H. Routine vaccinations and child survival: follow up study in Guinea-Bissau, West Africa. BMJ (Clinical research ed). 2000; 321: 1435-8.

25. Victora CG, Smith PG, Vaughan JP, Nobre LC, Lombardi C, Teixeira AM, et al. Evidence for protection by breast-feeding against infant deaths from infectious diseases in Brazil. Lancet (London, England). 1987; 2: 319-22.

26. Van De Poel E, O'Donnell O, Van Doorslaer E. What Explains the Rural-Urban Gap in Infant Mortality: Household or Community Characteristics? Demography. 2009; 46: 827–50.

27. Arif GM, Ibrahim S. Diarrhoea Morbidity Differentials among Children in Pakistan. The Pakistan Review. 1998, 37: 205-30.

28. University AK and Pakistan Institute of Development. National Nutritional Survey 2001-2002. Islamabad Planning Commission. 2002.

29. Phalkey RK, Aranda JC, Marx S, Hofle B, Sauerborn R. Systematic review of current efforts to quantify the impacts of climate change on under nutrition. Proceedings of the National Academy of Sciences of the United States of America. 2015; 112: 4522-9.

30. Black RE, Morris SS, Bryce J. Where and why are 10 million children dying every year? The Lancet. 2003; 361: 2226-34.

31. Rice AL, Sacco L, Hyder A, Black RE. Malnutrition as an underlying cause of childhood deaths associated with infectious diseases in developing countries. Bulletin of the World Health Organization. 2000; 78: 1207-21.

32. World Hunger and Poverty facts and Statistics 2013. [Cited 05-October-2016]. Available from http://www.worldhunger.org.

33. Statistics Bo. Pakistan Social and Living Standards Measurement Survey 2011, Islamabad: Government of Pakistan. 2011; p. 114.

34. Ann VM. Education is Key to Reducing Child Mortality the link Between Maternal Health and Education. UN Chronicle. 2007; 44: 58.

35. Contraception and Reproduction: Health Consequences for Women and Children in the Developing World. Washington DC: National Academy of Sciences. 1989.

36. RamaRao S, Townsend J, Askew I. Correlates of Inter-birth Intervals: Implications of Optimal Birth Spacing Strategies in Mozambique: Frontiers in Reproductive Health, Population Council. 2006; 32: 175–84.

37. Conly, Shanti R. Family planning and child survival. The role of reproductive factors in infant and child mortality: an analysis. Washington, D.C., Population crisis committee [PCC]. 1991.

38. Dean SV, Lassi ZS, Imam AM, Bhutta ZA. Preconception care: promoting reproductive planning. Reproductive Health. 2014; 11: S2.

39. Masud H. Health Policy: What does it mean in Pakistan? Policy Actors' Perspectives [Policies] : UMEA University. 2011.

40. Baig SR. A study of social causes involved in child mortality with Special Reference to Peri-Urban areas of Karachi. [PhD]. Karachi: University of Karachi. 2014.

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