Provincial Health
Development Centre, Sindh.
@ Jamshoro

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Working Towards Millennium Development Goals
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Baseline Survey of Eight Key Family Practices in Sindh

June 2010 – June 2011

A project funded by:

The Maternal and New-born Health Programme - Research and Advocacy Fund (RAF)

Implemented by:

Provincial Health Development Centre, Jamshoro

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Pakistan

Disclaimer:

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Preamble
From the Research Team

Provincial Health Development Centre (PHDC) Sindh has been established as a centre of excellence of provincial health department for catering research and training needs of the province. Since its inception in 1993, the PHDC has been engaged in human resource development by offering and facilitating training courses on different aspects of public health and its management. Over the years, its role has been limited to managing the training programmes, neglecting research which is an important mandate of its scope. PHDC did not conduct any independent research either using its own funds or through a grant. It was The Maternal and New-born Health Programme - Research and Advocacy Fund (RAF)that provided PHDC an opportunity to carry out this valuable research on the family practices influencing the outcomes of maternal and new-born health care during pre-natal, natal and post-natal period. These acclaimed key family practices have been well recognized by UNICEF and WHO. Our first endeavour in the realm of research has become a success story to be followed and sustained by all organs of health department.

We, Dr. Muhammad Shahid Ansari as Principal Investigator, Ms. Rabia Manzoor as Co-investigator and Dr. Nasim Siddiqui as MNCH expert worked tirelessly with commitment to research as a solemn mission. From proposal writing to data collection in the field; from project administration to logistical management; and from data management to financial record keeping, we remained united with dedication to our work. We were fortunate to have renowned public health consultant Dr. Syed Muhammad Israr as our technical advisor who provided his valuable guidance and inputs. Our team efforts could bear fruit only with the support and leadership of Dr. Aijaz Hussain Ursani (during implementation phase) and Waqar Ahmed Ansari (at the commencement of the project and during report writing and dissemination); who acted as our research project coordinators. It was encouraging that our research has boosted the image of PHDC which can be recognized as a research organization. This study has enhanced PHDC capacity in conceiving and developing proposal, preparation of research operational plan, data collection in the field and its administrative and financial management. The study has also increased our knowledge on different aspects of maternal and new-born health. Our research has produced novel results and significant evidence on healthy practices which will influence policies on MNH, and also help MNCH Programme in developing specific strategies for

advocacy on maternal, neonatal and child health, which is required to accelerate country's efforts to achieving Millennium Development Goals 4 and 5.

We look forward to capitalizing more such opportunities for strengthening the research capacity of PHDC and contributing to producing evidence which bears important policy implications. We hope our efforts will be appreciated by all the stakeholders who are working to improve maternal and new-born health care.

I. Principal Investigator
   Dr. Muhammad Shahid Ansari, MBBS, M.Sc. (Health Policy and Management) Aga Khan
II. Co-Investigator
   Ms. Rabia Manzoor, M.Sc. MPH (Pak), Diploma in Community Development
III. MNCH Expert
   Dr. Nasim Siddiqui, MBBS, DPHA

Foreword

I feel immense pleasure to note that PHDC has carried out an important study for strengthening our efforts to improve Maternal, New-born and Child Health. This study has not only produced significant results which bear important policy implications but has also provided a situation analysis that provides insight into the level of knowledge, current practices and behaviours of immediate care givers, family members and the health care providers regarding maternal and new-born care. The focus of this project is neonatal health. Understanding factors that contribute to high infant mortality rates, with 60% of infant deaths taking place during the neonatal period, is critical. Besides other interventions, the change in behaviour and practice of care givers of neonates and the health care providers forms the basis for improving Maternal, New-born and Child Health.

I hope the findings of this study will guide policy makers and health care managers in devising specific Behaviour Change Communication strategies to help accelerate Pakistan's efforts to meeting MDGs 4 and 5, and hence reducing child and maternal mortality and morbidity.

I congratulate Dr. Waqar Ahmed Ansari programme director incharge of PHDC and his entire research team comprising of Dr. Muhammad Shahid Ansari principal investigator, Ms. Rabia Manzoor co-investigator and Dr. Nasim Siddiqui MNCH expert for conducting this timely study, and wish them good luck for their future efforts. Let me also take this opportunity to thank The Maternal and New-born Health Programme Research and Advocacy Fund (RAF) for providing financial assistance to PHDC to make this happen.
Thank you

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Dr. Khalid Shaikh
Additional Secretary (Admin),
Health Department
Government of Sindh
Karachi.

Message

I feel immensely proud of Provincial Health Development Centre (PHDC) Sindh which has successfully carried out the “Baseline Survey of Eight Key Family Practices in Sindh.” I hope that results of the study will provide specific directions to policy makers, and will also help in planning advocacy campaigns for MNCH Programme.

I must express my gratitude to The Maternal and New-born Health Programme - Research and Advocacy Fund (RAF), which provided small grant to carry out this survey. PHDC which works under my administrative control is a public sector teaching, training and research institution for the health department of Sindh. Providing this opportunity to PHDC is highly appreciated. This has surely augmented the spirit and the research capacity of PHDC.

I would like to appreciate the able leadership of Dr.Waqar Ahmed Ansari, the project coordinator and in-charge of PHDC successfully coordinating the project. My gratitude is due to the research team; Dr. Muhammad Shahid Ansari, the Principal Investigator, who worked hard in developing the proposal, organizing the field work, and finalizing the report; Ms. Rabia Manzoor, the Co-Investigator who conceived the research questions, worked day and night on preparing data collection tools, conducting the survey in the field, and reviewing the reports; and Dr.Nasim Siddiqui, who provided guidance on all technical aspects of maternal and neonatal health throughout the project.

Needless to say, I anticipate more such research projects from PHDC, especially on maternal, neonatal and child health (MNCH) for accelerating progress towards achieving the targets of millennium development goals (MDGs) on MNCH.

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Dr. Ghulam Sarwar Channa
Director General Health Services Sindh,
Hyderabad.

Message

I have learnt with great pleasure and pride that Provincial Health Development Centre (PHDC) has satisfactorily completed their research project on “Baseline Survey of Eight Key Family Practices in Sindh”. This is a great achievement of PHDC. I hope that results produced by the survey will help improve maternal and neonatal health (MNH) policy of the province, and also help our programme to develop strategies on Behaviour Change Communication (BCC) and Advocacy.

I have always been supportive of PHDC in all its endeavours covering every spheres of public health, and encouraged them to conduct research studies. I tried my best to extend full cooperation and support to it during the entire period of this study from obtaining the grant from The Maternal and New-born Health Programme -Research and Advocacy Fund (RAF) to its field implementation. I consider the success of PHDC as an achievement of MNCH Programme.

It is my utmost desire that PHDC conducts more research studies on maternal, neonatal and child health in future.

Thanks.

Dr. Sahib Jan Badar
Provincial Programme Director,
National MNCH Programme
Karachi.

Acknowledgements

The Provincial Health Development Centre (PHDC), on behalf of the Department of Health, Government of Sindh, is truly indebted to The Maternal and New-born Health Programme Research and Advocacy Fund (RAF)for financing this important and timely study. Dr. Wajiha Ghias, Ms. Roohi Afroze and Mr. Shahzad Afzal of RAF provided useful guidance and support. The household survey on eight Key Family Practices pertaining to maternal and neonatal health was a team effort that was not possible without the collaborative efforts of many stakeholders within their individual and institutional capacities including Director General Health Services Sindh (DGHSS), Dr. Ghulam Sarwar Channa, EDOs Health of study districts: Dr. Bux Ali Pitafi (Hyderabad); Dr. Jalil Bachani (Tando Allahyar); Dr. Irshad Shaikh (Malir); Dr. Mazhar Hisbani (Naushahro Feroze); and Dr. Deedar Jamali (Jacobabad); and District Focal Persons; Data Collection teams and the local communities of study districts.

I am very grateful to the PHDC Research team who demonstrated incredible team work and provided a great deal of time and energy in order to conceive and develop the study proposal, and thereafter collect the data through extensive field work. Dr. Muhammad Shahid Ansari (Principal Investigator), Ms. Rabia Manzoor (Co-investigator) and Dr. Nasim Siddiqui (MNCH expert) showed full commitment to complete this project.

The team comprised of following Field Supervisors who supported and guided the data collection teams in the field: Dr. Kabir Ahmad Nizamani, Dr. Altaf Ahmad Memon, Dr. Shamsul Haque Siddiqui, Dr. Muzammil Solangi and Dr.Zahid Ali Shaikh. I also endorse the hard work of Mr. Shahzad Memon, Mr. Nasir Ahmed Bhatti and Mr. Asif, the administrative staff of the project.

We also gratefully acknowledge the support and assistance of Dr. Sahib Jan Badar, the Provincial Programme Coordinator of National MNCH Programme, and the cooperation and participation of the staff of provincial and district MNCH Programmes.

Last but not the least; we are truly indebted to Dr. Syed Muhammad Israr, the Technical Advisor for this study, who not only guided the PHDC Research team in revising the questionnaire and

in operational planning, but he also analysed the data and prepared the study report. We are also obliged to Dr. Babar Tasneem Shaikh for reviewing the initial draft of the study report.

We hope that the amount of time and efforts put up by all stakeholders in this extensive exercise will prove fruitful in terms of finding some important evidence for influencing the health policy concerning advocacy strategies for maternal, new-born and child health.

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Dr. Waqar Ahmed Ansari,
Programme Director In-Charge,
Provincial Health Development Centre (PHDC)
Sindh @ Jamshoro.

List of Abbreviations

ANC	Antenatal Care
BCC	Behaviour Change Communication
CMW	Community Midwife
EmONC	Emergency Obstetric and New-born Care
FLCF	First Level Care Facility
FS	Field Supervisor
IEC	Information, Education and Communication
IMCI	Integrated Management of Childhood Illness
KPK	Khyber Pakhtoon Khawa
LHW	Lady Health Worker
MDGs	Millennium Development Goals
MNCH	Maternal, New-born and Child Health
MNH	Maternal and Neonatal Health
NPPI	Norwegian-Pakistan Partnership Initiative
OPV	Oral Polio Vaccine
ORS	Oral Rehydration Solution
PAIMAN	Pakistan Initiative for Mothers and New-borns
PD	Project Director
PD I/C	Programme Director In-charge
PDHS	Pakistan Demographic and Health Survey
PHDC	Provincial Health Development Centre
RAF	Research and Advocacy Fund
SBA	Skilled Birth Attendant
TBA	Traditional Birth Attendant
TT	Tetanus Toxoid
UNICEF	United Nations International Children's Emergency Fund
WHO	World Health Organization

Executive Summary

Introduction

Around 8.1 million children of age 5 years or less die each year, mostly due to Acute Respiratory Infection, Diarrhoea, Measles, Malaria and HIV/AIDS with malnutrition prevalent across the board as an important underlying cause. About 25% of these deaths occur during the first month of life of a baby. Of the estimated 130 million infants born each year worldwide, 4 million die in the first 28 days of life. An estimated 298 000 neonatal deaths occur annually of which, Pakistan accounts for 7%. Most of direct and indirect causes are preventable and require modification in the behaviour and practices of the immediate care givers of babies regarding timely health seeking in case of an illness of neonate, exclusive breastfeeding, and appropriate follow up after the illness. This study intended to gauge these behaviours in order to collect some evidence for suggesting specific areas for changing behaviours and practices of mother, family members and the community.

The study adapted the UNICEF/WHO designed questionnaire for collecting data on Eight Key Family Practices, pertaining to appropriate antenatal care, exclusive breastfeeding, immunization of mother and neonate, homecare for illness including continuous breastfeeding during illness, home treatment of infections, health care seeking, and compliance for prescribed treatment, and adequate hygienic and sanitary practices.

Methodology

The data was collected from 5selected districts in the province of Sindh that included: Malir, Hyderabad, Tando Allahyar, Naushahro Feroze and Jacobabad. Data was collected from mothers of neonates of 28 or less days. This cross-sectional, descriptive study involved a sample of 800 with equal distribution among districts having 160 data collection units in each district. Prior to data collection, the designed questionnaire was pre-tested in the district of Jamshoro and finalized. Two teams of appropriately trained data collectors, each comprising of three females and one male collected the data during November to December, 2010 under the supervision of experienced public health persons from PHDC.

Results

Eight hundred and thirteen mothers participated in the study, 42% of whom were from urban and 58% were from rural areas. About 66% of the study population was covered by Lady Health Workers (LHWs). 83% day care givers were mothers themselves. Around 50% responding mothers spoke Sindhi and 70% were between 22 to 33 years old. About 61% mothers and 36% of their husband were illiterate. Of those who had attended formal schooling, 96% had ANC as compared to 77%, who did not (p-value=000). Similarly 86% who attended a formal schooling reported to wash their hands with soap after assisting a child in defecation as compared to 71% who did not have formal schooling. The monthly household income of 62% responding mothers was Rs. 7000 or less. Delivery of last pregnancy of 40% responding mothers took place at home whose monthly household income was Rs. 7000 or less as compared to only 17% home deliveries with the monthly household income of more than Rs 7000.

Key Family Practice 1: Adequate Antenatal, Natal and Neonatal Care

The responding mothers reported that around 79% of them consulted a Skilled Birth Attendant (Doctor/LHV/Nurse/Midwife) for ANC during their last pregnancy. Of these, 66% Mothers visited a private health facility while only 31% consulted a government health facility. Laboratory results during ANC reavealed that 12% had testedpositive for Hepatitis B and 10% for hepatitis C. Around 59% reported to have anemia during last pregnancy. Of these, 84% mothers reported using an iron supplement. About 48% mothers reported that they had 4 or more ANC visits. Around 73% mothers travelled within 5 Kilometer radius to visit a health facility for ANC. About 18 % mothers knew that 4 ANC visits should be performed while 29% had no knowledge in this regard. About 78% mothers had 2 or more doses of TT vaccination but only 33% could show the vaccination card. Only 21% mothers knew that 2 doses of TT should be given during a pregnancy. Among those who claimed to know danger signs in pregnancy, only 44% mentioned vaginal bleeding as one of them. About 53% mothers reported experiencing a danger sign during last pregnancy. Of these 40%, who had some kind of complication/s during the puerperium period, 50% mothers did not seek any treatment.

Regarding the last delivery, 69% responding mothers were assisted by a Skilled Birth Attendant. Of these, 48% deliveries took place in a private hospital and only 21% in a government health facility. About 16 % mothers reported to have a C-section. Regarding the decision about the place of delivery, the main decision maker was husband (43%) while 24% responding mothers took this decision themselves. Husbands provided various types of care including care of

children, household chores and allocation of money for delivery, and 98% mothers were satisfied about the level of care by their husbands. Mothers reported to observe some food restrictions during pregnancy, mostly (53%) following the advice of a health care provider.

Key Family Practice 2: Exclusive Breast Feeding

Of those mothers who reported providing various types of pre-lacteal food to their neonates before initiating the breast milk, 43% mentioned honey while 23% did not give anything. About 96% mothers were breastfeeding their neonates at the time of interview. Of these, 30% reported to give some milk substitute in addition to breastfeeding, following the advice of care providers including 22% doctors. About 26 % mothers reported to start breast feeding immediately (within half an hour of delivery).

Key Family Practice 3: Vaccination of Neonate

Around 46% neonates were reported to be appropriately immunized for age but only 30% of responding mothers could produce immunization card. Immunization for types of vaccine included: 22% with Hepatitis B, 95% with BCG and 90% with OPV.

Key Family Practice 4: Continuous Breast Feeding and more fluid during neonatal illness

One hundred and one mothers reported that their neonates had diarrhoea. Of these, 97% mothers continued breastfeeding. About 27% neonates additionally received infant formula or other milk and 26% received other fluid and water along with breast milk.

Key Family Practice 5:Appropriate home treatment during neonatal illness including infections

Responding mothers reported that 222 neonates (27%) had an episode of fever of which 126 (57%) received different types of medicine at home, mostly Panadol drops (80%) or Paracetamol syrup (14%). About 101 neonates (13%) had diarrhoea. To combat dehydration, 64 (63%) used water, milk, ORS and other locally defined fluid including whey, mint leaf water etc.

Key Family Practice 6: Recognition of need of treating sick neonate by an appropriate health care provider outside home

About 42% neonates had some kind of illness after birth. Of these, 59% sought any treatment outside home. Regarding the health seeking behaviour, about 66% of mothers mentioned that they would take their ill neonate outside the home for treatment only when the condition worsened. Of those who took the neonate outside the home for treatment, 78% used a private health care facility whereas only 14% used government health facility. About 34% mothers took the decision in the absence of their husband to take their neonates outside home for treatment. About 78% had to travel within 5 kilometre radius to reach a health care facility. About 47% told that there was no advantage of taking the neonate to a government health facility. Responding mothers mentioned a list of conditions which would provoke them to take the neonate outside home for treatment. These include: condition gets worse, diarrhoea, severe vomiting, difficult breathing, convulsions and fast breathing.

Key Family Practice 7: Follow up of treatment and referral for neonatal illness

About 58% mothers took their sick neonate to a health care facility on the same day. The rest who took 'late decisions' (from the second day onward) explained that the delay occurred due to lack of money (41%) or their husband was not available to make the decision (15%). Most mothers (more than 95%) gave prescribed medicine to sick neonates. Of those who took the neonate to a health care facility, 8% took the neonate to a second hospital. Overall, 52% mothers complied with the requirement to return for a follow up visit.

Key Family Practice 8: Personal hygiene and household sanitation

Water was available to the majority (94%) of the study population. However, the source of water for 62% of the population was a hand pump; this was particularly true for rural districts. Similarly, the majority of the study population in rural districts did not have modern flush system for safe disposal of faeces. Around 52% mothers reported rinsing off neonatal faeces while 20% threw it away. Most of the responding mothers mentioned that they used soap for hand washing after using the toilet (81%) and after attending a child who had defecated (76%). Data collectors observed that houses they visited were generally clean. 72%, had water containers covered (88%), soap was available in bathroom/toilet as well as a dustbin in the house(42%).

Conclusions and Recommendations

- Several healthy practices have been reported by the study population, including: use of fluids during illness, particularly in diarrhoea; hand washing after using toilet and assisting a child in defecation; exclusive breast feeding; and utilization of Skilled Birth Attendants for deliveries etc. These positive practices require re-enforcing by the health care providers during lane sessions, health education meetings and individual interactions, and also by National MNCH Programme through print and electronic media.

- There are behaviours and practices among health care providers, mothers and family members which need to be modified including: unnecessary use of iron and blood infusions for treating anaemia instead of promoting healthy dietary habits; gratuitous C-section practices; the restriction of nutritious food during pregnancy; and the late decision of mothers and family members to seek outside treatment for the neonate if needed. It is recommended that specific protocol having standard classification system, particularly for appropriate mode of delivery and rationale use of drugs and infusions should be developed and institutionalized.

- Female autonomy in decision making for seeking the health care for herself and her neonate has also emerged strongly in this study. This might have resulted due to overall socio-economic development and cultural change. This positive development needs further promotion and re-enforcement through BCC/IEC campaigns in order to ensure timely provision of health care if a prompt decision is required for outside treatment in case of an emergency.

- The study has generated important information which should be owned and capitalized by Maternal, New-born and Child Health Programme, National Programme on Family Planning and PHC, and the Provincial and Regional ministries of health. The challenge, however, lies in re-establishing the culture of promoting key family practices focused in this study.

Baseline Survey of Eight Key Family Practices in Sindh

1. Introduction

1.1. Background

Mortality of children less than five years of age continues to account for a large proportion of the global burden of disease. (Winch et al, 2002). Despite considerable decline in mortality of children aged less than five years from 100 deaths per 1,000 live births in 1990 to 72 in 2008, a drop by 28 per cent, it looks very difficult to sustain this gain due to economic instability and deterioration of health systems. Globally, the total number of under 5 children deaths has declined from 12.5 million in 1990 to 8.8 million in 2008 (Baig-Ansari et al, 2008), which further reduced to 8.1 million in 2009 (Global Health Council, Web, 2011). The global community widely acknowledges the burden of maternal and child mortality and morbidity requiring more effective service delivery which is based on very specific set of priority interventions (University of Alberta, 2010).More than half of Mortality of children under 5 years is due to acute respiratory infections, diarrhoea, measles, malaria, and HIV/AIDS (UNICEF, 1999). In addition, malnutrition underlies 54% of all child deaths (Claeson & Waldman, 2000). Recent analysis and data projection indicates that these conditions will continue to be major contributors to child deaths in 2020 unless significant efforts are made to control them (Murray & Lopez, 1996). Pakistan is almost half way behind in meeting the targets for reducing infant, child and maternal mortality (MDG Report, 2010). The current MMR in Pakistanis 276 deaths per 100,000 live births, and the Infant Mortality Rate (IMR) is 78 per 1000 live births (NIPS & Macro International Ltd, 2008).An estimated eighty per cent (80%) of under-five deaths occur in the first year (Contreras A. et al, 2004).Pakistan continues to bear a heavy proportion of global maternal and infant mortality with 16500 maternal and 400,000 infant deaths annually (Siddiqui, Haq, Ghaffar, Akhtar & Mahaini, 2004).PDHS (2006-7) indicates that it took fifteen years to reduce just 20% ofunder-five mortality from 109/1000 live births in 1990-91 to 94/1000 live births in 2006. It now appears to be an uphill task to achieve 45% reduction in under-five mortality in less than 4 years to meet the MDG target of 52/1000 live births unless more concerted efforts with innovative interventions are implemented.

Despite significant decreases in national-level mortality rates between 1990 and 2005, women and infants in Pakistan continue to face unacceptably high risks during pregnancy, childbirth and the post-partum and neonatal periods. These are compounded by socio-cultural practices that affect women's status and restrict women's ability to seek timely and preventive health care

for themselves and their children. Concomitantly, child malnutrition continues to be a problem due to maternal malnutrition, inappropriate new-born care, infant and child feeding and caring practices (Fikree, F.F et al, 2005), frequent episodes of diarrhoea, acute respiratory infections (ARI), infectious disease, and a lack of safe drinking water and household sanitation, particularly in urban slums and rural areas of Pakistan.

1.2. Situation in Sindh

Progress has been sluggish in reducing deaths of infants and under five-year children in Sindh. This more than fifteen years period between two PDHS surveys of 1990-91 (NIPS &IRD/Macro International Inc., 1990-91)and 2006-7 (NIPS & Macro International Inc., 2008) observed only 5% reduction in under five mortality from 106/1000 live births in 1990-1 to 101 in 2006-7. The picture for infant mortality is gloomier as both PDHS surveys show unchanged mortality rate of 81 per 1,000 live births. Other provinces show some progress in reducing IMR during this 16 year period. Punjab shows a decline from 104 to 81, KPK from 80 to 63 and Baluchistan from 72 to 49. This is really thought provoking that no reduction took place in infant mortality rate during a period when government had invested millions of dollars through foreign funded projects.

In the Table1below, PSLM (Bureau of Statistics, GOP, 2007-8) indicates slow progress of maternal health indicators and low coverage of services with no significant achievement between two PSLM surveys of 2004 and 2008 regarding maternal care, which indirectly affects neonatal outcomes.

Table 1: District-wise coverage of maternal care in Sindh province, Pakistan

Districts	% of maternal TT coverage		% of pre-natal consultation by LHW		% of pre-natal consultation at PHF		% of PNC consultation at PHF		% of health consultation at PHF		% of deliveries conducted at PHF		Contraceptive Prevalence Rate	
	2004-5	2008-9	2004-5	2008-9	2004-5	2008-9	2004-5	2008-9	2004-5	2008-9	2004-5	2008-9	2004-5	2008-9
Khairpur	29	36	38	33	22	33	13	10	37	41	3	3	19.9	NA
Sukkur	54	50	16	3	15	26	11	9	22	32	10	6	24.5	NA
Nawabshah	32	51	6	11	22	45	15	7	15	30	5	6	15.4	NA
Nowshero Feroze	58	60	43	5	11	19	14	10	14	18	3	6	20.8	NA
Ghotki	37	25	8	30	19	12	8	20	20	22	2	1	15.6	NA
Jaccobabad	32	47	2	0	13	16	6	34	21	30	2	3	14.7	NA
Kashmore	-	49	-	1	-	16	-	4	-	24	-	1	-	NA
Shikarpur	49	42	10	8	19	9	19	4	12	18	2	3	15.4	NA
Larkana	54	58	1	1	19	46	12	31	10	10	5	12	14	NA
Shahdadkot	-	44	-	3	-	64	-	25	-	11	-	4	-	NA
Dadu	46	51	10	7	16	34	11	17	14	32	4	3	16.3	NA
Jamshoro	-	42	-	7	-	47	-	28	-	28	-	8	-	NA
Hyderabad	45	72	3	1	22	24	26	14	24	15	18	22	34.6	NA
Matiari	-	65	-	21	-	17	-	24	-	27	-	16	-	NA
Tando A Y	-	44	-	3	-	27	-	20	-	14	-	15	-	NA
Tando M K	-	42	-	7	-	30	-	14	-	32	-	6	-	NA
Badin	33	38	7	8	20	23	20	37	19	29	8	6	15.1	NA
Thatta	32	62	2	1	32	24	39	28	33	6	12	5	20.3	NA
Sanghar	34	30	5	12	13	25	19	27	14	52	6	12	15.1	NA
Mir Pur Khas	53	62	20	37	20	11	20	10	19	40	10	7	20	NA
Tharparkar	30	20	42	9	14	34	11	26	34	45	3	2	36.8	NA
Karachi	72	91	0	0	22	11	22	10	17	4	19	10	46.4	NA

*District Tando Allahyar was a part of Hyderabad district (Data for Malir in Karachi is not available)

Source: Pakistan Social and Living Standard Measurement Survey. 2004-5 and 2008-09

Around 23% of Pakistan's population lives in Sindh. The province stands unique among all provinces in having the highest under five mortality of 101/1000 live births, and neonatal and infant mortality of 53 and 81 which are higher than KPK and Baluchistan (NIPS & Macro International Inc., 2008). .A survey in 1999 in a sample of 5,718 households across Sindh found that 36.5% of women did not increase their food intake during pregnancy, and another 33% said they had less food during pregnancy than before becoming pregnant (CIET, 1999). In another survey in Sindh in 2001 at Liaquat University Hospital (Hyderabad), it was found that around 30% of surveyed mothers who breastfed their new-borns "introduced supplementary milk at 2 to 4 weeks" (Memon, Y et al, 2006).The study also indicates that infants who were provided "other

things before starting breastfeeding in rural Sindh, were 18% more likely to be chronically malnourished as compared to infants who were given breast milk exclusively".

1.3. Rationale for Survey

Of all under-five deaths, half occur in infancy, and of the total infant deaths, about two-third take place in the neonatal period. One-third of all neonatal deaths occur on day one, around half within 3 days and nearly three-quarters within the first week of life. About 34 neonatal deaths take place for every 1000 live births in developing countries (Awasthi, Verma & Agarwal, 2006). Globally, neonatal deaths account for about 40% of all under-five years deaths. This calls for efforts to reducing neonatal deaths in high-mortality countries for achieving MDG 4 (Jehan I, et al, 2009). Since neonatal deaths are generally associated with elements linked to maternal care during pregnancy and delivery (Fikree, Azam & Berendes, 2002), the focus should be on both, maternal and neonatal care, in order to reduce child mortality.

During last three decades, major progress has been made to reduce childhood mortality and morbidity through universal childhood immunization, control of diarrheal diseases and acute respiratory infections and nutrition programmes including the promotion of breastfeeding (Rationale for an integrated approach, accessed online, 2010).The Pakistan Initiative for Mothers and New-born(PAIMAN) in a study identified the correlation between high infant mortality ratios across Pakistan and the lack of exclusive breastfeeding, poor hygiene and traditional breastfeeding practices in rural and urban settings (Intermedia, 2009). Risky infant feeding practices, such as giving new-borns prelacteals, supplementary feeds or delaying first feeds, are commonly identified as predictive indicators of morbidity and mortality. In the neonatal period, one study found that although new-borns were overwhelmingly provided exclusive-breastfeeding, honey, ghutti[1] and water were frequently offered as complementary feeds or medicinal supplements, in order to reduce new-born colic or for their perceived health benefits (Fikree et al, 2005). The study further identified that the mother's ethnicity and the support of a skilled birth attendant at delivery were "strong predictors for women who gave prelacteals". Additional influences on new-born feeding practices include the role of traditional health beliefs, household- and gender-based health decision-making, and the mother-in-law's influence (Vishwanath T. 2006).

[1] A traditional herbal product which helps regulate the digestive system of new-borns. It serves multiple purposes includingrelief from constipation, control of diarrhoea, acts as appetizer etc.

In a household survey in Haripur district in Pakistan, Khadduri R et al (2008) found poor maternal and neonatal care practices including delayed initiation of breastfeeding, avoidance of colostrum, pre-lacteal feeding, unhygienic cord care, and ability to recognize danger signs in new-born but lack of timely action upon recognition. Study recommends programme interventions for household-level behavioural change.

Considering this evidence, and realizing the importance of behaviours and practices of mothers regarding maternal and new-born care, we designed this study in order to explore and provide policy-relevant evidence and insights into the behaviour and practices of mothers and family members in the area regardingmaternal, new-born and child health care. Our study paid particular attention to antenatal care, role of domestic support for pregnancy, immunization coverage for expectant mothers and new-borns, and new-born care and feeding practices.

1.4. Goal and Objectives of the Study

This study aimed at generating the baseline information about the prevalence of practices by mothers of new-bornsof age 28 days or less in eight key family and community practices related to antenatal and neonatal care. The specific objectives of the study included:

1. To assess the existing knowledge, perceptions and practices of the mothers of new-borns aged 28 days or less (=<28) in seven (7) key family and community practices areas, as these areas relate to neonatal health.
2. To solicit information concerning mothers' antenatal care (ANC) service accessibility and usage, immunization coverage and household-level health behaviours, as these issues relate to one (1) key family and community practice.
3. To disseminate the results of base line survey to all stakeholders who may utilize the results to make IEC/BCC strategies and advocacy campaigns

2. Methodology

2.1. Study Area and Population

The study was conducted in the sampled population of 5 districts of the province Sindh. The study team used following selection criteria:

1. Districts having poor and good service performing indicators, obtained from the previous surveys in Sindh.(See Table 1 above)
2. Adequate representation of upper, middle and lower regions of the province.
3. Exclusion of NPPI supported districts

4. Availability of good urban-rural mix
5. Presence of good physical access and feasibility for travelling within the study area

Following districts were selected:

- Malir (Part of Karachi district) Lower Sindh
- Hyderabad Lower-middle Sindh
- Tando Allahyar Lower-middle Sindh
- Naushahro Feroze Middle Sindh
- Jacobabad Upper Sindh

The study population included mothers having at least one neonate of equal or less than 28 days of age. Map of Sindh with target districts is as below:

2.2. Study Design

A cross-sectional multi-staged household survey was conducted in five districts of Sindh. A pre-tested structured questionnaire was administered to the study population by a trained team.

2.3. Sampling and Selection of Study Population

The sampling unit of the study comprised of a household having a mother with at least one neonate of equal or less than 28 days. Considering an anticipated 50 per cent Key Family Practices among the study mothers (caregiver) regarding antenatal and natal care, exclusive breast feeding, neonatal immunization, home care for neonatal illness, health care seeking behaviour, compliance for treatment and hygienic practices, with a bound on the error of estimation of 5 per cent, 95 per cent confidence level and a design effect of 2, a sample of 800 was calculated. This sample size was equally distributed among 5 study districts to yield a sample of 160 from each district.

In order to select this sampling unit, following multi-staged process was carried out in each of the five study districts:

a. List of all First Level Care Facilities (FLCF) was obtained for each district. The FLCF indicates as a hub for a Union Council which is the smallest administrative area in a district. From the list, all FLCF were stratified into urban and rural health facilities using the area map. Two FLCF from urban and three from rural were randomly selected, getting a total of 5 randomly selected FLCF for each district.
b. For each selected FLCF, a list of villages in its catchment population was obtained. Then villages were randomly selected to pick up households having a mother with a neonate of 28 or lesser days. In the catchment population of each FLCF, at least 32 households were selected to complete the expected sample of 160 in a district.
c. In each randomly selected village for a FLCF, first household was picked up through bottle spinning method and visited for the availability of a mother with a neonate of 28 or less days. This followed visiting the adjacent house and continued till the entire village had been exhausted. After the first village, the second randomly selected village was explored in the same way and continued till the desired sample of 32 was obtained.

2.4. Key Variables and Development of Questionnaire

This baseline study adapted the extensively tested questionnaire which was developed by UNICEF and WHO for gauging Family Practices pertaining to Maternal and Child Health. The questionnaire has been developed for conducting the household survey of Integrated Management of Childhood Illness (IMCI).The original questionnaire is comprised of 12 Family Practices which was tailored to focus on neonatal health, curtailing the number of Family Practices to 8, and dropping psychosocial development, use of bed nets in malaria, complementary feeding and micronutrients in the adapted questionnaire for our study. Micronutrients related practices have been partially covered but rest of the dropped out practices fall beyond the scope this study, as we focused on key family practices pertaining to maternal and new-born care.

The adapted questionnaire is comprised of two sections: Section 1 contains socio-demographic information about the study population and; Section 2 comprised of specific questions regarding maternal and neonatal health and the information on household hygiene and sanitation. After the questionnaire was developed, it was translated into Sindhi and Urdu before pre-testing in the field. The final questionnaire included following dependent variables for generating required information regarding Eight Key family Practices on Maternal and Neonatal health.

Key Family Practices

This study was designed to gauge key family practices using the UNICEF-WHO questionnaire by tailoring it to focus on eight most pertinent family practices for the study population in the province of Sindh. Research & Advocacy Fund (RAF) provided financial assistance to Provincial Health Development Centre (PHDC) to undertake this study. The study was conducted from June 2010 to June 2011in 5 districts of Sindh. WHO and UNICEF jointly developed Integrated Management of Childhood Illness (IMCI) strategy which focuses on strengthening household and community practices in relation to child health, nutrition and development. In order to successfully implement the IMCI strategy, WHO and UNICEF identified 12 Key Family Practices, which include: exclusive breast feeding, complementary feeding, micronutrients, hygiene, Immunization, malaria, psychosocial development, home care for illness, home treatment for infections, care seeking, and compliance with advice and antenatal care. As mentioned earlier, our study focused on Eight Key Family Practices that specifically relate to antenatal and neonatal well-being. These include:

1. Antenatal Care, including at least four antenatal visits with an appropriate health care provider and receiving the recommended doses of the Tetanus Toxoid vaccination.
2. Exclusive breastfeeding
3. Immunization of new-borns with BCG, Hepatitis-B vaccine and OPV, appropriate for the first 28 days of life.
4. Home care for illness including continuous breast feeding and provision of more fluids, when a new-born becomes ill.
5. Provision of appropriate home treatment for neonatal infections.
6. Care-seeking, particularly outside the home when a neonate becomes sick.
7. Compliance with advice of health care provider, and follow the health worker's advice about treatment, follow-up and referral.
8. Hygiene practices including disposal of faeces, hand washing with soap, particularly after defecating a child/new-born, and before preparing meals and feeding children.

This study intended to identify the IEC/BCC needs in relation to knowledge, perception and practices of mothers of neonates aged 28 days or less in 8 key family and community practices, as mentioned above which are modified from the original 12 key practices identified by the World Health Organization (http://www.emro.who.int/cah/communitycomponent-familypractice.htm). The data generated would be used as a basis for advocacy for decision-makers in government ministries and partner agencies for improving antenatal care, neonatal and child health. The information generated will also assist National Maternal, New-born and Child Health Programme (NMNCHP) and Norway-Pakistan Partnership Initiative (NPPI) programme, and also the IMNCI strategy to design, produce and implement appropriate IEC/BCC material and a strategy for effective advocacy, in order to improve antenatal care, neonatal and child health in Sindh

2.5. List of Variables for constructing the study questionnaire

I. Adequate antenatal, natal and neonatal care

- Deliveries conducted by Skilled Birth Attendants
- Use of Iron supplementation, iron infusion or blood transfusion for treating anaemia.
- Knowledge about TT immunization, and danger signs during pregnancy
- Source of treatment for seeking treatment for danger sign/s during pregnancy
- Complication/s experienced during puerperal period

- Type of care provided by the husband, family members and community members during last pregnancy
- Type of food consumed during last pregnancy

II. Exclusive Breast Feeding

- Neonates on exclusive breast feeding
- Neonates given pre-lacteal feed
- Neonates using bottles for feeding
- % of neonates on milk substitutes
- Reasons for using milk substitutes

III. Vaccination of Neonate

- Neonate adequately vaccinated
- Neonates whose vaccination status was confirmed by card

IV. Continuous Breast Feeding

- Average number of breast feeds in 24 hours
- Break down of time of initiation of breast milk after birth
- Reasons for starting breast feeding late

V. Neonatal Illness and Treatment Practices at home

- Home treatment provided for neonatal diarrhoea

VI. Recognition of need and realization of importance of getting treatment outside home

- Categories of illness of neonates
- Neonates receiving treatment outside home
- Women went for second consultation for their neonates illness
- Reasons for second consultation
- Types of factors that propelled the mother/family to seek treatment of their neonates outside home

VII. Compliance for treatment and referral

- Women who comply with health care advice for neonates' illness
- The amount of time taken by the mother/family to recognize the illness for seeking treatment from a health facility
- Reasons for lack of follow-up and/or compliance
- Types of family members who have the decision-making authority to take neonates outside the home for treatment
- Types of family members who take neonates for treatment at a health facility during illness
- Types of perceived benefits associated with seeking treatment from a government health facility
- Types of perceived factors that prevent from seeking treatment from a government health facility

VIII. Hygiene Practices

- Source of water for all purposes
- Types of toilet facilities
- Methods of disposal of faeces of neonates
- Disposal of household garbage
- Hand washing practices
- Houses found clean
- Houses having a dust Bin
- Houses having properly covered water container
- Houses having soap in toilet/bathroom

2.6. Pilot Testing

Once the questionnaire was developed and translated into Sindhi and Urdu, it was pre-tested in Jamshoro district. A team of three female data enumerators and a male member for providing support and safety for the female members were recruited and trained by the project team. The Five health facilities catering the urban and rural population with a ratio of 2:3 were used for pilot testing. The same ratio was maintained in the overall study. The training provided an opportunity to test the questionnaire and the data collect and entry process at the household

level in a sample of 40 (5% of study sample of 800). The same data collection team was later involved in collecting the data in Hyderabad district which was one of the five study districts. The piloting helped rephrase some questions but most importantly helped identify options for “Other” category. These options were later coded and included in the questionnaire, which facilitated data entry process by avoiding the cumbersome process of re-coding data under “Other” during data entry.

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2.7. Data Collection and Learning from the Field

Two data collection teams (Annex iii) for each district were selected, each comprising three female data enumerators and one male member. The female data collectors were selected using the following criteria:

- Minimum qualification of grade 10
- Previous experience of conducting community surveys
- Good communication skills
- Well versed in local language/s

The male member was selected using the following criteria:

- Preferably a local person knowing geographical and socio-cultural dynamics
- Having minimum qualification of grade 12
- Previous experience of conducting community surveys
- Well versed in local language/s

The selected teams were trained on administrating the study questionnaire in a two-day extensive training by the project team. Data collection team in each district was allotted a Field Supervisor (FS) for ensuring the quality of data collection process (Annex ii). The Field supervisors guided the data collection teams and provided support for any problems in the field. The data was collected following a structured process as already outlined in section iii above. The average duration of an interview was around 60 minutes. Before starting the interview, the data collector explained the purpose of the study and took the consent on a specifically designed consent form. The consent form was counter signed by a witness. Consenting provided flexibility to the mother to withdraw from the interview any time and also ensured full confidentiality of the collected information. During the entire data collection process, the FS collected filled questionnaires from the teams as soon as a filled questionnaire was available to review and check for any errors so that any corrections required could be made then and there

in the field. Once the FS identified any error, the data collection team visited the same house again before starting the new houses. In the initial stage, one to two respondent mothers were re-interviewed by the second team members to ensure the validity and accuracy of collected data. The field activities were guided by an Operational Plan (Annex 7.5) which included list of facilities and villages for further selection. A list of district with specific codes was also prepared (Annex 7.6). Supervisors used Attendance Sheet (Annex 7.7) and Log Sheet (Annex 7.8) to maintain daily progress record. In order to maintain the quality of data collection process, the project team did extensive monitoring of the entire process using a Checklist (Annex 7.9).

2.8. Data Management and Analysis

The project team further reviewed all filled questionnaires before the data entry. Since several question had open-ended options as "Other", the project team identified all new options and re-coded in all questionnaires. Once the data was re-coded, the hard copies of filled questionnaire were provided to a senior data entry operator in Karachi. He engaged second data entry operator and entered the data using Epi-Data 3.1. They entered the data twice to check for any inconsistency. The data was analysed in SPSS 14.0. Analysis mostly focused on frequency distribution and descriptive analysis. Few independent variable including education level, economic status and the presence of LHW in the area were cross tabulated against several dependent variables.

3. Results

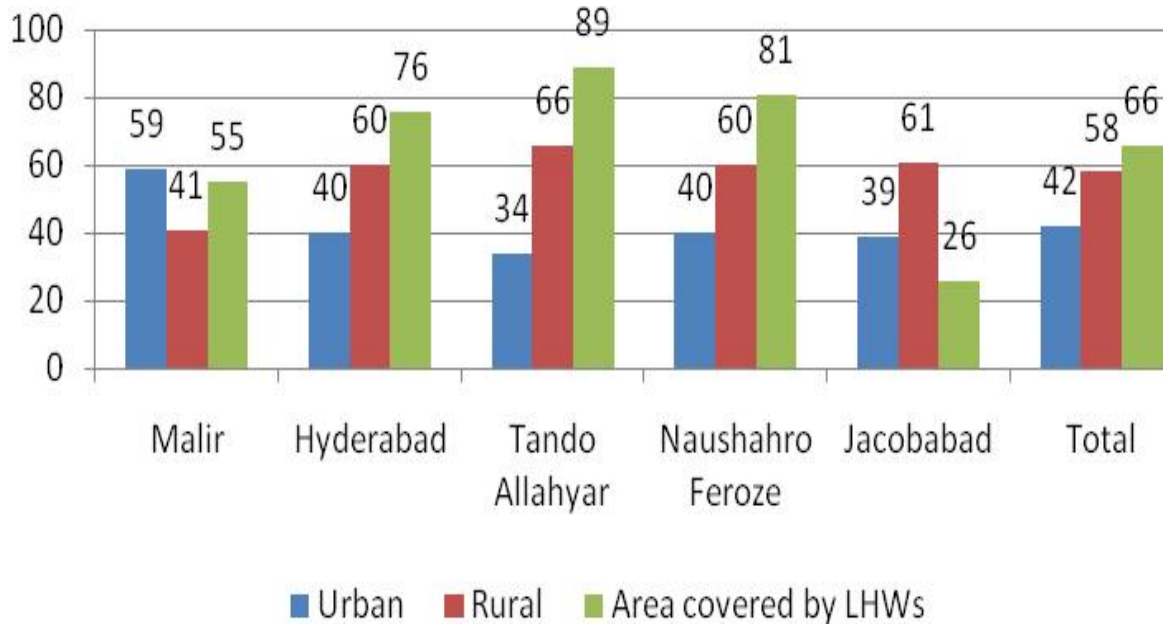
We interviewed 799 mothers of whom 14 had twins to make 813 respondents altogether. We included mothers who had at least one neonate of age 28 days or lesser in 5 selected districts in the province of Sindh. The result section is organized to first give an overview on the socio-demographic information of the study population, followed by findings for each of the Eight Key Family Practices.

3.1. Socio-economic and Demographic Profile of Study Population

Data was collected from the selected households having a mother with at least one neonate of age 28 days or less. A rural urban ratio of 60:40 was maintained while selecting the study population, however, this ratio reversed in district Malir due to an incidence (case study 2, page 24), which forced the study team to replace a rural population with an urban setting(Figure 1). National Programme on PHC and FP (commonly known as Lady Health Workers' Programme) has recruited and deployed more than 90% of the planned 100,000 Lady Health Workers

(LHWs) in the country, nonetheless, Figure 1 depicts that 66% study area was covered by LHWs in the study population with maximum coverage in Tando Allahyar (89%) and minimum coverage in Jacobabad (26%). LHW Programme aims at increasing access to basic preventive and MNCH services, particularly in rural areas. In Pakistan, women's mobility is limited, and the provision of doorstep services through LHWs provides a model of service delivery that will help to achieve universal access and demand creation. LHW areas are more advantaged than non-LHW areas on a number of socio-economic (and also health) indicators (Douthwaite & Ward, 2005).

Figure 1: Percentage of geographical distribution of study population and area covered by LHWs



N=813

Study findings indicate that we dealt with a typical traditional population of Pakistan where most of the household heads were either father or grandparents (81%), and day time caregiver of the neonate were mothers or a grandmother (96%). Sindhi was the native language of majority of study population. Around 40% households had 10 or more family members while around 6% had more than 20 with an average family size of around 10 persons(Table2).

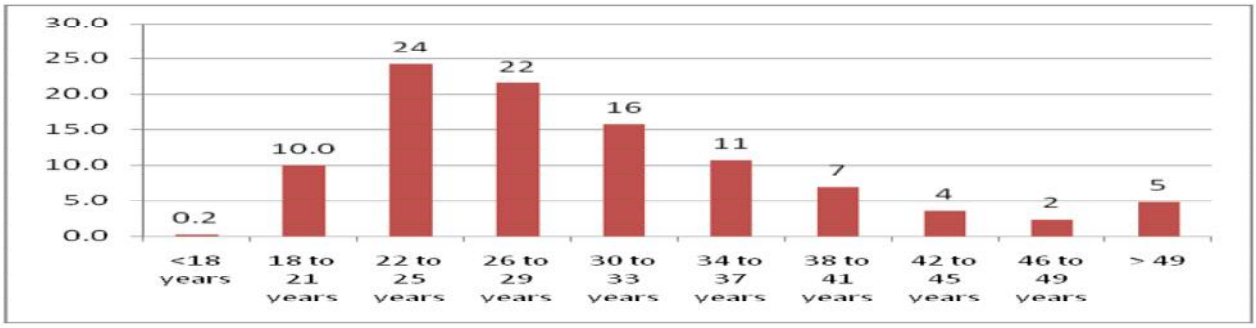
Table 2: Characteristics of household

Characteristics	Malir	Hyderabad	Tando Allahyar	Naushahro Feroze	Jacobabad	Total
Head of household:	N (%)	N (%)	N (%)	N (%)	N (%)	N (%)
• Father	68 (43)	66 (40)	92 (56)	80 (50)	81 (52)	387 (48)
• Grandfather	61 (38)	68 (41)	49 (30)	64 (40)	64 (34)	296 (37)
• Grandmother	17 (11)	09 (5)	13 (8)	05 (3)	03 (2)	47 (06)
• Uncle	02 (1)	16 (10)	05 (3)	08 (5)	08 (5)	39 (05)
• Mother	11 (7)	04 (2)	05 (3)	03 (2)	00 (0)	23 (03)
• Other	01 (1)	02 (1)	01 (1)	00 (0)	14 (9)	18 (02)
Caregiver of neonate during day time:						
• Mother	118 (74)	128 (77)	162 (98)	134 (84)	136 (85)	678 (83)
• Grandmother	28 (18)	31 (19)	04 (2)	22 (14)	18 (11)	103 (13)
• Female Relative	07 (4)	07 (4)	00 (0)	02 (1)	04 (3)	20 (03)
• Other	07 (4)	00 (0)	00 (0)	02 (1)	02 (1)	11 (01)
Number of family members living in a household:						
• < 5	42 (26)	24 (15)	31 (19)	43 (27)	15 (9)	155 (19)
• 6-10	68 (43)	73 (45)	76 (46)	66 (42)	56 (35)	339 (42)
• 11-15	33 (21)	51 (31)	39 (24)	31 (19)	39 (24)	193 (24)
• 16-20	13 (8)	10 (6)	13 (8)	13 (8)	26 (16)	75 (09)
• 21-25	1 (1)	4 (2)	5 (3)	3 (2)	17 (11)	30 (04)
• > 26	3 (2)	2 (1)	1 (1)	3 (2)	7 (4)	16 (02)
Mother tongue of respondents:						
• Sindhi	52 (33)	89 (54)	59 (36)	113 (71)	94 (59)	407 (50)
• Saraiki	6 (4)	27 (16)	49 (30)	26 (16)	29 (18)	137 (17)
• Urdu	44 (28)	24 (15)	19 (12)	9 (6)	1 (1)	97 (12)
• Balochi	26 (16)	5 (3)	8 (5)	3 (2)	227 (17)	69 (09)
• Punjabi	20 (13)	4 (2)	8(5)	3 (2)	0 (0)	35 (4)
• Brohi	2 (1)	2 (1)	2 (1)	4 (3)	8 (5)	18 (2)
• Pushto	8 (5)	4 (2)	2 (1)	0 (0)	0 (0)	14 (2)
• Marwari	0(0)	2 (1)	8 (5)	1 (1)	1 (1)	12 (2)
• Gujrati	2 (1)	5 (3)	3 (2)	0 (0)	0 (0)	10 (1)
• Other	(0)	2 (1)	7 (4)	1 (1)	0 (0)	10 (1)

N=813

Comparing Figure 2 with Table 2 indicate that more than 80% of daytime care givers who were between 22 to 37 years old, were the mothers of neonates.

Figure 2: Percentage distribution of age of day-time caregiver



N=813

More than 80% responding mothers were between 22-37 years of age (Table3).

Table 3: Age distribution of respondents

Districts	Categories of age and district response in percentage							
	<18 yrs	**18 - 21**	**22 - 25**	**26 - 29**	**30 - 33**	**34 - 37**	**38 - 41**	**42 - 45**
Malir	1	18	35	23	15	6	2	1
Hyderabad	1	10	28	29	20	10	2	0
Tando Allahyar	0	5	27	29	15	18	4	1
Naushahro Feroze	1	19	32	20	14	9	5	1
Jacobabad	1	14	29	21	18	8	6	4
Total	1	13	30	24	16	11	4	1

N=813

Study found that 61% females (responding mothers) and 36% males (their husbands)were illiterate[2]. This is closer to the findings of Pakistan Social and Living Standards Measurement Survey (PSLM) 2007-08 for Sindh, which report 31 and 58% illiteracy among male and female respectively. The Baseline household Survey of NPPI[3] districts in Sindh also found about 61% females did not receive any education (Department of Health, Sindh, 2009).More mothers (13%) than husbands (10%) had primary level education while 41% husbands had completed 12 grade educations as compared to only 20% by the responding mothers. This indicates huge drop out among females. PSLM 2007-08 depicts the similar picture for Sindh and report more than 26% drop out among females after primary schooling (grade 5) as compared to 16% drop out among males.

[2] A person aged 15 and above, and cannot read and write
[3] Norwegian Pakistan Partnership Initiative

Table 4: Education level of responding mothers and their husbands

Education Level	Responding Mothers (Percentage in parenthesis)						Husbands (Percentage in parenthesis)					
	MLR	HYD	TAY	NF	JABD	Total	MLR	HYD	TAY	NF	JABD	Total
Illiterate	65 (41)	77 (47)	127 (77)	95 (59)	131 (82)	495 (61)	52 (33)	42 (26)	73 (44)	44 (28)	80 (50)	291 (36)
Class 1 to 5	13 (8)	30 (18)	19 (12)	28 (18)	17 (11)	107 (13)	11 (7)	17 (10)	23 (14)	14 (19)	17 (11)	82 (10)
Class 6 to 8	21 (13)	17 (10)	7 (4)	8 (5)	2 (1)	55 (07)	19 (12)	16 (10)	18 (11)	14 (9)	12 (8)	79 (10)
Class 9 to 10	26 (16)	19 (12)	6 (4)	14 (9)	1 (1)	66 (08)	43 (27)	36 (22)	23 (14)	31 (19)	23 (14)	156 (19)
Class 11 to 12	22 (14)	9 (5)	3 (2)	7 (4)	3 (2)	44 (05)	21 (13)	20 (12)	17 (10)	22 (14)	18 (11)	98 (12)
Graduate	9 (6)	10 (6)	2 (1)	6 (4)	4 (3)	31 (04)	12 (6)	21 (6)	8 (1)	28 (4)	7 (3)	76 (9)
Masters	1(1)	2 (1)	0	0	0	3 (0.4)	2 (!)	6 (4)	3 (20	4 (3)	1 (1)	16 (2)
Informal	0	0	0	1 (1)	1 (1)	2 (0.2)	0	5 (3)	0	0	0	5 (<1)
Madrassa	3 (2)	0	1 (1)	1 (1)	1 (1)	6 (1)	0	0	0	2 (1)	2 91)	4 (<1)

MLR=Malir, **HYD**=Hyderabad, **TAY**=Tando Allahyar, **NF**= Naushahro Feroze, **JABD**=Jacobabad

N=813

Around 63% households of responding mothers earned Rs. 7000 or less while around 32% earned Rs. 10,000 to 20,000 in a month (Table 5).Monthly income of Rs. 7000 has been taken as a cut-off point to indicate households which earn equal to minimum monthly wage of a Labourer, as announced by the government of Pakistan.

Table 5: Monthly household income of study population

Districts	Range of Monthly Household Income – N (%)								Total Responses
	Less than Rs.3000	Rs.3000 to 5000	Rs. 5001 to 7000	Rs.7001 to 10000	Rs.10001 to 15000	Rs.15001 to 20000	Rs.20001 to 25000	>25000	
Malir	5 (3)	26 (16)	37 (23)	35 (22)	26 (16)	20 (13)	3 (2)	8 (5)	160
Hyderabad	7 (4)	30 (18)	29 (18)	20 (12)	22 (13)	22 (13)	10 (6)	24 (15)	164
Tando Allahyar	27 (16)	67 (41)	28 (17)	23 (14)	8 (5)	5 (3)	4 (2)	3 (2)	165
Naushahro Feroze	12 (8)	79 (49)	15 (9)	22 (14)	20 (13)	5 (3)	4 (3)	3 (2)	160
Jacobabad	27 (17)	71 (44)	35 (22)	11 (7)	11 (7)	2 (1)	2 (1)	1 (1)	160
Total	78 (10)	273 (34)	144 (18)	111 (14)	87 (11)	54 (7)	23 (3)	39 (5)	809

Cross tab analysis indicates that mothers who attended a formal school were more likely to have fewer pregnancies than those who never attended a formal school(p-value = .008) (Box 1)

Box1: Number of last pregnancy and the education level of responding mother

Pregnancy Number	Responding mother never attended a formal school	Responding mother attended a formal school	Total Response
First	17%	33%	102
Second	16%	20%	62
Third	14%	18%	54
Fourth	14%	11%	35
Fifth and above	39%	18%	53
Total Response	503	306	306

Crosstab analysis indicates that there was no statistically significant difference between mothers with a monthly household income of Rs. 7000 or less, and those with a monthly household income of more than Rs. 7000 regarding the number of last pregnancy (p-value = .720)(Box 2)

Box2: Number of last pregnancy and the total monthly household income

Pregnancy Number	Monthly Household Income Rs. 7000 or below	Monthly Household Income More than Rs. 7000	Total Response
First	22%	25%	188
Second	17%	18%	142
Third	15%	15%	123
Fourth	13%	12%	104
Fifth and above	32%	29%	252
Total Response	495	314	809

3.2. Eight Key Family Practices (KFP)

3.2.1. Key Family Practice 1: Adequate Antenatal, Natal and Neonatal Care

Performance measuring Indicators for KFP 1:

Indicator 1: Prevalence of women who received antenatal care (at least four visits) for last pregnancy.

Indicator 2: Prevalence of women who received two shots of TT (tetanus toxoid) vaccination during last pregnancy.

Indicator 3: Prevalence of women who delivered at Govt. Health Facility.

Indicator 4: Prevalence of women who delivered by Skilled Birth Attendant.

Indicator 5: Neonates received bath after 24 hours.

Indicator 6: Women received support from husband during pregnancy.

Indicator 7: Women received support from other family during pregnancy.

Indicator 8: Women received support from community members during pregnancy.

Study Findings

Of 813 study mothers, 680 (84%) consulted a health care provider for ANC, including doctors, nurses, midwife and TBA. Of the total study mothers, 643 (79%) consulted a Skilled Birth Attendant (Doctor/LHV/Nurse/Midwife). Pakistan Demographic and Health Survey (2006-7) found about 56% consulted a medical professional, mostly a doctor for ANC. The baseline survey of NPPI districts (2009) also portrayed a similar picture and the aggregated figure of seven (out of 10) districts indicates more than 69% mothers consulted a Skilled Birth Attendant (Doctor, Nurse or a Midwife) for ANC. The ANC consultations in our study were not exclusive of each type for a care provider. For example, of 38 mothers who consulted a Nurse/LHV, seven also consulted a TBA and two also a midwife. Similarly, of 636 mothers who consulted a lady doctor, 22 also consulted a TBA, and two consulted a midwife. Overall, only 5% mothers consulted a TBA for ANC (Table 6).

Table 6: Type of care provider consulted for ANC during last pregnancy

Type of Care Provider	Malir	Hyderabad	Tando Allahyar	Naushahro Feroze	Jacobabad	Total Number (%)
Lady Doctor	141 (89)	145 (91)	132 (78)	117 (91)	108 (89)	643 (87)
Nurse/LHV	11 (7)	8 (5)	12 (7)	6 (5)	1 (1)	38 (6)
Midwife	1 (1)	1 (1)	6 (4)	2 (1)	0	10 (1)
TBA	5 (3)	6 (3)	17 (10)	2 (1)	7 (6)	37 (5)
Male Doctor	0	0	2(1)	2 (1)	6 (5)	10 (1)
Total Responses	158	160	169	129	122	738

About 66% Mothers consulted a private and 31% a government health facility for ANC (Table 7).The baseline survey of NPPI districts (2009) indicates that about 24% government health facilities were utilized for ANC, which is closer to the findings of our survey. In a cross-sectional study in Islamabad, 75% male and 65% female indicated that they used a private health facility for an ailment (Manzoor, Hashmi and Mukhtar, 2009).

Table 7: Type of health care facility visited for ANC during last pregnancy

Type of Health Care Facility	Malir	Hyderabad	Tando Allahyar	Naushahro Feroze	Jacobabad	Total Number
Government Facility	65 (42)	46 (28)	35 (21)	19 (15)	60 (50)	225 (31)
Private Facility	85 (55)	115 (70)	124 (75)	104 (84)	55 (45)	483 (66)
Home	2 (1)	3 (2)	7 (4)	1 (1)	6 (5)	19 (3)
Other	2 (1)	0	0	0	0	2 (<1)

Most of the clinical examination during ANC comprised of Abdominal Examination (76%, at least once) and Checking Blood Pressur (67%, at least once). Urine (31%) and Blood (28%) tests were also carried out (Table 8).

Table 8: Type of examination/test done during ANC in last pregnancy (% in parenthesis)

Type of Examination/test	Once	Twice	Thrice	Four or more times	None
Height	36 (4.4)	25 (3.1)	02 (0.2)	08 (1.0)	609 (74.9)
Weight	44 (5.4)	52 (6.4)	31 (3.8)	85 (10.5)	468 (57.6)
Blood Pressure	77 (9.5)	115 (14.1)	99 (12.2)	159 (31.9)	130 (16.0)
Abdominal Examination	140 (17.2)	164 (20.2)	108 (13.3)	217 (26.7)	51 (6.3)
Urine test	251 (30.9)	82 (10.1)	16 (2.0)	11 (1.3)	320 (39.4)
Blood test	225 (27.7)	110 (13.5)	33 (4.1)	24 (3.0)	288 (35.4)

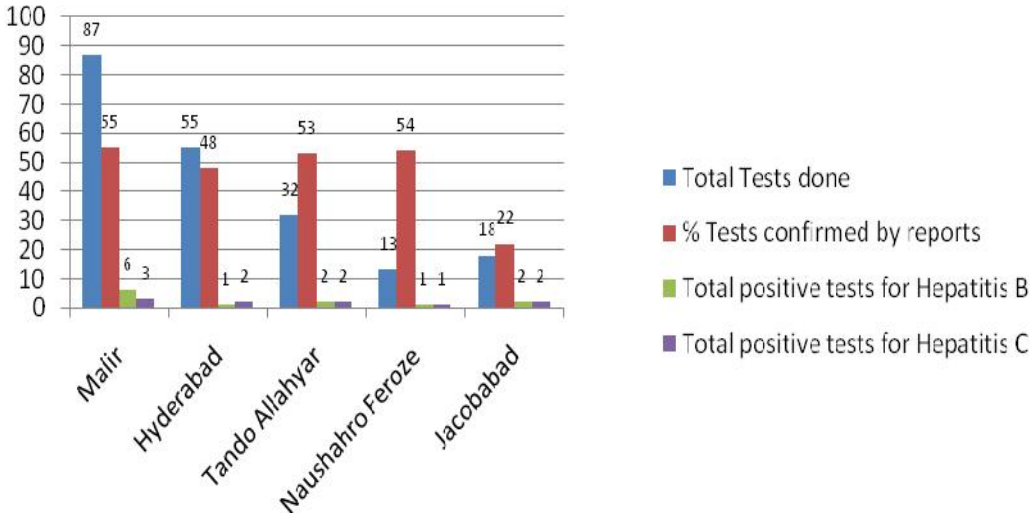
Cross tab analysis indicates that mothers who attended a formal school were more likely to have visited a care provider for ANC than those who never attended a formal school. This finding is highly significant statistically (p-value = .000) (Box 3). Ogutunde O et al (2010) found that with the increase level of education, the pregnant women were more likely to attend a health facility early for ANC. About 53% of our urban population had to travel less than 5 kilometres, 26% travelled 5 to 10 kilometre, and about 22% travelled more than 10 kilometres.

Box3: Utilization of Ante Natal Care service and the education level of responding mother

	Responding mother never attended a formal school	Responding mother attended a formal school	Total Response
Mother visited a care provider for ANC during last pregnancy	77%	96%	680
Mother did not visit a care provider for ANC during last pregnancy	23%	4%	129
Total Response	503	306	809

Two hundred and five (25%) mothers reported for having Hepatitis B and C tests done, but only 102 (50%, that is 12.5% of total responses) could produce a copy of result. Of those 102, about 12% had positive test for Hepatitis B and 10% for hepatitis C, very high figures cited in any study in Pakistan(Fig 3). Shaikh F et al (2009) found 3.4% prevalence of Hepatitis C among pregnant women in Nawabshah (Now Benazirabad) district, in the southern part of Sindh province. High prevalence of hepatitis B and C among our study population may implicate the use of contaminated syringe or unsafe blood during medical care (Ali & Rafe, 2009).

Figure 3: Test for Hepatitis B and C done during last pregnancy



Of 679 (83%) mothers who responded, 400 (59%) reported that they had Anemia during last pregnancy. This included 66%responding mothers from Tando Allahyar, 64% from malir, 60% from Hyderabad, 52% from Jacobabad and 49% from Naushahro Feroze. Baig-Ansari et al (2008) found that very high proportion (91%) of pregnant women had anemia (haemoglobin<

11.0 g/dL) in a squatter settlement in Pakistan. However, prevalence of anaemia was considerably lower (13.8%, CI: 8.3-18.9) among Iranian pregnant women than most of the EMRO countries (Esmat et al, 2010). Anaemia is considered as one of the risk factors for poor pregnancy outcome. A case-control study in a tertiary care hospital in Karachi reveals that mothers with anaemia were 4 times at higher risk of having pre-term delivery (< 37 weeks) (95% CI: 2.5-6.3), and 2.2 times at risk of having low birth weight baby (95% CI: 1.3-3.7). (Lone, Qureshi and Emmanuel, 2004).

About 84% mothers reported to used an iron supplement while about 68% mothers reported using parental iron and blood transfusion (80% in Malir, 32% in Jacobabad) to correct the anaemia (Table 9).

Table 9: Types of interventions reported by responding mothers to correct anaemia during their last pregnancy

Districts	Type of intervention and percentage of responses		
	Iron Supplementation	Iron Injection/Infusion	Blood Transfusion
Malir	83	58	22
Hyderabad	86	56	16
Tando Allahyar	78	40	27
Naushahro Feroze	95	68	15
Jacobabad	83	28	4
Overall Percentage with multiple answers	84	50	18

Crosstab analysis indicates that there was no statistically significant difference for the occurrence of anaemia during last pregnancy between mothers who lived in LHW covered area and those who did not (p-value = .210) (Box 4)

Box4: Reported anaemia among mothers and the area covered by Lady Health Worker

	Area covered by LHWs	Area not covered by LHWs	Total Response
Mothers reported to have anaemia during last pregnancy	61%	55%	395
Mothers reported not to have anaemia during last pregnancy	39%	45%	276
Total Response	451	220	671

Crosstab analysis indicates that there was no statistically significant difference for the occurrence of anaemia during last pregnancy between mothers who attended a formal school and those who did not (p-value = .277)(Box 5).

Box5: Anaemia during last pregnancy and the education level of responding mother

	Responding mother never attended a formal school	Responding mother attended a formal school	Total Response
Mother reported to have anaemia during last pregnancy	61%	56%	400
Mother did not have anaemia during last pregnancy	39%	44%	279
Total Response	386	293	679

Crosstab analysis indicates that there was no statistically significant difference for the occurrence of anaemia during last pregnancy between mothers with a monthly household income of Rs. 7000 or below, and those with a monthly household income of more than Rs. 7000 (p-value = .287) (Box 6).

Box6: Reported anaemia during last pregnancy and the total monthly household income

Pregnancy Number	Monthly Household Income Rs. 7000 or below	Monthly Household Income More than Rs. 7000	Total Response
Mothers reported having anaemia during last pregnancy	59%	58%	400
Mothers did not report having anaemia during last pregnancy	41%	42%	279
Total Response	388	291	679

More mothers in urban areas (37%) paid 4 and more ANC visits than rural mothers (24%)(Fig 4).PDHS (NIPS & Macro International Inc., 2008) indicates 48% mothers visited 4+ times for ANC in urban areas as compared to 20% in rural, 62% in major cities and 33% in other urban areas (peri-urban). In a qualitative study in Indonesia, Titaley, C. R. et al (2010) found that trust on health care providers and financial affordability were two important factors which determined the utilization of antenatal care and postnatal care services in three districts of west java. (Titaley, Hunter, Heywood & Dibley, 2010).

Figure 4: Number of ANC visits by urban and rural residence

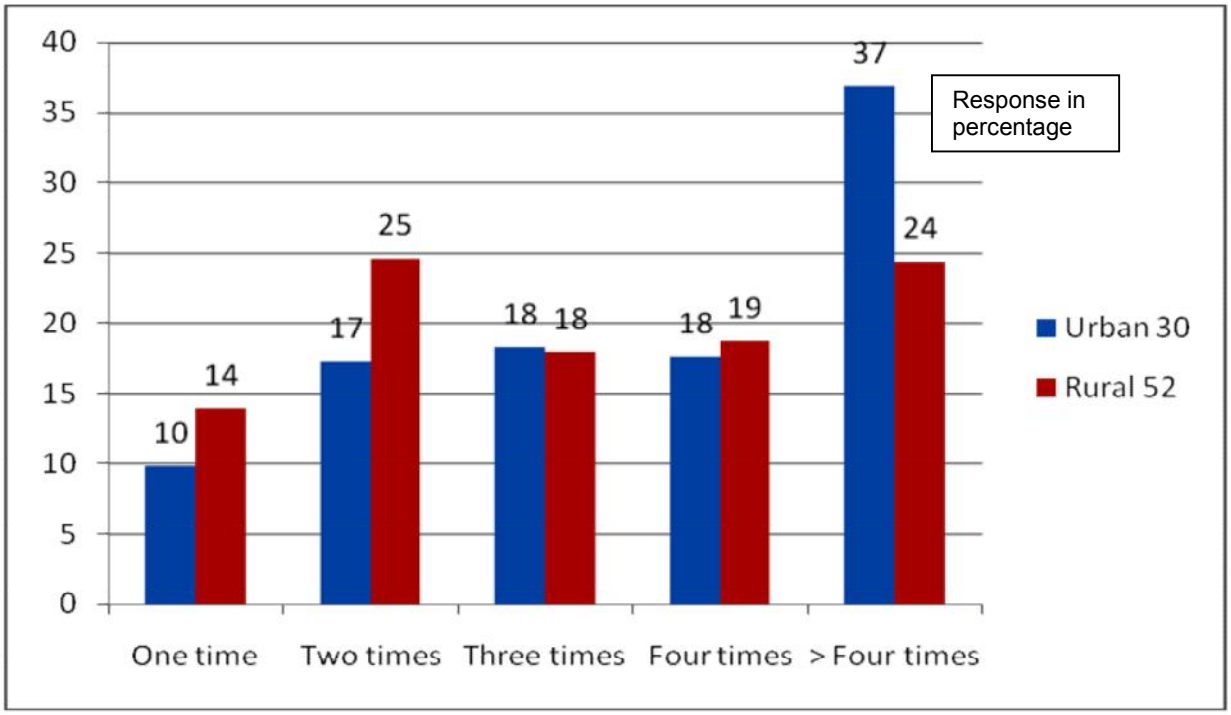


Table 10: Reported costs incurred on doctor/hospital fee during last ANC

Districts	Categories of cost with percentage of responses							
	Rs. <100	Rs. 100 to 200	Rs. 201 to 300	Rs. 301 to 500	Rs. 501 to 700	Rs. 701 to 1000	Rs. >1000	None
Malir	27	11	8	8	6	6	14	23
Hyderabad	9	17	12	12	4	14	17	15
Tando Allahyar	9	29	12	15	4	13	6	12
Naushahro Feroze	2	38	8	13	7	7	11	14
Jacobabad	25	17	8	5	4	2	5	33
Overall Percentage	14	22	10	11	5	9	11	19

Cross tab analysis indicates that responding mothers who lived in the area covered by LHW/s were more likely to have visited a care provider for ANC. This finding was not statistically significant. (p-value = .019) (Box7).

Box7: Utilization of ANC by responding mothers and the area covered by Lady Health Worker

	Area covered by LHWs	Area not covered by LHWs	Total Response
Mother visited a care provider for ANC during last pregnancy	86%	80%	672
Mother did not visit a care provider for ANC during last pregnancy	14%	20%	129
Total Response	525	276	801

84% mother had at least one ANC visit. 46% mothers spent Rs. 300 or less and 25% Rs 500 or more on doctor/hospital fee (Table 11).

Table 11: Total cost incurred during last ANC

Districts	Categories of cost with number of responses							
	Rs. <500	Rs. 501 to 1000	Rs. 1001 to 2000	Rs. 2001 to 3000	Rs. 3001 to 4000	Rs. 4001 to 5000	Rs. 5001 to 10000	More than 10000
Malir	6	15	24	24	19	8	33	16
Hyderabad	11	18	28	21	15	15	29	14
Tando Allahyar	9	8	35	20	17	16	30	1
Naushahro Feroze	7	11	33	19	16	4	16	11
Jacobabad	25	22	27	9	8	3	11	2
Total Response	58	74	147	93	75	46	119	44
% of response	9	11	22	14	11	7	18	7

N=679

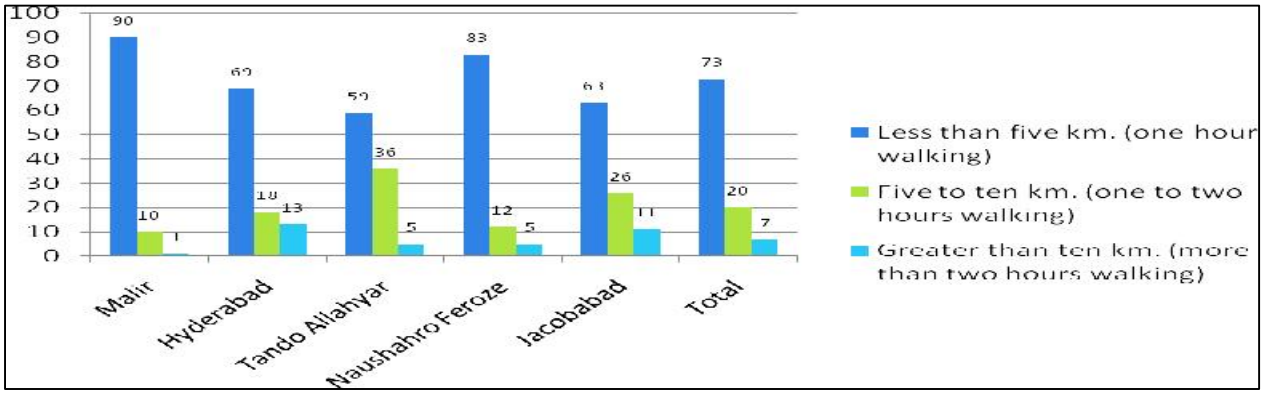
Crosstab analysis indicates that mothers whose household income was less than or equal to Rs. 7000 were less likely to save money and more likely to take loan for managing the cost of ANC (p-value = .000) as compared to those mothers whose monthly household income was more than Rs. 7000.(Box 8).

Box8: Main sources of arranging money to bear the cost of Ante Natal Care and the total monthly household income

Mean for arranging money	Monthly Household Income Rs. 7000 or below	Monthly Household Income More than Rs. 7000	Total Response
Household saving	65%	87%	389
Loans	35%	13%	129
Total Response	286	232	518

20 % respondents spent Rs. 1000 or less, 36% Rs- 2000-3000 and 25% Rs. 5000 or more as total cost on ANC. Mostly (73%) travelled a distance within 5 Kilometers to reach a health facility for ANC. However, in Tando Allahyar, 36% and in Jacobabad 26% responding mothers had to travel 5-10 Kilometers in this regard(Fig 5).

Figure 5: Reported distance and percentage of response to reach to a health facility for ANC visit



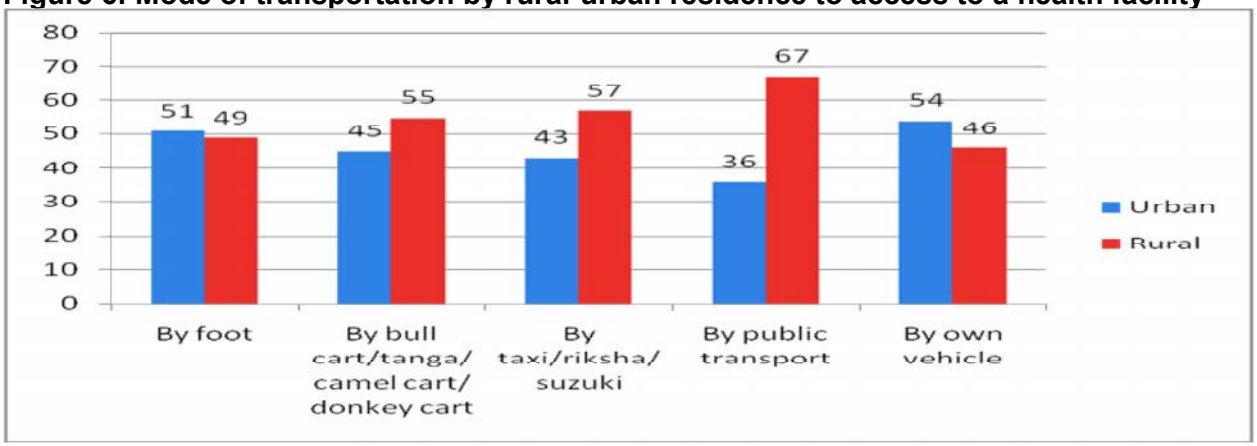
Around 83% had a transport facility to reach to a health facility including use of taxi/rikshaw (73%), public transport or own vehicle (Table 12).

Table 12: Mode of transportation to reach to a health care facility for ANC

District	Mode of transportation and percentage of responses				
	By foot	By bull cart/tonga/ camel cart/ donkey cart	By taxi/Rikshaw/ Suzuki	By public transport	By own vehicle
Malir	16	1	68	4	11
Hyderabad	16	3	69	1	14
Tando Allahyar	16	0	82	1	8
Naushahro Feroze	16	1	79	1	4
Jacobabad	16	14	64	2	2
Overall Percentage	16	3	73	2	8

N=677

Figure 6: Mode of transportation by rural-urban residence to access to a health facility



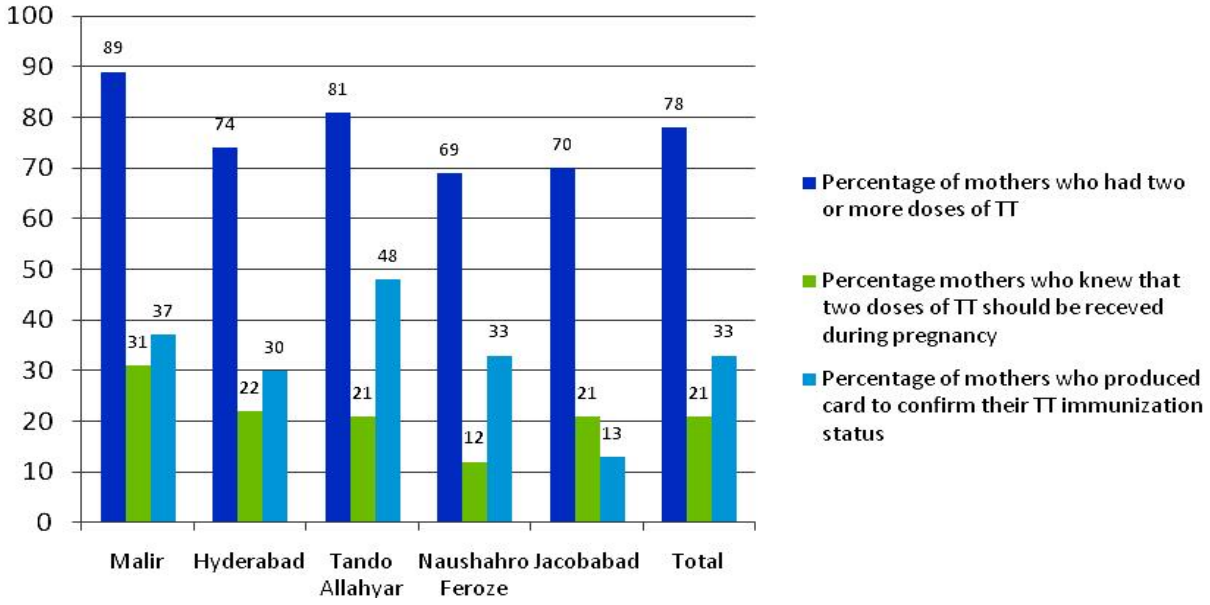
About 18 % mothers knew that 4 ANC visits should be performed (27% in Malir and 21% in Tando Allahyar). 64% mothers mentioned 3 or more ANC visits during a pregnancy. 29% had no knowledge in this regard (Table 13).

Table 13: Knowledge of responding mothers about the appropriate number of ANC during a pregnancy

Districts	Categories and Percentage of responses					
	One time	Two times	Three times	Four times	> Four time	Does not know
Malir	0	3	5	27	46	20
Hyderabad	2	4	15	16	51	12
Tando Allahyar	1	2	18	21	35	23
Naushahro Feroze	3	11	19	11	7	48
Jacobabad	3	12	22	12	10	41
Overall Percentage	2	6	16	18	30	29

78% mothers reported to have 2 or more doses of Tetanus Toxoid (TT) vaccination shots which included 89% in Malir and 70% in Jacobabad. However, only 21% mothers knew that 2 doses of TT should be given during a pregnancy. 33% mothers could produce a vaccination card including 37% in Malir and only 13% in Jacobabad (Fig 7).

Figure 7: TT Immunization in last pregnancy



Crosstab analysis indicates that mothers who lived in an area covered by LHW/s were more likely to have received TT vaccination as compared to those who did not live in an area covered by LHW/s(p-value = .012) (Box 9).

Box9: TT vaccination of mothers and the area covered by Lady Health Worker

	Area covered by LHWs	**Area not covered by LHWs**	**Total Response**
Mothers received TT Vaccination during last pregnancy	68%	59%	518
Mothers did not receive TT Vaccination during last pregnancy	32%	41%	282
Total Response	525	275	800

Crosstab analysis indicates that there was no statistically significant difference between mothers who had their immunization card and those who did not, in relation to the availability of LHW/s in their area of residence (p-value = .099) (Box10).

Box10: Availability of mother's immunization card and the area covered by Lady Health Worker

	Area covered by LHWs	Area not covered by LHWs	Total Response
Mother had her immunization card	35%	28%	168
Mother did not have her immunization card	65%	72%	341
Total Response	348	161	509

Crosstab analysis indicates that there was no statistically significant difference between mothers who had their immunization card and those who did not, in relation to their education status. (p-value = .186) (Box 11).

Box11: Availability of her Immunization Card and education level of responding Mother

	Responding mother never attended a formal school	Responding mother attended a formal school	Total Response
Mother showed her immunization card	29%	40%	171
Mother did not show her immunization card	71%	60%	343
Total Response	297	217	514

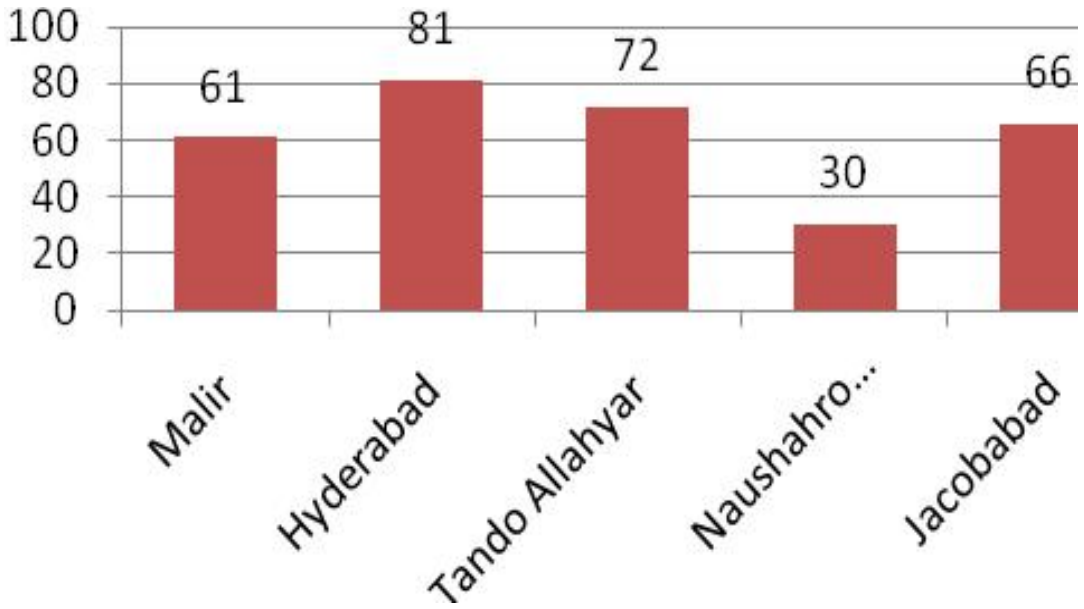
Crosstab analysis indicates that there was no statistically significant difference between mothers who showed immunization card of their neonates and those who did not, with respect to their educational status (p-value = .348) (Box 12).

Box12: Availability of vaccination card of neonate and the education level of responding mother

	Responding mother never attended a formal school	Responding mother attended a formal school	Total Response
Mother who had vaccination card of her neonate	60%	71%	243
Neonates who did not receive anything to drink from a bottle with a nipple	40%	29%	129
Total Response	194	178	372

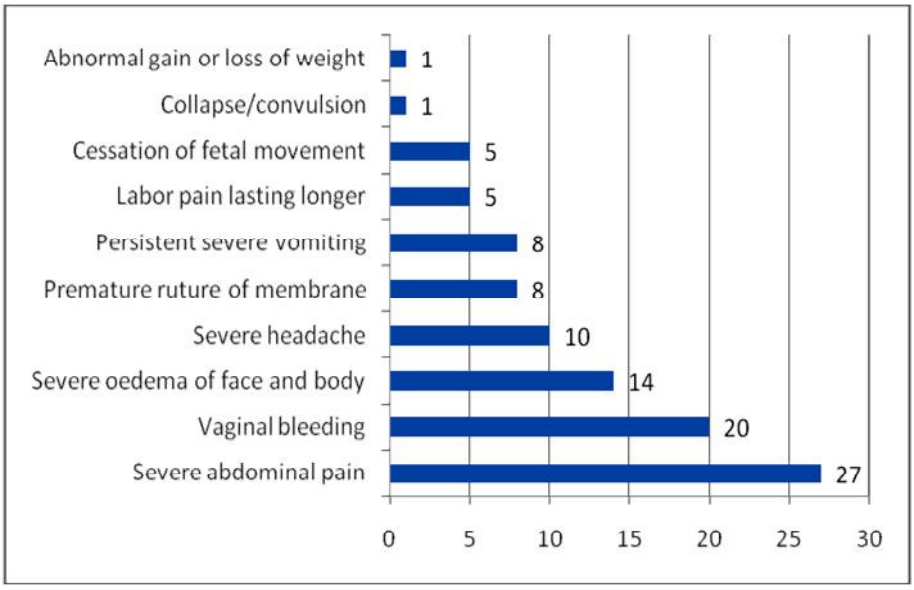
81% respondents in Hyderabad and only 30% in Naushahro Ferozeinformed that they knew danger signs in pregnancy(Fig 8).

Figure 8: Percentage of responding mothers who knew the danger signs which would require immediate medical help



Of various established danger Signs, only 20% mothers mentioned vaginal bleeding as a danger sign, 10% mentionedsevere headache (proxy for high blood pressure) and 14% severe edema on face and hands as important danger signs (Fig 9).In a cross-sectional survey in Tanzania, Pembe A. B et al (2009) found that about 51% women knew at least one obstetric danger sign. Around 10% mentioned vaginal bleeding, only 1.5% mentioned obstructed labour, and few mentioned anaemia and seizures as danger signs during pregnancy. There was no difference in the awareness of danger signs during pregnancy, during delivery or after delivery in relation to educational level, which is consistent with our study findings (Box 13 below).

Figure 9: Level of knowledge of responding mothers about types of danger signs during pregnancy



Percentage of responses for the knowledge about the type of danger sign out of total 1093 responses (with the option for multiple responses) by 503 mothers

Crosstab analysis indicates that there was no statistically significant difference between mothers who attended a formal school and those who did not attend a formal school, in relation to their knowledge about danger signs during pregnancy which would require immediate medical assistance (p-value = .210) (Box 13).

Box13: Knowledge about danger signs during pregnancy and the education level of responding mother

	Responding mother never attended a formal school	Responding mother attended a formal school	Total Response
Mother who said they knew danger signs during pregnancy which required immediate medical help	59%	68%	501
Mother who said they did not know danger signs during pregnancy which required immediate medical help	41%	32%	306
Total Response	502	305	807

48% mother indicated that a doctor informed them about the danger signs while 2% mentioned media and only 6% a LHW as the source of information. However, 91% of mothers mentioned that they were told where to go in case a danger sign develops(Table 14).

Table 14: Source of Information for Responding Mothers regarding Danger Signs during pregnancy

Districts	Source of information and percentage of responses									
	Doctor	Nurse/ LHV	Midwife	LHW	TBA	Elders	Media (news-paper, radio, T.V, Cable net)	*PE	None	% of mothers who were told where to go in case of experiencing a danger signs
Malir	57	6	0	3	1	27	3	3	0	90
Hyderabad	44	1	0	5	5	42	2	1	1	97
Tando Allahyar	56	4	3	10	3	22	1	0	1	95
Naushahro Feroze	33	4	0	15	2	44	0	2	0	96
Jacobabad	42	0	1	4	7	37	1	7	3	77
Overall %	48	3	1	6	4	33	2	2	1	91

* Personal Experience

53% mothers informed that they had a danger sign during last pregnancy. 77% mothers from Jacobabad and 31% from Malir reported to experience a danger sign. Those who experienced a danger sign during last pregnancy, 56% consulted a private health care facility (private hospital and General Practitioners' clinic), around 30% a government health facility (including 11% utilization of a DHQ), while 14 did not seek any medical help (Table 15).PDHS ((NIPS & Macro International Inc., 2008) indicates that 41% with severe headache, 37% mothers with swelling of hands and 22% with vaginal bleeding did not seek any help during last pregnancy.

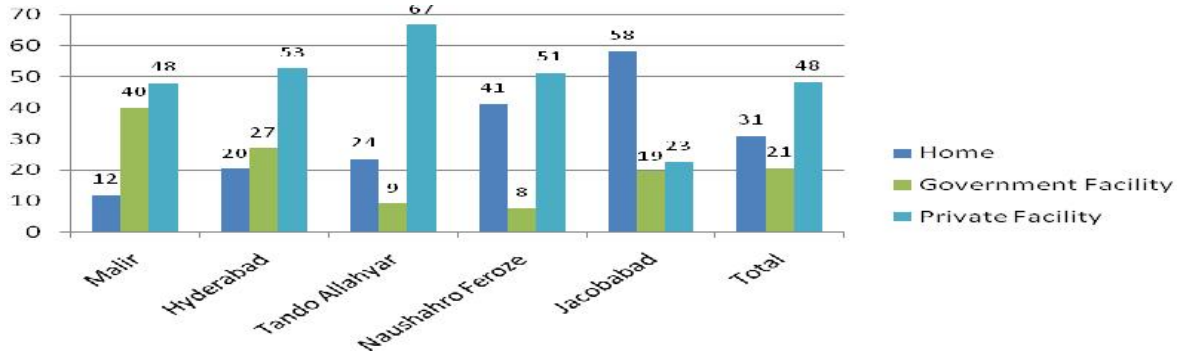
Table 15: Type of health care facility visited when experienced danger sign/s in last pregnancy

Districts	Types of health facilities and number of visits										
	Teaching Hospital	DHQ	THQ	RHC	BHU	MCH Centre	PrivateHospital	*GP	Did not seek help	TBA	Total visits
Malir	2	12	2	1	1	2	26	0	3	0	49
Hyderabad	6	5	6	9	7	7	55	9	7	3	114
Tando Allahyar	4	3	7	2	1	0	23	19	12	2	73
Naushahro Feroze	1	0	1	0	0	0	29	13	7	0	51
Jacobabad	0	24	4	7	4	1	32	20	26	0	118
Total visits	13	44	20	19	13	10	165	61	55	5	405
%age	3	11	5	5	3	2	41	15	14	1	100

* General Practitioner

Regarding the place of delivery, 48% deliveries took place in a private hospital (67% in Tando Allahyar, 23% in Jacobabad), 21% at a government health facility (40% in Malir and only 8% in Naushahro Feroze). 31% deliveries were conducted at home with maximum home deliveries in Jacobabad (58%) and minimum in Malir (12%) (Fig 10). PDHS (NIPS & Macro International Inc., 2008) indicates that around 31% deliveries took place at a private health facility, 11% in a government health facility and 57% at home. PSLM (Federal Bureau of Statistics, GOP, 2007-8) presents that in urban areas in Pakistan, 41% deliveries took place at home, 20% at a government health facility and 36% at a private hospital, and in rural Pakistan, 71% deliveries took place at home, 9% at government health facilities and 19% at private health facilities.

Figure 10: Place of delivery



Crosstab analysis indicates that mothers who attended a formal school were more likely to have their babies delivered at a private health facility than a government health facility or at home (p-value = .000) (Box 14).

Forty percent responding mothers had some kind of complication/s during the puerperium period, which included: 17% mothers in Malir, 40% in Hyderabad, 45% in Tando Allahyar, 39% in Naushahro Feroze and 58% in Jacobabad. In case of a complication, 29% sought treatment from a private hospital or a General Practitioner and only 14% used a government health facility. Ironically, 50% mothers did not seek any medical assistance for treating a complication.

Box14: Place of last delivery and the education level of responding mother

	Responding mother never attended a formal school	Responding mother attended a formal school	Total Response
Mother who delivered her last baby at home	41%	14%	250
Mother who delivered her last baby at a government health facility	20%	22%	166
Mother who delivered her last baby at a private health facility	39%	64%	391
Total Response	502	306	808

Crosstab analysis indicates that mothers whose household income was more than Rs. 7000 a month were more likely to have their babies delivered at a private health facility than a government health facility or at home(p-value = .000) (Box 15).

Box15: Place of last delivery and the total monthly household income

Place of delivery	Monthly Household Income Rs. 7000 or below	Monthly Household Income More than Rs. 7000	Total Response
PrivateHospital	41%	59%	391
Home	40%	17%	250
Government Health Facility	19%	24%	166
Total Response	493	314	8 07

84% mothers reported to have vaginal deliveries while 16% had a C-section. Maximum C-sections were reported from Malir (28%) while mothers from Jacobabad reported to have 4% C-sections (Fig 11).

Figure 11: Mode of delivery in last pregnancy

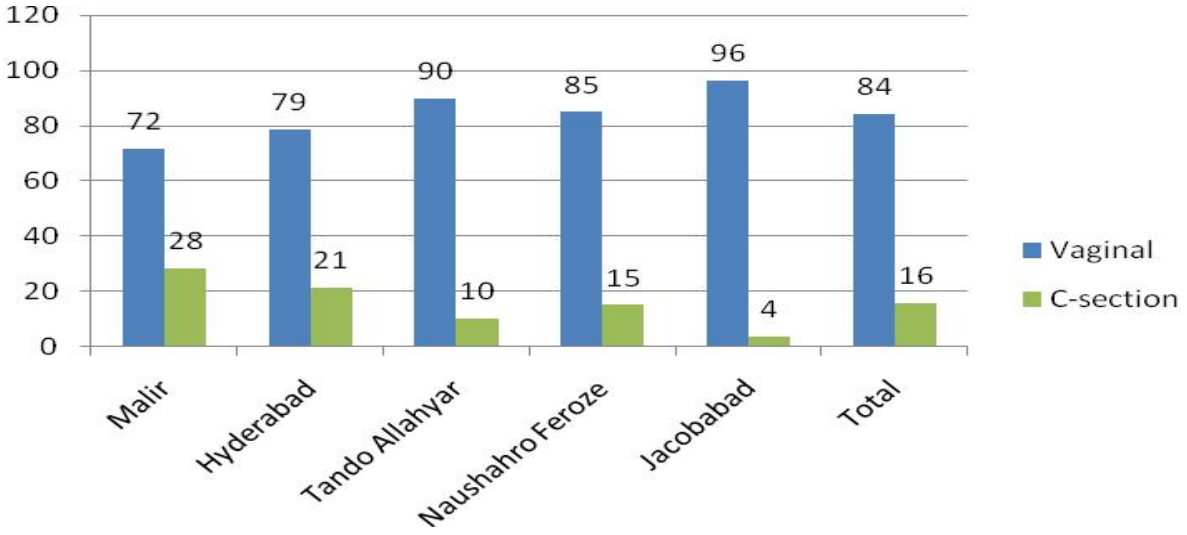
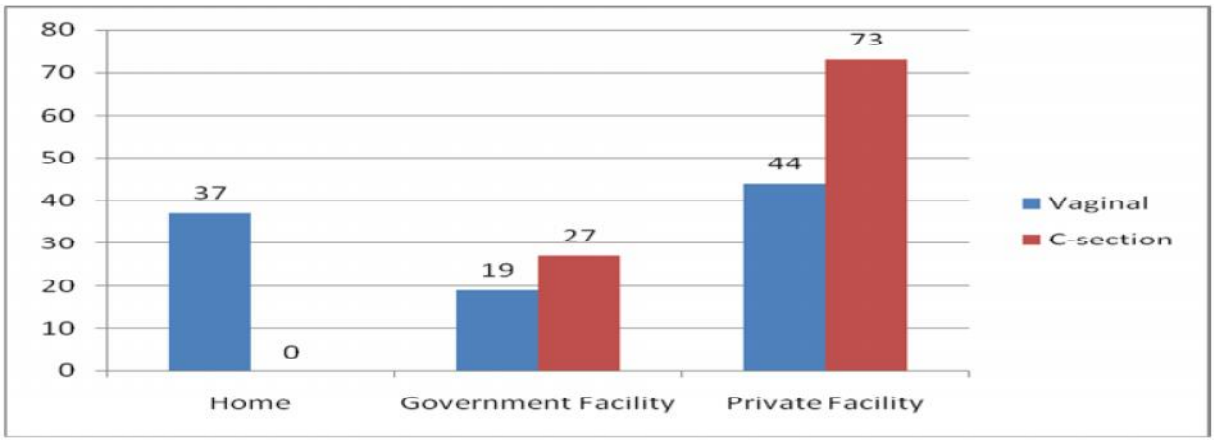


Figure 12: Percentage of mode of delivery according to place of delivery



69% mothers were delivered by a Skilled Birth Attendant (Doctor/Nurse/Lady health Visitor, Midwife). This included 92% in Malir and 39% in Jacobabad. About 29% deliveries were conducted by TBAs including 59% in Jacobabad and 9% in Malir 9% (Table 16). PDHS (NIPS & Macro International Inc., 2008) indicates that 44% deliveries were conducted by SBAs. PSLM (Bureau of Statistics, GOP, 2007-8) depicts that 61% deliveries in urban and 33% in rural areas were assisted by a SBA.

Table 16: Type of person who assisted last delivery

Districts	Type of person and percentage of deliveries conducted						
	Doctor	Nurse /LHV	Midwife	Traditional Birth Attendant	Mother in law	Mother	Sister in law
Malir	83	8	1	9	0	0	0
Hyderabad	71	9	1	17	1	1	0
Tando Allahyar	71	4	1	23	1	0	1
Naushahro Feroze	54	5	1	39	1	0	0
Jacobabad	32	5	2	59	2	1	0
Overall Percentage	62	6	1	29	1	0	0

N= 808

62% mothers reported to spend Rs. 1000-5000 on delivery while 28% reported to spend more than Rs. 5000 (Table 17).

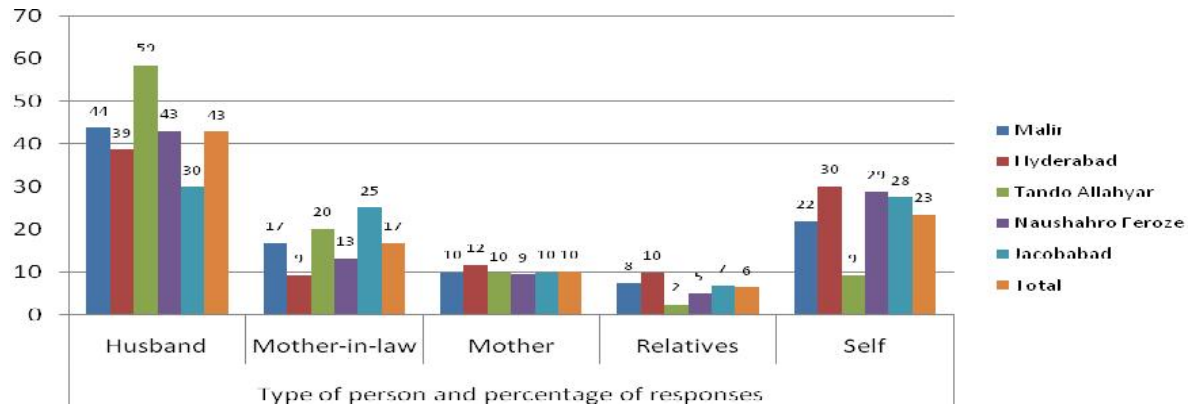
Table 17: Total cost incurred in last pregnancy

	Range of cost and percentage of response						
Districts	< Rs. 500	Rs. 500 to 1000	Rs. 1001 to 5000	Rs.5001 to 10000	Rs. 10001 to 15000	> Rs. 15000	None
Malir	3	11	40	17	6	23	1
Hyderabad	7	15	38	11	9	13	7
Tando Allahyar	8	20	47	13	6	4	2
Naushahro Feroze	2	18	46	14	9	9	3
Jacobabad	12	44	33	3	1	1	6
Overall Percentage	6	21	41	12	6	10	4

N= 808

Main decision maker for the place of delivery was husband (30-59% with total 43%) while mother in law was involved in 9-25% (total 17%) and mother herself was involved in 9-30% (total 24%) cases in taking the decision for the place of delivery (Fig 13).

Figure 13: Type of person who made the decision regarding the place of last delivery



Cross tab analysis indicates that there was no statistically significant difference between mothers who attended a formal school and those who never attended a formal schools with respect to her role in taking the decision for the place of her last delivery(p-value = .849)(Box 16).

Box16: Role of mother in decision making regarding the place of last delivery and the education level of responding mother

	Responding mother never attended a formal school	Responding mother attended a formal school	Total Response
Husband made the decision regarding the place of last delivery	40%	48%	346
Responding mother herself made the decision regarding the place of last delivery	24%	22%	189
Mother-in-Law made the decision regarding the place of last delivery	20%	12%	136
Mother of responding mother made the decision regarding the place of last delivery	8%	13%	82
Other (Relatives, TBA, Father-in-Law) made the decision regarding the place of last delivery	8%	5%	54
Total Response	502	305	807

Regarding the instrument for cutting the placenta, 89% mothers reported that a new blade was used (Jacobabad 98%, Malir 33%)(Table 18). Of 228 mothers who when delivered at home reported the use of a new blade for cutting the umbilical cord, 9 (4%) informed that their

neonates had developed umbilical cord infection. A total of 10 (4%) mothers reported to have their neonates developed umbilical cord infection. No population-based study was available to compare rates of umbilical cord infection.

Table 18: Type of instrument used to cut the umbilical cord when delivered at home

Districts	Type of instrument and percentage of response				
	With new blade	With used blade	Scissors	Knife	Does not know
Malir	33	0	28	0	39
Hyderabad	91	0	3	3	3
Tando Allahyar	95	0	5	0	0
Naushahro Feroze	89	0	10	0	1
Jacobabad	98	1	1	0	0
Overall Percentage	89	0	6	0	4

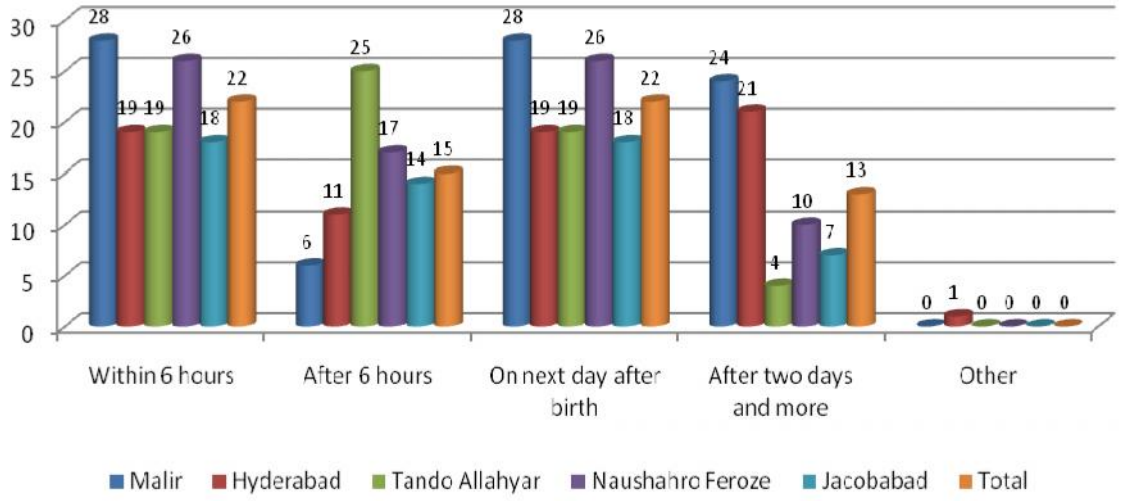
N= 248

Table 19: Actions taken in case the new-born baby did not cry after birth

Districts	Reported actions in Number (Percentage)						
	Keep the baby upside down & tapping the back	oxygen	Chest compression	Clean air way	Mouth to mouth breathing	Taken to Hospital	IV injection
Malir	5 (42)	1 (8)	2 (7)	3 (25)	1 (8)	0	0
Hyderabad	20 (45)	6 (`4)	7 (16)	1 (2)	3 (7)	4 (9)	3 (7)
Tando Allahyar	7 (24)	8 (28)	1 (3)	3 (10)	1 (3)	4 (14)	5 (17)
Naushahro Feroze	12 (27)	14 (32)	4 (9)	7 (10)	7 (16)	0	0
Jacobabad	29 (48)	6 (14)	8 (19)	1 (2)	4 (10)	2 (5)	1 (2)
Total Number (Percentage)	64 (37)	35 (20)	22 (13)	15 (9)	16 (9)	10 (6)	8 (6)

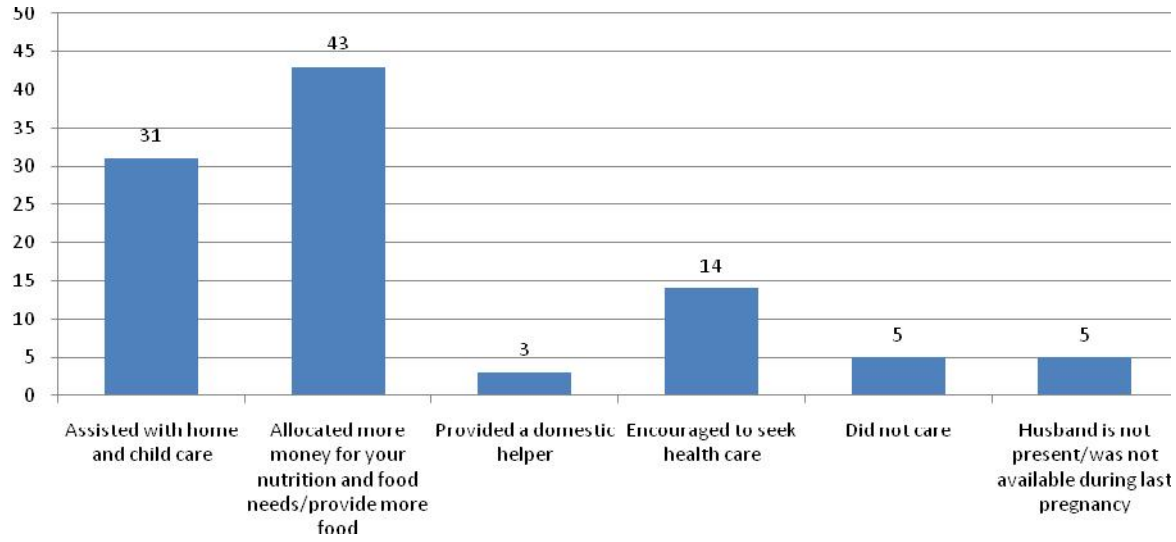
Twenty-two per cent mothers mentioned giving first bath to their neonates within 6 hours and 35% after the first day (Fig 14).Immediate bathing of a new-born carries a risk of developing hypothermia which is a life threatening situation. It is recommended to delay the bathing for few hours after delivery. Longer delay can lead to hygienic problem. Our findings suggest a mixed practice with majority of mothers delaying neonatal bathing for 6 or more hours.

Figure 14: Time of giving first bath to the neonate



Regarding the type of care provided by husband during the last pregnancy, 98% responding mothers were satisfied by the care provided. 31% respondents informed that their husbands provided assistance in household chores and care of other children. Forty one respondents reported that their husbands provided extra money, than they routinely do, for food and nutritious diet. Only 14% husbands encouraged respondents to seek health care in case they had any ailment during pregnancy (Fig 15).

Figure 15: Type of care provided by husband during the last pregnancy



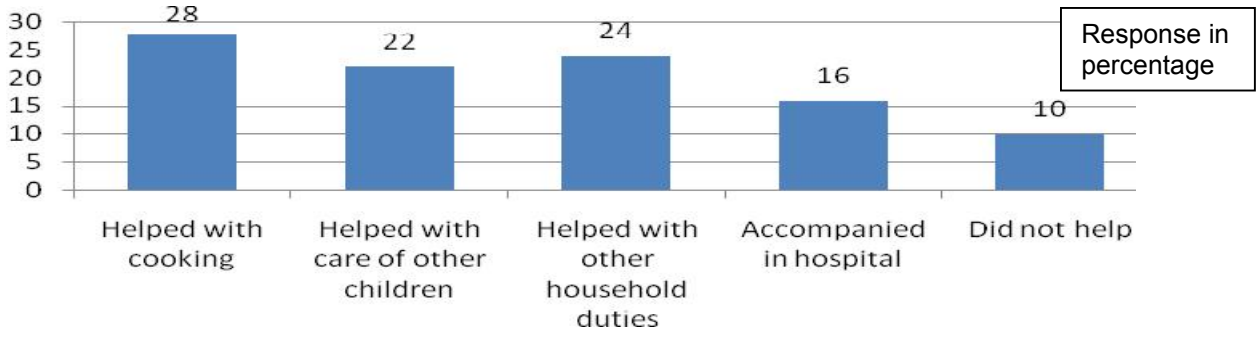
Crosstab analysis indicates that mothers, whose monthly household income was Rs. 7000 or more were more likely to have received care from their husbands during their last pregnancy than those with monthly household income less than Rs. 7000(p-value = .000) (Box 17).

Box17: Type of care provided by husband during pregnancy and the total monthly household income

Type of care provided by husband	Monthly Household Income Rs. 7000 or below	Monthly Household Income More than Rs. 7000	Total Response
Assisted in household work	44%	40%	290
Allocated more money	42%	53%	342
Encouraged to seek health care	3%	3%	21
Did not care	11%	4%	46
Total Response	259	440	699

Other family members also provided support during the last pregnancy to the responding mothers, which included help in cooking (28%) and care of other children (22%). There were 10% who didn't get any help from the family (Fig 16).Study also explored help extended by the community members during the management of last pregnancy. Of 813 respondents, 258 (32%) reported that neighbours offered for some kind of help while 555 respondents (68%) denied any assistance offered or provided.

Figure 16: Type of Care provided by family members during the last pregnancy



Responding mothers informed that various dietary and nutritioinal advices were given that included using additional meal, use of supplementary iron, dairy products and protein rich food. 60% responding mothers in Malir, 75% in Hyderabad, 56% in Tando Allahyar, 43% in Naushahro Feroze and 38% in Jacobabad were given any nutritional advice by the health care provider in the last pregnancy. Overall, 54% mothers reported to have received a nutritional advice. 54% mothers from Malir reported to receive advice on additional meal, 42% from

Jacobabad on dairy products and 35% mothers from Hyderabad on using iron rich diet (Table20).

Table 20: Type of nutritional advice given by Health Care Providers in last pregnancy

Districts	Type of nutrition advice and percentage of responses				
	Take additional meal	Take iron containing foods	Take additional dairy items	Take additional protein meal	Take additional Staples
Malir	54	21	19	5	1
Hyderabad	25	35	28	10	2
Tando Allahyar	31	24	28	14	2
Naushahro Feroze	30	27	26	11	6
Jacobabad	23	18	42	14	3

Mothers also reported to have restriction for using different types of food (14% in Hyderabad and Jacobabad) (Fig 17).

Figure 17: Percentage of mothers who had food restriction during last pregnancy

Low birth weight which accounts for about 30% of all births in Pakistan is one of the consequences of maternal malnutrition. These outcomes are strongly related to maternal diet.

A health care provider advised for food restriction in 53% cases, but the data doesn't explain why food restriction was done(Table 21).Ali, Azam and Noor (2004) conducted a cross-sectional survey in a tertiary care hospital in Karachi and found that 12% responding females believed in restricting some kind of food while 25% did so during lactation. Three fourth of the respondents were literate.

Table 21: Type of food restricted and the person who advised to restrict food during last pregnancy

	Per cent Response
Type of food restricted during pregnancy:	
• Meat	• 19
• Egg	• 18
• Rice	• 17
• Desi Ghee	• 14
• Vegetables	• 12
• Fish	• 8
• Other	• 12
Persons who advised to restrict a food during last pregnancy:	
• Health care Provider	• 53
• Mother-in-law	• 20
• Relative	• 18
• Other	• 9

Crosstab analysis indicates that the difference for number of pregnancies between mothers with a monthly household income of Rs. 7000 or below, and a mother with a monthly household income of more than Rs. 7000 is not statistically significant (p-value = .720) (Box 18).

Table 22: Type of food and frequency of use in a week during last pregnancy

Type of food used	One Time		Two Times		Three Times		More than Three Times		Occasionally		Never		Total
	#	%	#	%	#	%	#	%	#	%	#	%	#
Meat (Beef, Mutton, Chicken)	162	20	175	22	111	14	100	12	154	19	104	13	806
Fish	152	19	122	15	50	6	53	7	207	26	234	29	808
Egg	46	6	78	10	89	11	199	25	175	22	220	27	807
Pulses	52	6	139	17	158	20	339	42	65	8	55	7	808
Roti	1	0	12	1	26	3	764	95	2	0	2	0	807
Rice	82	10	108	13	122	15	282	35	142	18	72	9	808
Milk	33	4	24	3	63	8	395	49	132	16	160	20	807
Desi Ghee/Butter	40	5	39	5	40	5	161	20	131	16	397	49	808
Vegetables	12	1	59	7	137	17	543	67	36	4	21	3	808
Fruits	43	5	64	8	70	9	227	28	232	29	171	21	808
Lassi	3	0	0	0	0	0	0	0	0	0	805	100	808

Disposal of placenta has cultural value. Research indicated a persistence of the traditional belief that placentas should be buried at home (Helsel & Mochel, 2002).Of 255 (31%), who responded regarding the place of disposal of placenta in last pregnancy, most (77%) mentioned that placenta was buried. 14% and 2% reported that placenta was thrown in waste bin and river/canal respectively. 61% respondents in Malir did not know where placenta was disposed off.

3.2.2 Key Family Practice 2: Exclusive Breast Feeding

Performance measuring Indicators for KFP 2:

Indicator 1: Neonates exclusively breastfed

Indicator 2: Neonates received colostrum

Study Findings

Crosstab analysis indicates that there was no statistically significant difference between mothers who attended a formal school and those who did not attend a formal school in relation to their breast feeding practice (p-value = .896) (Box 18).

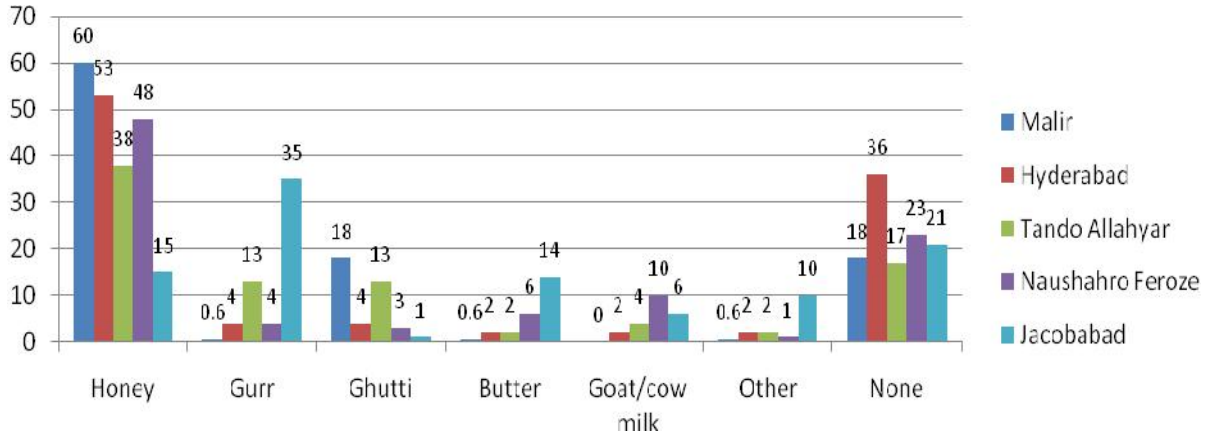
Box18: Breastfeeding practices and the education level of responding mother

	Responding mother never attended a formal school	Responding mother attended a formal school	Total Response
Mother who ever breastfed last her last baby	98%	97%	788
Mother who did not breastfeed last baby	2%	9%	21
Total Response	503	306	809

Different types of pre-lacteal food were reported by 625 (77%) responding mothers to be provided to the neonate before initiating the breast milk. Majority, which ranged from 15% (Jacobabad) to 60% (Malir) used honey. About 23% ranging from 17% in Tando Allahyar to 36% in Hyderabad did not give anything to the neonate before the first breast milk (Fig 18). Ahmad, Rehman and Alam (1996) in Bangladesh found that despite being aware of the importance of exclusive breastfeeding (55%), about 77% mothers informed that they gave pre-lacteal food (72% honey) to their neonates. This indicates the strength of social customs. The reasons cited about the pre-lacteal feed included: social custom (55%), insufficient breast milk

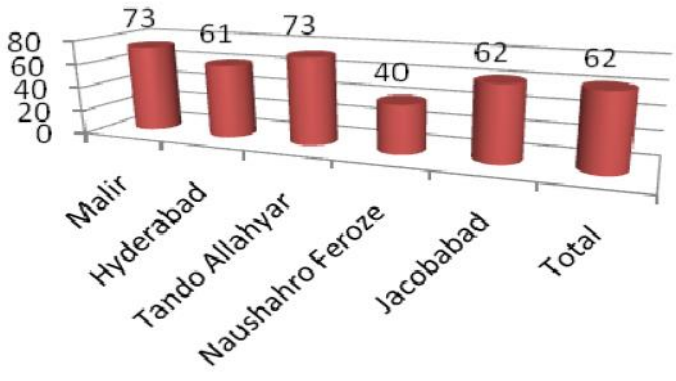
(14%), to keep the mouth and throat moist (9%), to keep the body warm (9%), rapid growth (7%), and to clear the bowel (5%). A prospective study in Egypt (Hossain et al., 1992) found that 60% mothers fed sugar water and tea as pre-lacteal food with the perceived reasons that mother had insufficient milk (74%) or was exhausted after labour (29%).

Figure 18: Types of pre-lacteal food given to neonates



62% mothers reported to give exclusive breast milk to their neonates. This included 73% mothers from Hyderabad and 40% from Naushahro Feroze (Fig 19).

Figure 19: Percentage of neonates on exclusive breastfeeding



N=250

Crosstab analysis indicates that there was no statistically significant difference between mothers who exclusively breastfed their neonates and those who did not in relation to their education status (p-value = .739)(Box19).

Box19: Practice of exclusive breast feeding and the education level of responding mother

	Responding mother never attended a formal school	**Responding mother attended a formal school**	**Total Response**
Neonate who was on exclusive breast feeding since birth	63%	61%	500
Neonate who was not on exclusive breast feeding since birth	37%	39%	306
Total Response	503	303	806

96% mothers were breastfeeding their neonates at the time of interview. Of 308 respondents, 132 (43%) mothers used bottle with a nipple to feed a liquid to the neonate. 70% mothers in Malir, 54% in Jacobabad, 46% in Naushahro Feroze, 28% in Hyderabad and 16% in Tando Allahyar used bottle in this regard. 243 mothers (30%) reported that they had given some milk substitute to their neonates, ranging from 13% in Tando Allahyar to 56% in Naushahro Feroze. 243 mothers gave 259 responses for various reasons to using a substitute of breast milk. Of 243 mothers, 108 (44%) provided 136 responses regarding types of persons who encouraged them to use a breast milk substitute which included 22% doctors besides the mother-in-Law (31%) and husband (10%).(Table 25). Among various reasons for giving milk substitute, the main (79%) concerned the mother's inability to produce milk (Table 23).

Table 23: Use of milk substitute to feed neonate

Categories of responses on breast milk substitute	Percentage of responses					
	Malir	Hyderabad	Tando Allahyar	Naushahro Feroze	Jacobabad	Total
Neonates given a substitute for breast milk	21	28	13	56	32	30
Reported main reasons for using a substitute for breast milk						
• Mother not able to produce milk	68	67	65	84	96	79
• Mother's illness/poor health	16	17	23	07	04	12
• Cracked/sore nipples	14	08	04	04	00	05
• Other reasons	02	08	08	04	00	04
Persons encouraged to use substitute for breast milk:						
• Mother-in-law	47	38	24	34	20	31
• Doctor	24	22	24	14	27	22
• Mother	18	31	35	14	20	23
• Husband	12	04	06	17	12	10
• Others	00	06	12	21	22	14

N=813

Crosstab analysis indicates that there was no statistically significant difference between mothers who exclusively breastfed their neonates and those who did not in relation to the availability of LHW/s in their area of residence (p-value = .538) (Box 20).

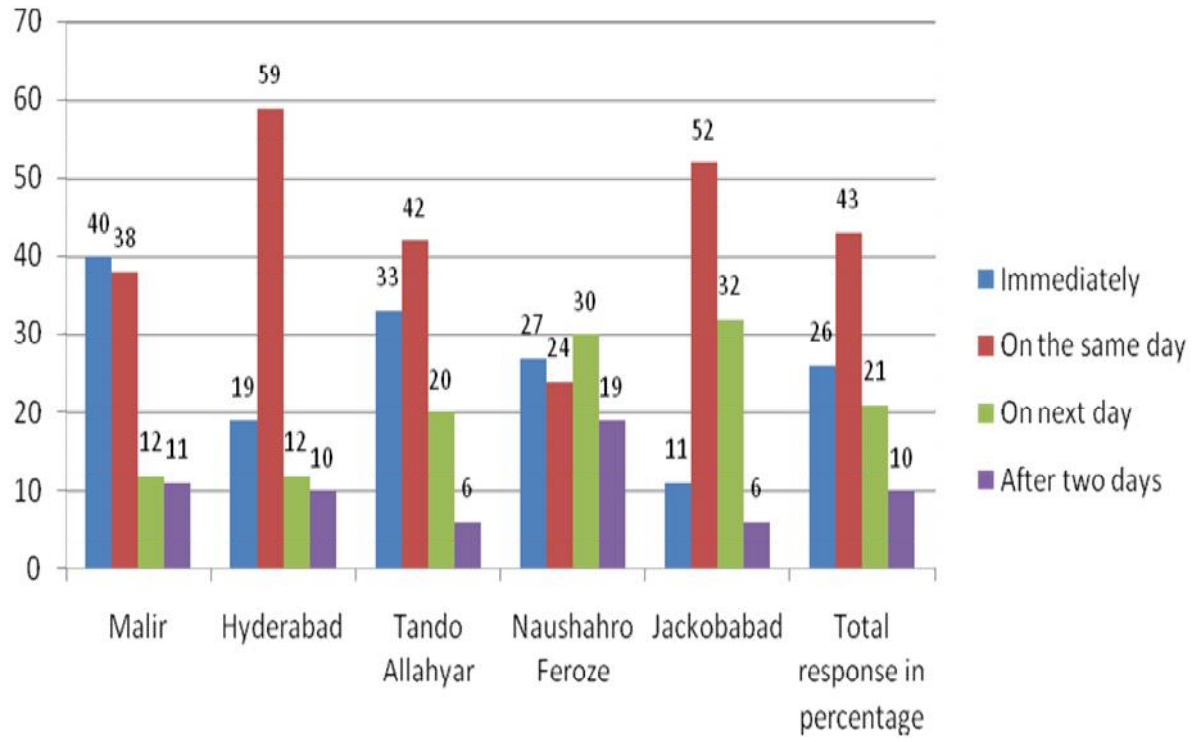
Box20: Practice of exclusive breast feeding by mothers in the area covered by Lady Health Worker

	Area covered by LHWs	Area not covered by LHWs	Total Response
Neonate of responding mother is on exclusive breast feeding since birth	61%	63%	495
Neonate of responding mother is not on exclusive breast feeding since birth	39%	37%	307
Total Response	525	277	802

16% mothers informed that they fed their neonates for less than 8 hours in a day (12 % Tando Allahyar, 24% Jacobabad), 31% for 8 hours (7% Malir and 44% in Naushahro Feroze) and 53 reported to feed for more than 8 hours (38% Naushahro Feroze and 78% Malir). 26 % mothers started breast feeding immediately after birth (4 % Jacobabad and 40% Malir) while 43% bit late

but on the same day and 31% started next day onward (24% Naushahro Feroze and 59% Hyderabad). 230 (28%) informed that they were given some advice by the care provider regarding breast milk practices. Of those, 95% remembered the advice about importance of breast milk, 44% about frequency of breast milk, 42% about avoiding water and 34% avoiding bottle feeding. Around 81% to 94% mothers across 5 study districts reported to have started breast feeding next day after birth (Fig. 20). Since colostrum is secreted up to 2 to 5 days, combining the data for exclusive breast feeding and the date for initiation of breast feeding immediately or on the same day provides a proxy measure for the proportion of neonates who had received colostrum, since colostrum is a form of breast milk secreted continuously, rather than a separately secreted fluid. This comes out to be 69% which should not be taken as a direct measure of use of colostrum due to non-inclusion of a specific question in the survey questionnaire.

Figure 20: Reported time of initiating breast milk after birth



3.2.3. Key Family Practice 3: Vaccination of Neonate

Performance measuring Indicators for KFP 3:

Indicator 1: Neonate received appropriate vaccination (BCG, Hepatitis B & OPV 0).

Indicator 2: An up-to-date vaccination card, indicating vaccinations for BCG, Hepatitis B & OPV 0.

Study Findings

Twenty two per cent neonates were immunized for Hepatitis B, 95% with BCG and 90% with OPV. Immunization for Hepatitis ranged from 4% in Hyderabad to 37% in Tando Allahyar. Immunization with BCG ranged from 86% in Tando Allahyar to 100% in Hyderabad and Malir, and immunization with OPV ranged from 82% in Malir to 91% in Tando Allahyar (Fig 22).PSLM (Bureau of Statistics, GOP, 2007-8) illustrates that BCG coverage in Sindh was 90% and OPV1 was 98%, slightly in reverse direction as compared to our findings.

Figure 21: Immunization Status of Neonates

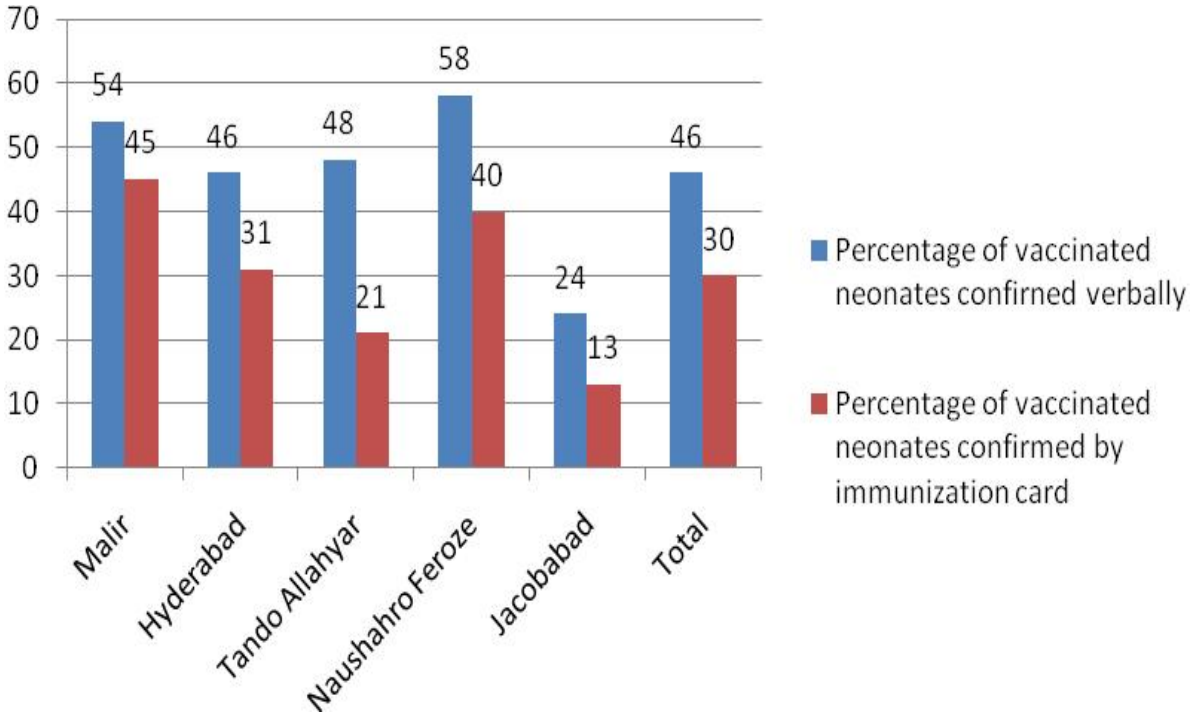
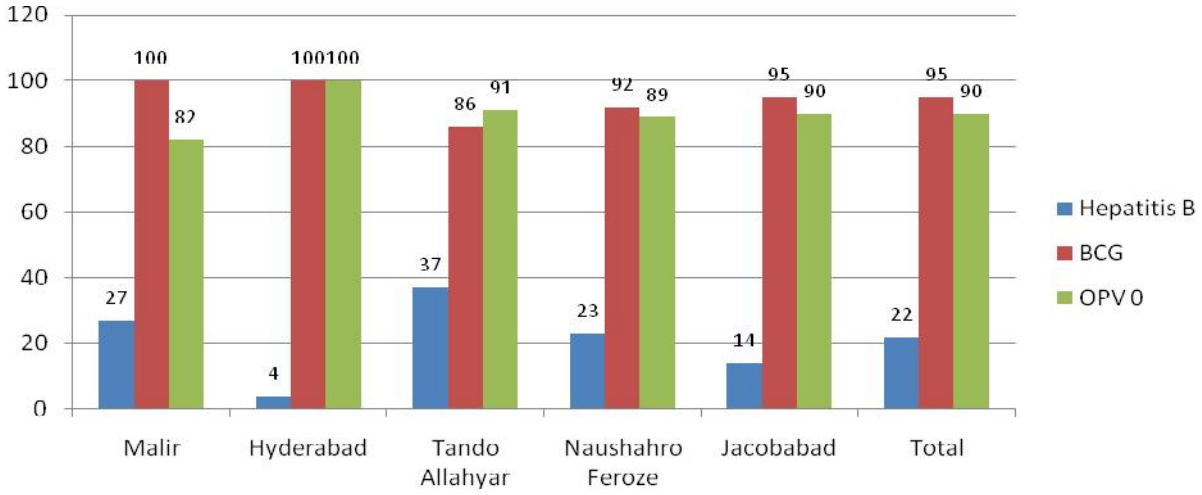
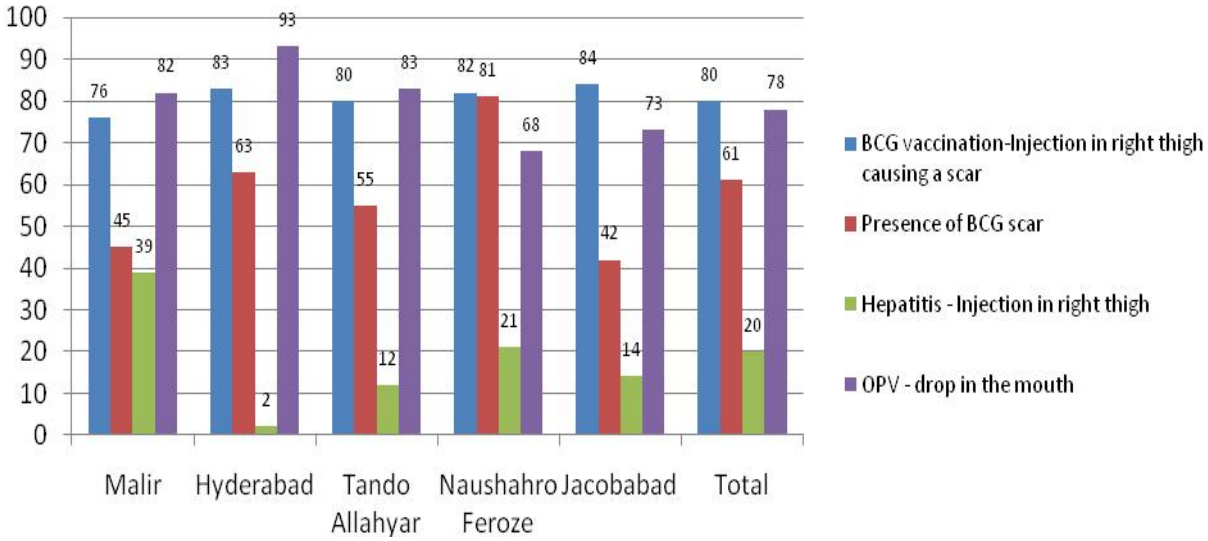


Figure 22: Confirmation of immunization of neonate by card among those among those who verbally confirmed the immunization status



Further validation of immunization status was done by asking specific question and by observing the site of vaccination. 80% mothers confirmed that an injection that produced a scar (BCG) was given on right arm, 61% neonates had a scar. 20% mothers confirmed an injection in the right thigh (Hepatitis B) was given. 78% mothers confirmed an oral drop (OPV) to their neonates (Fig for our study 23).

Figure 23: Further validation of immunization status by asking method of vaccination



3.2.4. Key Family Practice 4: Continuous Breast Feeding and more fluid duringneonatal illness

Performance measuring Indicator for KFP 4:

Indicator: Sick neonate receives increased fluids and continued breast feeding

Study Findings

Diarrhoea is common among new-born, particularly in a hospital setting, and usually attributed to a specific viral agent (Bishop et al., 1976). PDHS ((NIPS & Macro International Inc., 2008) depicts that of 1821 children who were reported to have had diarrhoea, 14% were children less than six months (neonates were not specified). Of those 14%, around 47% were taken to a health care provider, 25% received ORS packets, 13% used Recommended Home Fluid (RHF), and another 33% received either ORS or RHF, while 33% did not get any treatment. Mothers also reported to have increased only 2.8% in fluid intake during diarrhoea. In our study, of 101 (13%) neonates who had diarrhoea, 97% reported to receive breast milk, 11% received ORS and about 26% received other fluid and water with different combination with breast milk, as depicted in Table 24 below.

Table 24: continuous breast feeding and use of more fluids during diarrhoea

#	Fluids	Malir	Hyderabad	Tando Allahyar	Naushahro Feroze	Jacobabad	Total Number (%)
1	Had diarrhoea	19 (12)	20 (12)	17 (11)	19 (12)	26 (16)	101 (13)
2	Received breast milk	18 (95)	19 (100)	17 (100)	17 (89)	28 (100)	97 (97)
3	Received other local acceptable fluid	1 (5)	3 (15)	0 (0)	1 (5)	9 (0)	5 (5)
4	Received ORS	3 (16)	0 (0)	0 (0)	0 (0)	8 (31)	11 (11)
5	Received other milk or infant formula	6 (32)	4 (20)	1 (6)	8 (42)	8 (31)	27 (27)
6	Water with some feeding	2 (11)	0 (0)	1 (6)	0 (0)	3 (12)	6 (6)
7	Water alone	3 (16)	0 (0)	0 (0)	1 (6)	3 (12)	7 (7)
8	Other fluid but no feeding	1 (5)	0 (0)	0 (0)	2 (11)	5 (19)	8 (8)

Crosstab analysis indicates that there was no statistically significant difference between mothers who continued breastfeeding their neonates during neonatal diarrhoea and those who did not, with respect to their education status (p-value = .947)(Box 21).

Box21: Continuation of breastfeeding during neonatal diarrhoea and the education level of responding mother

	Responding mother never attended a formal school	**Responding mother attended a formal school**	**Total Response**
Mother who continued breastfeeding when her neonate had diarrhoea	97%	97%	97
Mother who did not continue breastfeeding when her neonate had diarrhoea	3%	3%	3
Total Response	65	35	100

Crosstab analysis indicates that there was no statistically significant difference between mothers who used a bottle with a nipple to feed a drink to their neonates and those who did not, with respect to the availability of LHW/s in their area of residence (p-value = .544)(Box 22).

Box22: Use of bottle with nipple to provide drinks to neonates in the area covered by Lady Health Worker

	Area covered by LHWs	**Area not covered by LHWs**	**Total Response**
Neonate of responding mother has been given anything to drink from a bottle with a nipple	42%	45%	131
Neonate of responding mother has not been given anything to drink from a bottle with a nipple	59%	55%	176
Total Response	205	102	307

Crosstab analysis indicates that there was no statistically significant difference between mothers who used a bottle with a nipple to feed a drink to their neonates and those who did not, in relation to their education status (p-value = .077) (Box 23).

Box23: Use of bottle for drink with a nipple by study neonates and the education level of responding mother

	Responding mother never attended a formal school	Responding mother attended a formal school	Total Response
Neonate who received anything to drink from a bottle with a nipple	37%	51%	130
We did statistical Neonate who did not receive anything to drink from a bottle with a nipple	63%	49%	176
Total Response	186	120	306

Crosstab analysis indicates that there was no statistically significant difference between mothers who continued breastfeeding their neonates during an episode of diarrhoea and those who did not, in relation to the availability of LHW/s in their area of residence (p-value = .148) (Box 24).

Box24: Practice of continuous breast feeding during neonatal diarrhoea in the area covered by Lady Health Worker

	Area covered by LHWs	Area not covered by LHWs	Total Response
Neonate of responding mother continued breast feeding during an episode of diarrhoea	95%	100%	96
Neonate of responding mother did not continue breast feeding during an episode of diarrhoea	5%	0%	3
Total Response	59	40	99

Of 343 neonates who were reported to have an illness after birth, about 47% reported to take less than the usual amount of breast milk while there was no effect of illness on breast milk intake among 44% neonates (Table 25).

Table 25: Reported amount of breast milk, neonates took during last illness

Amount	Districts					Total (%)
	Malir (%)	Hyderabad (%)	Tando Allahyar (%)	Naushahro Feroze (%)	Jacobabad (%)	
Much less	10	4	27	6	15	13
Somewhat less	35	33	43	43	23	34
About the same	50	59	26	27	52	44
More	3	1	0	3	1	8
None/Does not know	0	3	4	18	8	6

N=343

3.2.5 Key Family Practice 5: Appropriate home treatment during neonatal Illness including infections

Performance measuring Indicator for KFP 5:

Indicator: Neonate with fever receives appropriate home treatment

Study findings

Early recognition of neonatal illness is very difficult due to lack of specificity of clinical manifestations. Early recognition of signs and symptoms at home has been reported to be an important factor for effective and timely care seeking of children in developing countries (Chui, Y. et al, 2010). Search and review of available literature did not yield any objectively defined and measurable definition of “Appropriate home treatment of fever”. However, the general principles gathered through various sources include: plenty of fluid including continuous breastfeeding, rest, and cold/tap water packs applied to the body. About 27% responding mothers reported an episode of febrile illness among study neonates.

Table 26: Reported episode of fever among study neonates

	Malir	Hyderabad	Tando Allahyar	Naushahro Feroze	Jacobabad	Total responses
Neonate had fever	18	22	32	23	41	222
Neonate did not have fever	82	78	68	77	59	590
Total responses	161	166	165	160	160	812

Of those neonates who had an episode of fever, only 2% received more than normal breast milk, 38% received the same amount as normally received and 51% received less than the normal amount. About 9% did not specify the amount of milk received during fever. Of those neonates who had fever, 71 (32%) mothers reported to have given some kind of fluid in addition to breast milk.

Feverish neonates were also given different kinds of analgesics at home to alleviate fever. Of 222 neonates, who had fever, 126 (57%) received analgesics as depicted in Table 27.

Table 27: Type of medicine provided at home to treat fever of neonate

Type of Medicine	Malir	Hyderabad	Tando Allahyar	Naushahro Feroze	Jacobabad	Total Responses
Paracetamol Syrup	1	2	0	4	11	18
Panadol Drops	16	12	33	13	27	101
Dispirin/Septran/Brufen	1	0	0	2	0	3
Does not know	1	0	0	0	3	4
Total	19	14	33	19	41	126

Table 28: Reported episode of diarrhoea among study neonates

	Malir	Hyderabad	Tando Allahyar	Naushahro Feroze	Jacobabad	Total Responses
Neonates reported to have diarrhoea	19	20	17	19	26	101
Neonates reported not to have diarrhoea	142	146	144	141	132	705
Total Responses	161	166	161	160	158	806

Of 101 neonates (13% of total) who had diarrhoea, 64 (63%) received fluids in different forms at home.

Table 29: Type of treatment/fluid given to neonate at home to treat diarrhoea

	Malir	Hyderabad	Tando Allahyar	Naushahro Feroze	Jacobabad	Total Responses
Other locally defined fluid(Liquid curd or yogurt, mint water)	1	3	0	1	0	5
Oral Rehydration Solution	3	0	0	0	8	11
Other milk or infant formula	6	4	1	8	8	27
Water with feeding during some part of day	2	0	1	0	3	6
Water alone	3	0	0	1	3	7
Other fluid but no feeding	1	0	0	2	5	8
Total Responses	16	7	2	12	27	64

3.2.6 Key Family Practice 6: Recognition of need of treating sick neonate by an appropriate health care provider outside home

Performance measuring Indicators for KFP 6:

Indicator: Caregiver knows at least two danger signs for seeking care immediately.

Study Findings

Infectious diseases account for half of neonatal deaths in lower income countries. In a study in Bangladesh, Abdullah H et al (2009) found that household compliance of referral by Community Health Workers (similar to LHWs in Pakistan) was 34%, and the acceptance of home-based treatment was 43%. The study found that home treatment by CMWs was very effective and acceptable. This finding is important.

Table 30: Reported duration of illness of neonates by district among those who fell ill after birth

	(Percentage of response)
Neonate reported to fall ill after birth:	
• Malir	• 30
• Hyderabad	• 43
• Tando Allahyar	• 45
• Naushahro Feroze	• 32
• Jacobabad	• 61
• Total	• 42
Reported duration of illness of neonates among those who fell ill after birth:	
• One day	• 10
• Two days	• 14
• Three days	• 19
• Four days	• 11
• Five days	• 12
• 6-10 days	• 22
• 11-15 days	• 9
• 16-28 days	• 3

Table 31: Reported illness/symptom of neonates

Types of reported illness	Duration of illness and percentage of responses									
	% of response (Multiple response allowed)	1 day	2 days	3 days	4 days	5 days	6-10 days	11-15 days	16-20 days	21-28 days
Fever	64	11	14	18	12	10	22	10	2	1
Cough	43	7	10	18	11	15	26	10	2	<1
Diarrhoea	28	7	12	13	11	12	32	8	1	2
Difficulty in breathing	27	2	10	17	20	12	22	12	3	2
Vomiting	23	9	11	14	13	6	32	10	<1	4
Runny nose	21	4	14	15	11	16	30	4	3	3

N=813

Sixty six per centmothers mentioned that they took neonate outside home for treatment when the condition worsened(Fig 24). 78% took the neonate to a private health care facility while only 14% to a government health facility. 50% mothers (34% mother alone) with husband took the neonate to a health care facility(Fig 25).

Figure 24: Factors which influenced the family to take the neonate outside home for treatment

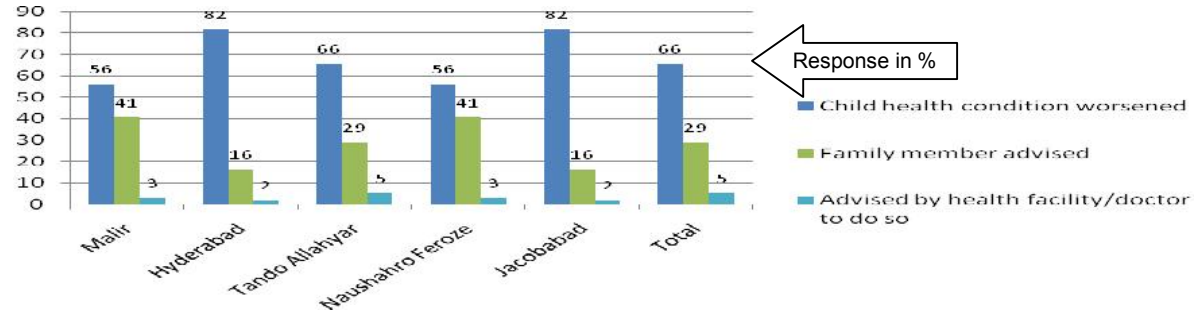


Table 32: Time of taking neonate to a health care facility after illness

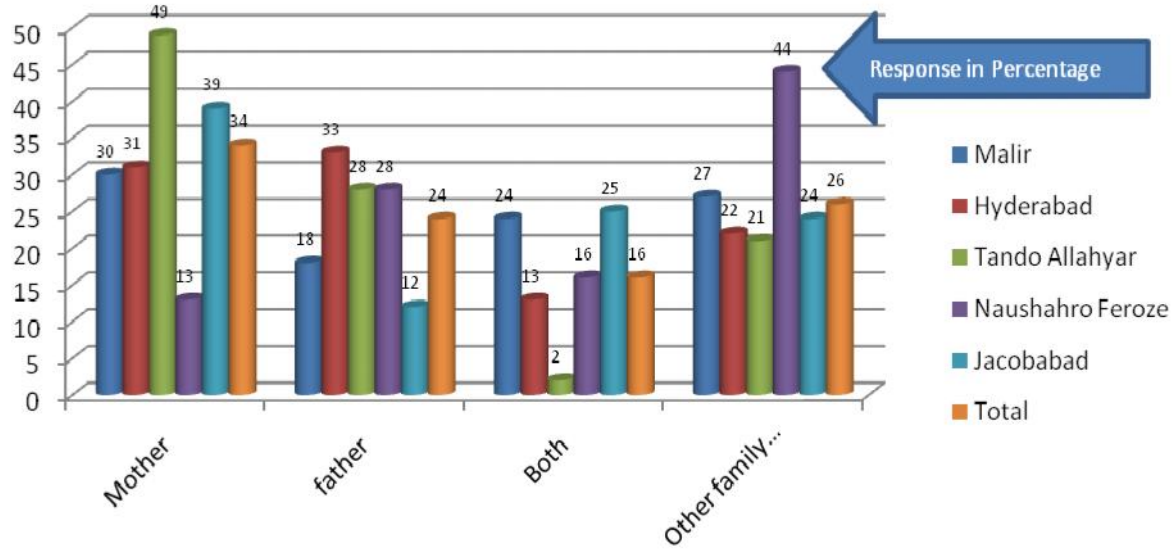
District	Time of taking neonate and percentage of responses				
	Same day	2nd day	3rd day	4th day	5th day or more
Malir	73	18	0	6	3
Hyderabad	64	20	11	2	2
Tando Allahyar	49	30	14	5	2
Naushahro Feroze	56	6	16	9	13
Jacobabad	53	22	12	8	6
Overall Percentage	58	20	11	6	5

Table 33: Percentage of type of health care provider consulted for treating neonatal illness

Districts	Private Physician	Government Health Facility	Faith Healer	Traditional Healer	Other
Malir	74	16	0	11	0
Hyderabad	80	20	0	0	0
Tando Allahyar	93	7	0	0	0
Naushahro Feroze	70	8	16	0	5
Jacobabad	71	18	2	5	4
Overall Percentage	78	14	3	3	2

N=813

Figure 25: Person who took the neonate to a health facility in case of illness



Less than Rs.1000 incurred on the treatment of neonatal illness (in Tando Allahyar 31% informed Rs. 1000-3000, In Naushahro Feroze 22% informed Rs 3000-5000 and in Malir 9% informed Rs > 5000 incurred as total cost of the treatment of neonatal illness (Fig 26).

Figure 26: Percentage of responses on total cost incurred on neonatal illness

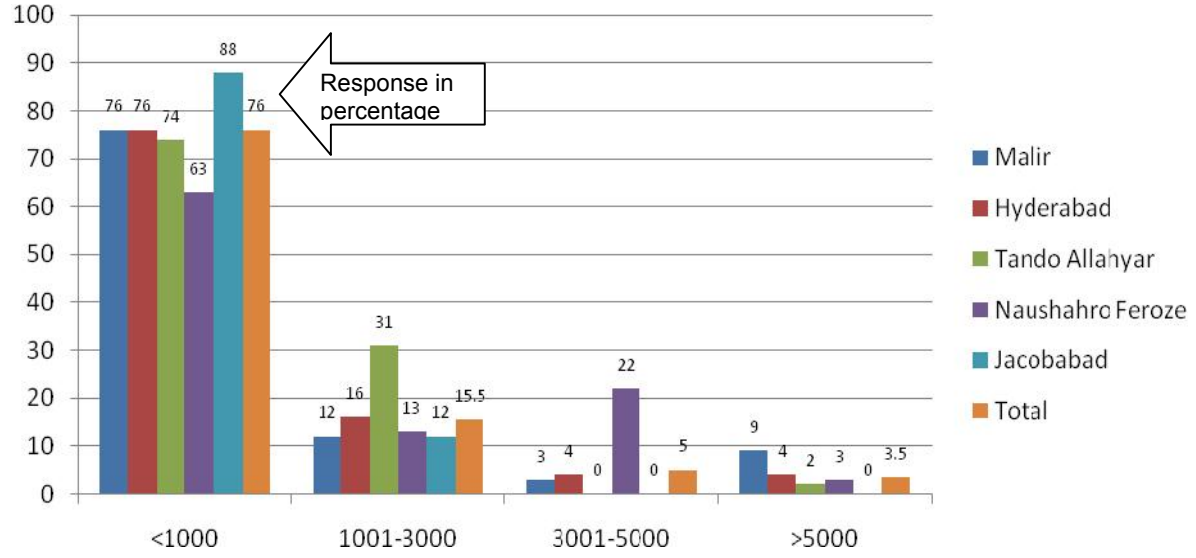


Figure 27: Distance travelled to reach to a health facility during the last illness of neonate

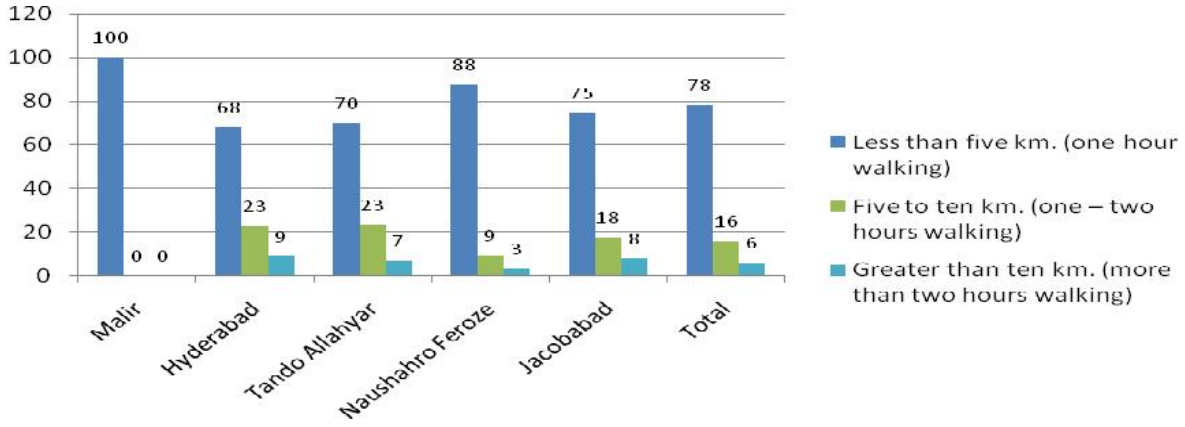


Figure 28: Percentage of responses regarding level of satisfaction about the treatment/care received during the last illness of neonate

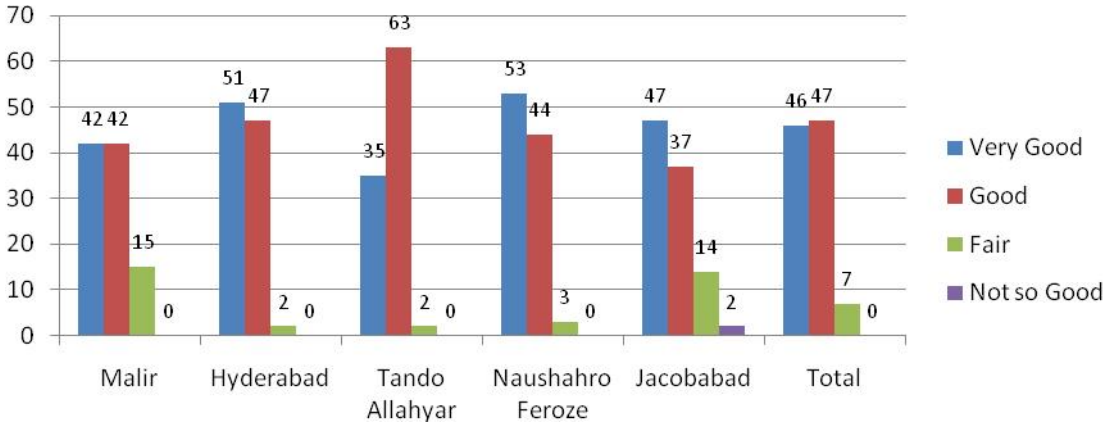


Figure 29: Level of satisfaction regarding the treatment received for neonatal illness

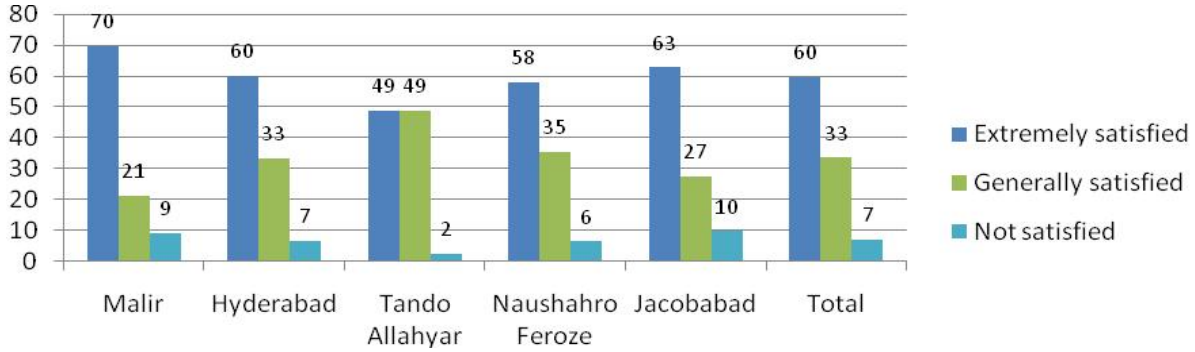


Table 34: Perceived benefits of seeking treatment of neonate from a government health facility

Districts	Health facility is relatively close	Good quality diagnostic care/treatment and/or good technical knowledge	Good quality medication	Free medication	Positive attitude of the health workers	Individual care/personal attention	None	Total (Multiple response allowed)
	Percentage of Response							
Malir	7	7	3	34	2	2	44	174
Hyderabad	5	9	4	20	6	2	55	199
Tando Allahyar	18	1	9	44	0	0	27	204
Naushahro Feroze	4	5	7	7	4	5	68	170
Jacobabad	11	2	12	22	7	1	44	211
Overall Percentage	9	5	7	26	4	2	47	958

Among the several conditions, the responding mothers mentioned fever, diarrhoea, severe vomiting, getting sicker, difficult breathing, convulsions and fast breathing as the risk factors/ danger signs and required taking the neonate immediately to a health care provider (Table 35).

Table 35: Condition of the neonate which provokes the family/caregiver to seek treatment outside home

Categories of response	District-wise response in percentage					
	Malir	Hyderabad	Tando Allahyar	Naushahro Feroze	Jacobabad	Total
1. Develops fever	95	94	92	74	84	86
2. Gets Diarrhoea	91	90	70	64	66	76
3. Starts vomiting	78	70	57	44	53	60
4. Becomes sicker	52	61	70	33	58	55
5. Has difficulty in breathing	50	31	15	14	15	26
6. Starts convulsions	37	16	16	11	41	24
7. Develops fast breathing	47	14	22	11	13	21
8. Develops jaundice/yellow eyes	42	12	18	7	4	17
9. Becomes unconscious	32	17	7	7	19	16
10. Feels cold	34	10	5	4	26	15
11. Not able to breastfeed	34	8	13	7	3	13
12. Has blood in stool	31	12	3	4	2	10
13. Redness of/pussy discharge from umbilical cord/	31	2	3	5	5	9
14. Not drinking/drinking poorly	22	2	3	7	4	7
15. Other	1	2	0	0	1	1

3.2.7. Key Family Practice 7: Follow up of treatment and referral for neonatal illness

Performance measuring Indicators for KFP 7:

Indicator 1: Compliance with treatment.

Indicator 2: Compliance with follow-up.

Indicator 3: Compliance with referral.

Study Findings

This study indicates that 42% responding mothers reported that their neonates had an episode of illness. Of the total reported illnesses, 59% sought treatment from outside home either immediately or late. Main reasons for taking late decision to take the neonate to a health care facility in case of an illness are mentioned in Table 36.

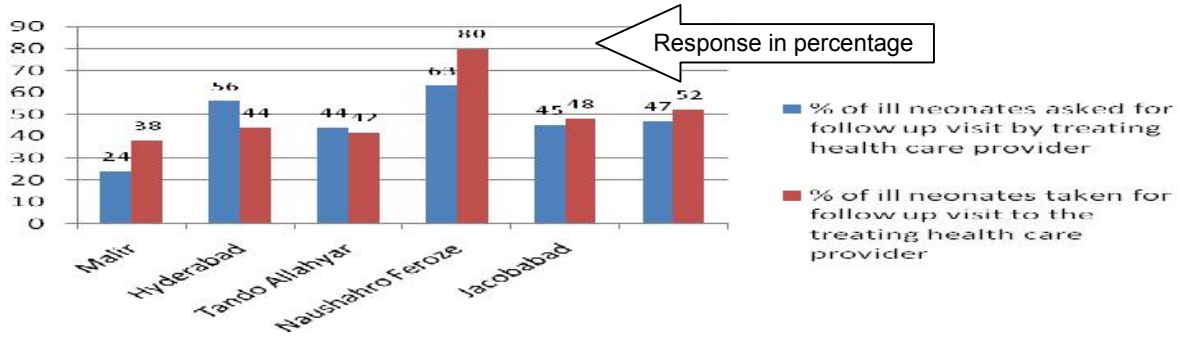
Table 36: Reported reasons for delayed decision to take the neonate to a care provider in case of an illness

#	Reported reasons for taking late decisions	% of response
1	Money was not available	39
2	Husband was not available	20
3	Hospital was closed	6
4	Hoped that baby will get well by him/herself	11
5	Transport was not available	9
6	Other reasons*	15

*Other reasons included: home treatment was tried; no one was available to leave at home; culturally not allowed; waited to get well; not permitted by in-laws; doctor was not available.

100% mothers in Hyderabad and Naushahro Feroze, 98% in Jacobabad, Tando Allahyar and 94% in Malir provided medicine to neonates as advised by the health care providers. 16 (8%) of 203 ill neonates were taken to a second health care providers, mostly (88%) due to the lack of response to the treatment by first health care provider. 43% mothers were extremely satisfied, 50% generally satisfied and 7% were not satisfied by treatment of neonatal illness provided by second health care provider. Of the mothers asked by the treating health care provider to bring the neonate back for a follow up, 52% paid the follow up visit. This included 38% compliance for follow up in Malir and 80% in Naushahro Feroze (Figure 30).

Figure 30: Level of compliance for Follow up visit



Of the total neonates taken outside home to a health facility, 16 were referred by the initially contacted health facility to a referral health facility. Of those 16 referred, only 4 (25%) contacted the referred health care facility. Five did not comply with referral advice due to non-availability of additional cost, 2 did not have authority to take such decision, another 2 had not decided by the

time of interview, 1 did not have time, and 1 reported that child had recovered before taking to the referred hospital.

3.2.8. Key Family Practice 8: Personal hygiene and household sanitation

Performance measuring Indicators for KFP 8:

Indicator 1: Household uses toilet facility.

Indicator 2: Caregiver disposes children's faeces safely.

Indicator 3: Caregiver disposes garbage properly.

Indicator 4: Caregiver washes hands after defecation.

Indicator 5: Caregiver washes hands before preparing food.

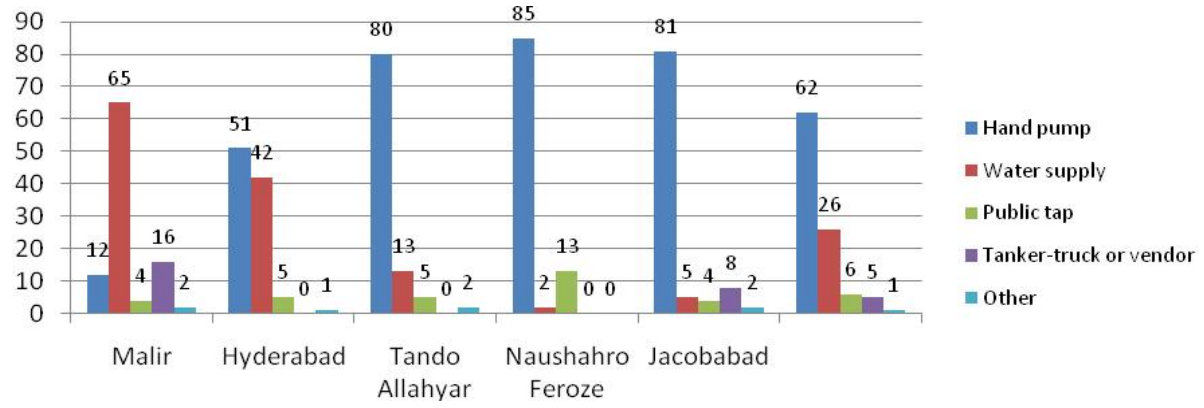
Indicator 6: Caregiver washes hands before feeding children.

Indicator 7: Caregiver uses soap when washing hands

Study Findings

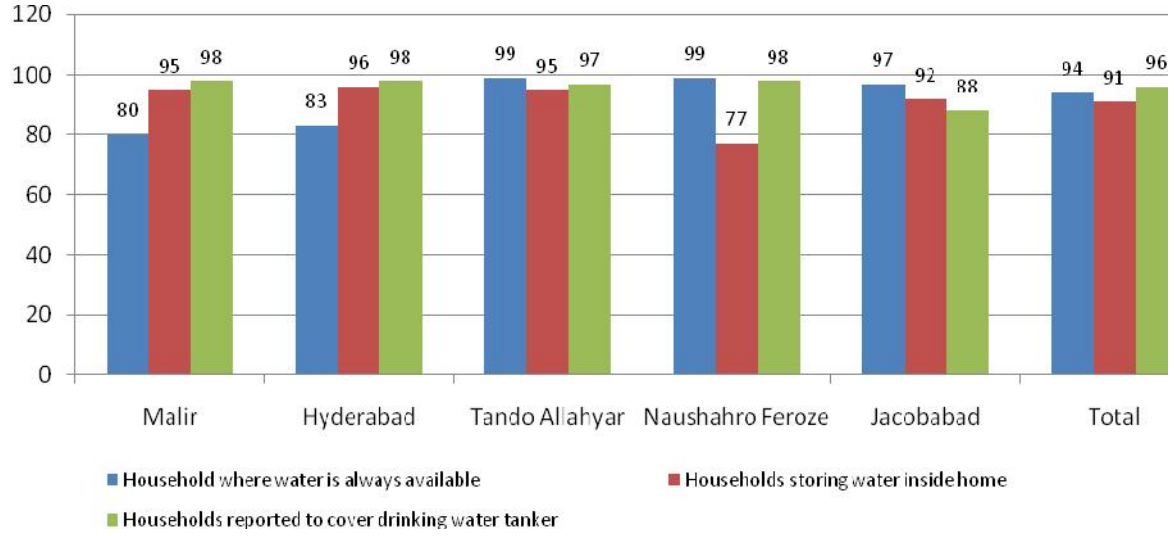
Major source of water in the study district was hand pump (62%) except in two urban districts of the province viz. Malir and Hyderabad where main source of water is municipality supplied water (Fig 31).

Figure 31: Reported Source of Water (828 responses from 813 respondents)



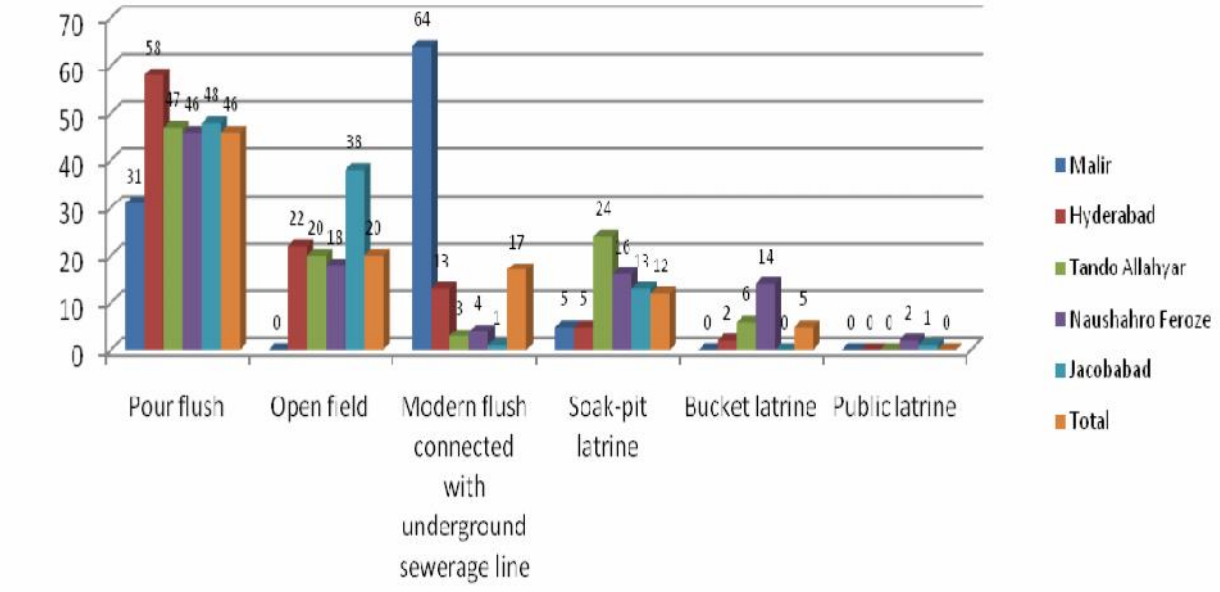
94% mothers reported that water was always available to them with a range of 80% (Malir) to 95% (Tando Allahyar). Most (91%) stored water in a covered container (96%) (Fig 32).

Figure 32: Availability and storage of water



Regarding the disposal of neonates' faeces, the modern flush toilet was not available in the majority of study districts except for the urban district of Malir, where 64% of study households had access to the modern flush (Fig. 33).

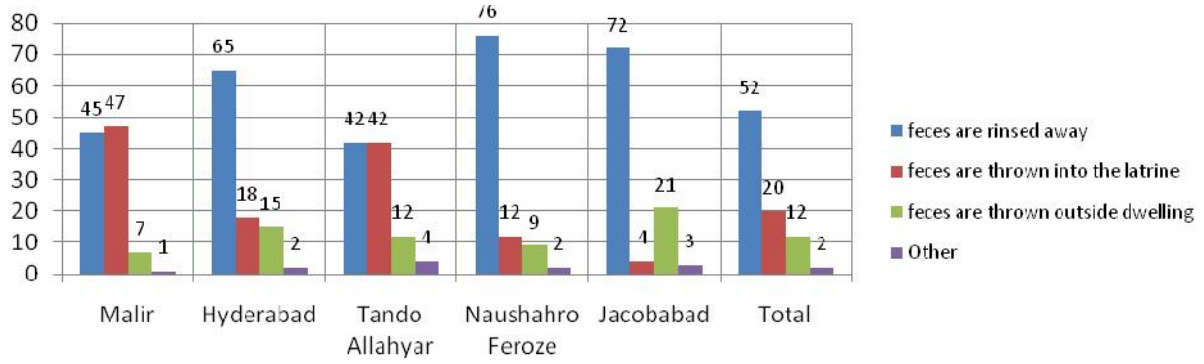
Figure 33: Reported Types of Toilet Facilities



In Hyderabad, 68% of responding household had pour flush while in Jacobabad, 38% used an open field in this regard. More than 52% mothers reported to rinse away neonatal faeces while

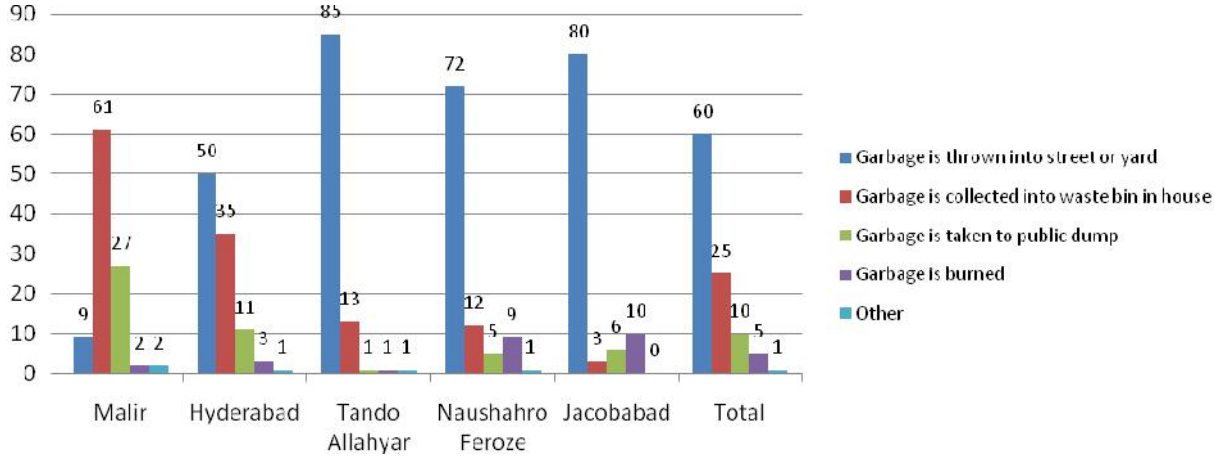
20% reported to throw into the latrine (12% in Naushahro Feroze and 47% in Malir). 21% in Jacobabad throw faeces outside dwelling (Figure 34).

Figure 34: Disposal of neonatal faeces



60% responding mothers reported that household garbage was thrown in the street (9% in Malir and 85% in Tando Allahyar) while only 25% reported to collect garbage in a dustbin (3% in Jacobabad and 61% in Malir)(Figure 35).

Figure 35: Disposal of garbage



Regarding the hand washing practices, most respondents informed that they used soap either after using the toilet (81%) or after attending a child who has defecated (76%). Only 39% mothers used soap for washing hands before preparing food, 20% before feeding a child, 40% before eating and 33% after eating (Table 37).

Table 37: Hand washing practices with or without soap

Districts	After using toilet		After defecating a child		Before preparing food		Before feeding a child		Before eating		After eating	
	Water only	With Soap	Water only	With Soap	Water only	With Soap	Water only	With Soap	Water only	With Soap	Water only	With Soap
	Percentage of Response											
Malir	12	94	11	92	30	65	50	48	50	55	33	71
Hyderabad	13	89	10	88	69	34	39	12	55	45	56	40
Tando Allahyar	75	86	70	83	77	62	27	23	78	62	51	35
Naushahro Feroze	23	69	18	53	56	23	29	10	54	23	38	14
Jacobabad	28	67	28	64	76	10	46	8	60	16	65	8
Overall% of Response	30	81	27	76	61	39	38	20	60	40	48	33

N=813

Crosstab analysis indicates that mothers who attended a formal school were more likely to have used soap for hand washing after defecating their neonates than those who did not attend a formal school (p-value = .000) (Box 25).

Box25: use of soap for hand washing after defecating a child and the education level of responding mother

	Responding mother never attended a formal school	Responding mother attended a formal school	Total Response
Mother who used soap for washing hand after attending a child who had defecated	71%	86%	619
Mother who did not use soap for washing hand after attending a child who had defecated	29%	14%	190
Total Response	503	306	809

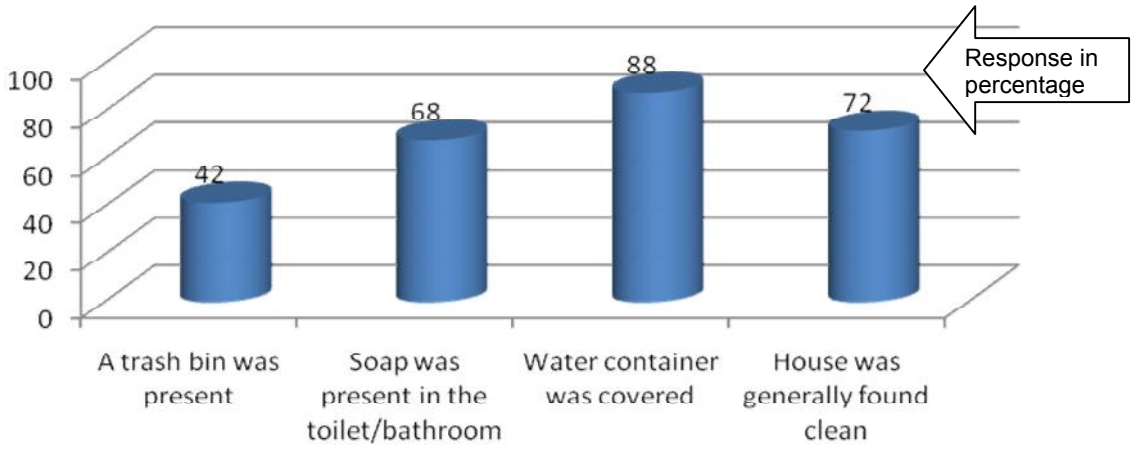
Cross tab analysis indicates that mothers who lived in LHW covered area were more likely to use soap for hand washing after defecating their neonates than those who did not attend a formal school (p-value = .035)(Box 26).

Box26: Use of soap by responding mothers for washing hands after defecating a child and the area covered by Lady Health Worker

	Area covered by LHWs	Area not covered by LHWs	Total Response
Mothers used soap for washing hands after attending a child who had defecated	78%	72%	611
Mothers did not use soap for washing hands after attending a child who had defecated	22%	29%	194
Total Response	528	277	805

Data collectors also recorded their observations regarding sanitation practices. 72% houses were found clean, water container was found covered in 88% houses, soap was present in bathroom/toilet and a trash bin was found in 42% houses (Figure 36)

Figure 36: Observation by data enumerator



Cross tab analysis indicates that mothers whose monthly household income was Rs. 7000 or more were more likely to live in a clean household than those who did not (p-value =.000) (Box 27).

Box27: Cleanliness of household and the total monthly household income

	Monthly Household Income Rs. 7000 or below	Monthly Household Income More than Rs. 7000	Total Response
Household found clean	66%	82%	586
Household was not found clean	34%	18%	223
Total Response	495	314	809

Cross tab analysis indicates that mothers who attended a formal school were more likely to have soap in their bathroom/toilet than those who never attended a formal school. (p-value = .000)(Box28).

Box28: Presence of soap in bathroom/toilet and the education level of responding mother

	Responding mother never attended a formal school	Responding mother attended a formal school	Total Response
Household in which a soap was present in bathroom/toilet	56%	88%	548
Household in which a soap was not present in bathroom/toilet	44%	12%	261
Total Response	503	306	809

3.2.9. Other Findings

Role of Lady Health Worker (LHW) in Maternal, New-born and Child Health Care

Table 38: Feedback of respondent on LHW's performance

Categories of response	District-wise response in percentage					
	Malir	Hyderabad	Tando Allahyar	Naushahro Feroze	Jacobabad	Total
Reported households a Lady Health Worker visited	44	72	82	69	18	57
Satisfied respondent mothers whose children were treated with respect by LHWs	100	97	98	83	72	93
Among those 33 mothers who were not satisfied, informed about the non-availability of a channel to lodge a complaint against LHW	0	100	100	100	86	97
Mothers found messages communicated by LHWs easy to understand	84	94	93	85	52	88

Various reasons which affected the understanding of responding mothers regarding messages by LHWs are mentioned in the box below(Total 59 responses):

Language/Literacy problem	27 (46%)
Instructions not properly communicated	14 (24%)
Pre-occupied by other problems	11 (19%)
Confusion	06 (10%)
Too much information	01 (<1%)

4. Discussion

The baseline study on 8 Key Family Practices in the northern province of Sindh reveals very important findings which have critical implications for MDG targets and the health policy of the country. This section highlights policy relevant findings in the local and global perspectives.

The study portrays a very highly fertile population with 40% households having more than 10 family members, higher than estimated at the national level. PDHS 2006-7(NIPS & Macro International Inc., 2008)indicates less than 5 and 1998 Census findings indicate 6.0 for Sindh and 6.8 for Pakistan. Ironically, huge amount of investment has been made over last 50 years in promoting family planning services with a desire to control population growth rate. A separate Ministry of Population Welfare put up innumerable resources on services and research, but not yielding optimum results.

Literacy among women is still low, again in spite of heavy investment in the education sector. We found high illiteracy among study mothers. A better level of education of their husbands shows a gender disparity. Pakistan is considered to have a largest gender gap in literacy ratio despite drastic improvement in last 20 years. The Pakistan Education and School Atlas 2010 show female literacy at 36 per cent which is close to our finding[5]. Our study demonstrates statistically significant effects on various parameters. A positive impact of education on the number of pregnancies and the number of ANC visits, increased hand washing practice with soap after defecating a child improves, and also the probability of the presence of soap in toilet/bathroom increases, all were evident in our study. Though not statistically significant, less reported anaemia, availability of immunization card of neonate and her own, and better knowledge regarding danger signs were also higher among mothers who had formally attended a school. Moreover, institutional delivery, cleanliness of household and availability of own vehicle were positively associated with better economic condition of reporting mothers.

Minimum monthly wages for a labourer has been officially declared as Rs. 7000. Forty five per cent households earned equal or less than Rs. 5000 indicating poor economic condition of the study population. It is quite understandable that utilization of private health care services by the majority of study population to obtain good quality of care might increase their poverty level.

Antenatal, Natal and Neonatal care:

Majority of our study mothers had visited a health facility at least once for ANC while about 50% had four or more ANC visits. Reported proportion of ANC consultation by a Skilled Birth Attendant is also very high. These figures are higher than the reported national and sub-national surveys, though local studies do support our findings. Alam et al (2004)reported 75.5% mothers utilizing ANC services in urban squatter settlements in Islamabad. A study in Karachi slums revealed 51% ANC coverage by the study population (Nisar & White, 2008). The high proportion of reported ANCs by SBAs could be due to erratic definition of a health care provider applied during the data collection, though an extensive training of data collectors and very vigilant supervision in the field was done to yield valid and good quality data. The findings of our study, nonetheless, are encouraging as Pakistan aims to reach 100% for achieving the MDG target by 2015. However, utilization of government health facilities has been reported low which is very disappointing. These figures for the utilization of public sector services have been stationary for quite some time despite huge amount of investment by number of foreign funded MNCH focused projects implemented in the country during last two decades, including huge country wide World Bank funded Family Health Project and also the Asian Development Bank funded Women Health Project. A high proportion of positive test for Hepatitis B and C during the study has been reported by our study population. Ten per cent prevalence for both types of infection is very high for pregnancy in comparison with other available data, though national level figures for Hepatitis B and C are not available. Ali et al (2009) did a meta-analysis of more than 80 publications and about 140 studies over last 13 years, and estimated the prevalence of Hepatitis B and C antigen as 2.4 and 2.1% respectively. A community based national level data is needed to portray the actual picture. Hepatitis B infection is one of the major global diseases which accounts for about 2000 million people infected globally. Global prevalence of Hepatitis C is about 170 million, with an estimated prevalence below 2.5% in Africa, Americas, Europe and South East Asia(Bovet, Yersin, Herminie, Lavanchy & Frei, 1999).

Prevalence of anaemia among study women has also been reported very high but the findings are comparable with other studies in Pakistan. A study in urban community in Hyderabad, Pakistan, Baig-Ansari (2008) reveals that 90.5% mothers had anaemia during pregnancy. Of those, 75% had mild and more than 15% had severe anaemia. The self-reporting nature of obtaining data raises issues of internal validity of such findings which have the potential of over and also under reporting. Moreover, the most alarming aspect of this situation is that 68% mothers reported to receiving parental iron infusions and blood transfusion for correcting the

anaemia, increasing more vulnerability of developing side effects and transfer of infection. This raises the concern regarding the role of health care providers rationalizing the use of iron infusions and blood transfusion, and also in promoting preventive dietary measures for avoiding anaemia in pregnancy.

Reported cost incurred on ANC has been very high keeping economic situation and the socio-demographic setting of the study population. However, physical accessibility to health facility was reported to be adequate, particularly in predominately urban districts. A majority of respondents reported to have access to transportation, but again, in the same urban districts. Many mothers in predominately rural districts reported to use bull carts for reaching a health facility for ANC, which indicates inequitable access of health services to the rural population. In a study in Lao (Yung Ye et al, 2010), 71% mothers mentioned distance as the most significant reasons affecting the utilization of ANC services.

Our study has found some gap between knowledge and practices for certain maternal care attributes including knowledge about the adequate number of ANC visits during pregnancy, and number of TT doses, though surprisingly, 78% mothers reported receiving adequate doses of TT during their last pregnancy. Availability of immunization card did not match with their claim of high immunization status. The current global challenge is to reduce maternal mortality which also determines neonatal mortality.

A vast majority of maternal deaths can be prevented if pregnant women know when and where to seek medical care in case of a complication (Rashad & Rasha 2010).Approximately 81% mothers stated to have knowledge about danger signs in pregnancy but only 44% could mention vaginal bleeding as a danger sign. However, 91% knew where to go for treatment in case any danger signs develop. A study in Egypt (Rashad & Rasha, 2010) shows that more than 25% mothers interviewed were unaware of any danger sings in pregnancy. 53% mothers in our study reported to experience a danger sign of which 26% did not seek any help which is also alarming. Moreover, 40% mothers reported to have one or more complications during their last pregnancy but only 50% sought any kind of health care.

Our study reported 69% institutional deliveries by Skilled Birth Attendants (SBAs), mostly in private facilities. Country-wide surveys in Pakistan (PSLM, PDHS) indicate a positive trend of increasing institutional deliveries by SBAs but this study portrays the highest figure ever

reported. Possible reasons could be the sampled population with a higher literacy (65% male and about 40% female), increased awareness due to heavy country-wide investment on strengthening of health care delivery systems during last decade, rapid urbanization particularly in Hyderabad, Malir and Tando Allahyar districts, and perhaps, over-reporting by the respondents which could be due to increased awareness regarding the importance of institutional deliveries. This finding, however, has important policy implications as Pakistan targets achieving more than 90% deliveries by SBAs by 2015. Moreover, we observed an important change in care seeking behaviour for safer delivery among our study population. Reported 31% deliveries conducted by Traditional Birth Attendants (TBAs)are lesser than reported in PSLM 2006-7 (49%) and PSLM 2007-8 (47%), indicating a paradigm shift from risky to safer delivery practices. A quasi-experimental study in Sindh by Bhutta et al (2008)involved Lady Health Workers (LHWs) in the intervention villages in mobilizing mothers for safe deliveries by SBAs. The area covered by LHWs who received additional training on essential maternal and new-born care showed significant reductions in neonatal mortality rates from 57.3 to 41.3 per 1000 live births ($P < 0.001$). The proportion of deliveries conducted by skilled attendants at public sector facilities in intervention area also increased from 18% at baseline to 30%, while the proportion of home births decreased from 79% to 65%.

An important finding of our study is the high proportion of reported caesarean sections marking around 16%, mostly in urban districts. An acceptable range of C-Section Rate set by WHO is 5-15%. Unnecessary C-sections are costly and increase the risk of complications for the mother. A retrospective study in Lahore (Najmi & Rehan, 2000)yielded similar findings and indicated that the caesarean section rate during the study period (1985-96) was 24.1/100 deliveries. Rates above 15% seem to do more harm than good (José M. Belizán, 2006).Our study also revealed that cost incurred on 41% deliveries ranged between Rs. 1000 to 5000. This finding is important to help designing innovative health care financing schemes such as pay for performance and the voucher scheme to motivate mothers for safe delivery options. Around 89% mothers reported to have their cord cut by a new blade. This is quite a significant finding for ensuring safe delivery. Unsafe practices have been reported in various studies. A study (Khan Z et al, 2009) in India revealed that 25% umbilical cords were cut using the edge of a broken cup.

This study revealed an important finding pertaining to the decision making process for the place of delivery in the family. As expected, most husbands took the decision for the place of delivery;

however, around 24% mothers independently took the decision, indicating a positive trend of increasing female autonomy in the society. This important finding has implications for the outcome of neonatal illness. More empowered mother with the decision making authority takes the sick child out side home to ensure prompt treatment and decrease the risk for the dire consequences due to delayed treatment. Among various factors, education plays an important role in women's empowerment. Woldemicael & Tenkorang (2010) recommend that policies should focus on strategies for providing better formal education to women in order to promote their empowerment.

A quarter of neonates were given first bath immediately after birth while 35% after day one. It is recommended that first bath should be given at least six hours and preferably 24 hours after the birth of baby, and care should particularly be taken for those babies who are born low birth weight. Smaller babies are relatively at higher risk of getting hypothermia which may lead to loss of baby. In a randomized trial in Uganda, it was found that bathing of new-borns in the first hour after delivery resulted in a significantly increased prevalence of hypothermia (Temperature <36.5 degrees C, at 70 and at 90 min postpartum), despite using the warm water (Bergstorm, Byaruhanga & Okong, 2005).

Social, physical and psychological support to pregnant woman is essential during the entire period in order to relieve her from stress and anxiety, and to ensure smooth progression of pregnancy. Our study showed that most husbands provided different types of support to study mothers during their last pregnancies, which included participation in household chores and allocation of additional money, but only 14% husbands encouraged them to seek health care. Our study also revealed that particular foods were restricted during pregnancy including meat, egg, vegetables; fish etc., Restriction of food during pregnancy is ubiquitous in this part of the world's culture, which results in widespread malnutrition in pregnant women. The restriction of food, particularly meat, vegetables, egg and milk might be an important attributing factor for developing anaemia during pregnancy.

Breast feeding Practices and Importance of continued Breastfeeding during neonatal illness

Our study shows 62% mothers reported practicing exclusive breastfeeding. This is indeed very encouraging. Fjeld et al (2008)found high proportion of breastfeeding with low use of pre-lacteal feeds, use of colostrum, and good attitudes to and knowledge about exclusive breastfeeding,

but few practiced exclusive breastfeeding. Haider et al (2010)in a study in Bangladesh identified several gaps in breastfeeding practices including putting the baby to the breast within the first hour of birth (76% gap), feeding colostrum and not giving other fluids, foods or substances within the first three days (54% gap), and exclusive breastfeeding from birth through 180 days (90% gap). In our study, 30% mothers reported to using milk substitutes, the most significant reported reason was inability of mother to produce milk. Paradoxically, in 22% cases, doctors encouraged to use milk substitutes to the responding mothers. A very important finding was continuation of breast milk during diarrhoea which is a proved positive practice to check negative consequences of diarrhoea.

In the absence of a direct question in the survey questionnaire for estimating the use of colostrum, a proxy indicator was used that comprised of proportion of neonates who were started breastfeeding immediately or on the same day and the proportion of neonates who had been on exclusive breastfeeding since birth. This proxy indicator suggests that about 69% neonates in 5 study districts had received colostrum.

Immunization of neonate

Around 46% mothers verbally mentioned that their neonates were appropriately immunized for TB, Polio and Hepatitis B. Of these, only 30% mothers had the immunization card for validating the immunization status. No literature was found to highlight neonatal immunization coverage to compare for the appropriateness of our finding. A US based study household survey revealed that National new-born hepatitis B vaccination coverage was 42.8% at age 1 day, 48.5% at 2 days, 50.1% at 3 days, 51.1% at 4 days, 51.8% at 5 days, and 52.5% at 6 days. Our finding, though presents cumulative coverage, provides encouraging results keeping the socio-cultural context of study population.

Neonatal Illness

Health seeking behaviours during the illness of study neonates call for attention. Of forty two per cent mothers who reported that their neonates had an episode of illness after birth, only 59% decided to take neonate for outside home treatment, mostly (66%) when condition got worsened. Though not reported in our study, this loss of fair amount of time for taking the decision might lead to further worsening of the condition of neonate.

Utilization of government health facilities has been low among the study population. Of these 14% who opted for a government health facility, indicated that the only reason for attending a government health facility was free availability of medicine. This indicates that community is seriously concerned about seeking good quality care, even if this puts extra financial burden on the entire family. This could be one of the causes of increasing poverty in the country as a huge amount of money is spent on managing doctors' and hospital fee. A significant finding is the changing trends in dependency of mother on the availability of father for seeking permission to take the child out for treatment in case of illness. Grace M. Mbagaya et al (2005)in a community-based study in Kenya indicates that only 30% children were taken to a hospital in case of an illness, mostly due to socio-cultural reasons.

About a quarter of responding mothers reported that neonatal illnesses cost Rs. 1000 or more indicating a high financial burden on already deprived communities. Nonetheless, 93% of responding mothers were fully satisfied by the treatment their neonates had received.

Priority conditions which would prompt the responding mother to take the neonate to a hospital included in decreasing order: fever, diarrhoea, vomiting, getting sicker, difficult breathing, convulsions, and fast breathing. This shows community's priorities for those diseases which actually constitute major burden of neonatal and child morbidity and mortality. Very importantly, diarrhoea and acute respiratory infection are the main killers of children, and both are included in community priority list.

Hygiene and Sanitation

A mixed picture of hygiene and sanitation practices emerged from our study. Despite wide spread availability of water and toilet facilities, caregivers still throw faeces of neonates outside home, and a majority in our study population throw household garbage in the street/yard. There

is inter-district variability in the availability of toilet facilities, which raises the issue of equity and geographical disparity.

Practice of hand washing with soap also portrayed a mixed picture. On one hand, majority of mothers reported to wash hands with soap after using a toilet or attending a child for defecation, and on the other hand, only few reported washing hands with soap before and after eating and cooking. This increases the risk of transmitting infection to new-born, who are always at risk of developing diarrhoea and other infections due to these behaviours of care givers. Caincross, S et al (2010) did a systematic review of existing literature and found that striking effect of hand washing with soap was consistent across various study designs and pathogens with 48% risk of developing diarrhoea. Strina A et al (2003) studied the relationship between hygienic behaviours and the prevalence of diarrhoea among children, and found that diarrhoea was 2.2 times more prevalent among children whose caretakers exhibited unhygienic behaviours (eating without hand washing, dropping baby milk feeder, no hand washing after defecation and many more). In an observational cohort study in Nepal, Rhee V et al (2008)revealed that Birth attendant hand-washing was associated with a statistically significant lower mortality among neonates (RR Adj=0.81, 95% CI: 0.66−0.99) as was maternal hand-washing (RR Adj=0.56, 95% CI: 0.38−0.82).

Brian A et al (2009) conducted a cluster randomized trial to assess the effectiveness of a hygiene promotion intervention using 5 control and 5 intervention villages in a sample of 30. They assessed hand washing practices through structured observation, using electronic motion detector embedded in soap. There was small but significant increase in use of soap in intervention group. This suggests that above presented behaviours can be addressed through effectively designed awareness raising interventions.

5. Conclusions and the Way Forward

The baseline study on Eight Key Family Practices regarding maternal and neonatal health provides important evidence on current knowledge, attitude and practices of the immediate caregiver of a neonate, mostly a mother in our study. The study has been carried out in a reasonably sampled population, representing both urban and rural areas. These findings have important policy implications for improving maternal and new-born health through evidence-based interventions for accelerating the journey to achieving MDG 4 and 5. If current practices and interventions continue, it is less likely that MDG goals would ever be achieved. This study calls for innovative approaches for modifying current practices of mothers and caregivers of neonates, particularly pertaining to nutrition, breast feeding, health care seeking and hygiene and sanitation. The study provides abundant information which could be used for designing Behaviours Change Communication and Advocacy material. The important conclusions and recommendations are highlighted below:

- It is a common myth that women in this socio-cultural setting cannot take a sick child to a health facility in the absence of her husband, irrespective of the condition of the child. Our study shows evidence of positive trends of increasing female autonomy for making decisions regarding the health care of her neonate. There is a need of further re-enforcement of such emerging traits in the society, through appropriately devised advocacy and awareness raising programmes through media and theatre, highlighting the important role of women in maintaining the health of her children and the family. LHVs and LHWs should develop and conduct health education sessions using case studies from their field experience to advocate males and females in their catchment areas. Literacy is an important factor to ensure female autonomy. Policies should focus on devising strategies to provide formal education to women.

- Anaemia is ubiquitous among females in Pakistan; however, high use of parental infusions reported in this study (68%), particularly in urban districts requires re-educating the health care providers regarding the rationale use of parental iron and the role of diet in reverting most of anaemia. Parental infusion of iron requires experience and skills as this may lead to life threatening anaphylactic shock. Provincial and regional ministries of health should identify such irrational practices, devise protocols and train infusions.

- Though most mothers who visited a health facility for ANC used public and private transport, there is a need to advocate provincial and district health care authorities for introducing more out-reach services, and increase the coverage by Lady Health Workers and Community Midwives in order to provide more accessible maternal and new-born health care services.

- There is a need to re-enforce positive and healthy practices demonstrated by the study population including continuous breastfeeding during neonatal diarrhoea and febrile illness, exclusive breastfeeding, and hand washing with soap, particularly after defecating a child. MNCH Programme should develop communication and advocacy material using the findings of this study for wide-spread advocacy campaign through print and electronic media, and health education sessions for the local communities.

- A significant finding of this study is the increasing trend of institutional deliveries and a remarkable decrease in home deliveries. The message from this finding should not be perceived as appreciative for facility-based deliveries as the actual emphasis is on deliveries by Skilled Birth Attendants to ensure safe deliveries. Support through adequate advocacy campaigns of the newly introduced cadre of Community Midwives should be the highest priority of provincial and district health departments in order to promote safe delivery at the door-steps.

- Knowledge of responding mothers regarding danger signs during pregnancy and complications during puerperium has been adequate. However, the health seeking behaviour during such situations has been reported as pathetic. Each pregnant mother should be constantly informed by LHWs, Midwives, Doctors and other concerned paramedics regarding the Importance of danger signs and complications during pregnancy and its preventive and emergency measures. Currently implemented MNCP Programme should continuously focus on strengthening of Emergency Obstetric and Neonatal Care (EmONC) with availability of trained and qualified staff and a development of effective referral network, which are the pre-requisites for supporting and capitalizing mothers' knowledge to reducing maternal and neonatal mortality.

- The study has also identified few undesirable practices by the health care providers which might increase the risk of more negative consequences. These include very high

rate of C-sections, particularly in urban areas, and chest compression or holding the baby upside down and tapping the back in case baby does not cry after birth. It could be very difficult to achieve the goal of reducing high proportion of C-sections due to various reasons including non-availability of written guidelines, care provider's capability to take the right decision and the lack of clinical audit. It is recommended that specific protocol having standard classification system should be developed and adopted for improved care including appropriate selection of mode of delivery particularly the C-section, and relevant staff should be trained in order to rationalize the mode of delivery. In each secondary and tertiary care hospital, a Clinical Audit Committee, comprising of medical superintendent, gynaecologist, senior nurse and 2-3 other relevant staff should be formed for periodical review of clinical management including rationale mode of delivery and other practices. Care providers and mothers should be taught through continuing education regarding appropriate methods of neonatal resuscitation.

There might be some over or under reporting due to the qualitative nature of this study. However, the study has generated very important information which should be carefully reviewed and capitalized on by the intended stakeholders' viz. National Programme for Maternal, New-born and Child Health, National Programme on Family Planning and PHC, and the provincial and regional ministries of health. Considering the findings of our study, the challenge for the provincial departments of health, MNCH Programme and all health care professionals lie in re-establishing the culture of promoting key family practices, particularly regarding health seeking behaviour, breast feeding, preventive maternal and neonatal care and the home-based treatment of neonatal illness.

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7.Annexes

7.1 Project Coordinator and Technical Advisor

	**Dr. Waqar Ahmed Ansari** ***Project Coordinator*** ***M.B.B.S.(Pakistan), M.A. Economics*** He is Programme Director In-charge of PHDC Sindh, Jamshoro. He holds 20 years' experience of working at various administrative and managerial positions in department of health. In the baseline survey he was the project coordinator. He was responsible for overall administration and management of the project activities, establishment of project office at PHDC, selection and hiring of project administrative & field staff and coordination with health department, MNCH Programme, donor agencies, funding agencies, EDO (health) & district focal persons and preparing and submitting project quarterly and annual financial progress reports.
	**Dr. Syed Mohammad Israr** ***Consultant*** ***M.B.B.S., MPH (Germany), MIPH (USA), FCPS*** Result-oriented Public Health and Social Sector Practitioner with hands-on expertise in Project Management, Human Resource Development Monitoring & Evaluation, Health Systems Research, and Community Mobilization. Currently serving National MNCH Programme as Long-term M&E Consultant, from the platform of Technical Resource Facility. recently served Abt Associates Inc. for its "Pakistan Health Systems Strengthening Project" as Senior Monitoring and Evaluation Advisor, has served Concern Worldwide as Senior M&E Specialist and provided technical support to the World Bank funded Family Health Project for the Department of Health in Pakistan. Has trained hundreds of mid-level health care managers from Pakistan, Afghanistan, Tajikistan and other developing countries in Health Systems Management. Possess adequate knowledge and skills of quantitative and qualitative research techniques with practical experience of designing, conducting, mentoring, supervising and evaluating research studies

7.2 Researchers

Dr. Muhammad Shahid Ansari

Principal Investigator, M.B.B.S., M.Sc(Health Policy and Management) Aga Khan

He has about 10 years experience of health system management & research. He is faculty trainer at PHDC and visiting faculty for teaching health management & research protocol development for MPH students at Liaquat University of Medical & Health Sciences.

In this baseline survey, he wrote the methodology, sampling procedure, sample size & ethical consideration. He was the principal investigator managed technical aspects of the project at all levels. He monitored the process of data collection in all five target districts, reviewed the data analysis and final report along with other colleagues.

Miss. Rabia Manzoor

Co-Investigator

MPH (Pakistan), Diploma in Community Development, M.Sc.(Hons.) Physiology.

She is Health Education Officer at PHDC. She is member of Board of Studies & visiting faculty for Jamshoro College of Nursing (JACON). She has about 10 years experience in research & involved in final evaluation of Family Health Project, baseline survey of Women Health Project, Training Need Assessment of health care providers in Sindh under PAIMAN etc. In the baseline survey she wrote proposal of the project with PI. She elaborated, modified & finalized baseline survey questionnaire after pre-testing with project team. She designed instruction manual, reporting material for data collection, facilitated training of data collectors and monitored the data collection process. She wrote different activity reports, produced different documents for final survey report, reviewed data analysis & final survey report. She designed dissemination material on findings of baseline survey.

	**Dr. Nasim Siddiqui** ***Maternal, Neonatal and Child Health Expert*** ***M.B.B.S., Diploma in Public Heath Administration (Pakistan), One year course of MCPS in Gynae/Obs. from JPMC, Karachi.*** She is Program Director In-service unit PHDC. She is Provincial Master Trainer in LHW Program. She has 10 years experience in research. In the baseline survey she revised, modified & finalized the questionnaire after pre-testing with other project team. She involved in pre-testing, developing instruction manual, training of data collection teams & monitoring of data collection process. She helped in writing of survey report. She assisted PC in financial matters related to various project activities.

7.3. Project Administrative Staff

	**Mr. Shahzad Showkat Memon.** ***Accounts/Logistic Officer*** ***M.A Economics*** He was taken on part time basis from PHDC as accounts/logistic officer. He managed the accounts, cashbook, ledger of the research project and logistics for the data collection process.
	**Mr. Nasir Ali Bhatti** ***Computer Operator*** ***M.A. Commerce, Diploma in Computer Science*** He was taken on part basis from PHDC as Computer Operator. He was involved in all types of formatting, editing and writing of different documents related to research project
	**Mr. Muhammad Asif** *Naib Qasid* *Fifth pass* He was taken on part basis from PHDC as Naib Qasid. He was responsible for the support of project staff including research team and caretaker of the provincial office of the project at PHDC

7.4. List of Field Supervisors and Data Collector

Field Supervisors

S.No.	Name	Role	Allocated District
1.	Dr. Zahid Shaikh	Field Supervisor	Karachi Malir
2.	Dr. Kabeer Ahmed Nizamani	Field Supervisor	Hyderabad
3.	Dr. Altaf Ahmed Memon	Field Supervisor	Tando Allahyar
4.	Dr. Muzzamal Solangi	Field Supervisor	Naushehro Feroze
5.	Dr. Shams Siddiqui	Field Supervisor	Jacobabad

Data Collectors

A - Malir (Karachi)

Mr. Danish	Male member
Mr. Abbas	Male member
Ms. Sameeta	Data Collector
Mrs Najma Malik	Data Collector
Ms. Bushra Mumtaz	Data Collector
Ms. Uzma	Data Collector
Ms. Saira Nazish	Data Collector
Ms. Nelum	Data Collector

B – Hyderabad

Mr. Mohammad Hanif	Male member
Mr. Sikandar Ali	Data Collector
Ms. Rizwana Soomro	Data Collector
Ms. Naila Soomro	Data Collector
Ms. Sheeba Siddiqui	Data Collector
Mrs Munawar Qureshi	Data Collector
Ms. Shazia Tanwari	Data Collector
Ms. Sassi Dahri	Data Collector

C – Tando Allahyar

Mr. Ghulam Mohammad	Male member
Mr. Masoom Lashari	Male member
Ms. Umme-Kulsoom	Data Collector
Ms. Sumera	Data Collector

Ms. Shabana	Data Collector
Ms. Nadia Talib	Data Collector
Ms. Shahnaz	Data Collector
Mrs Maryam	Data Collector

D – Naushehro Feroze

Mr. Mujeebullah	Male member
Mr. Abdul Qadir	Male member
Ms. Nighat	Data Collector
Ms. Saira Bashir	Data Collector
Ms. Aiasha	Data Collector
Ms. Sultana	Data Collector
Ms. Famida Samo	Data Collector
Ms Shabana	Data Collector

E – Jacobabad

Mr. Israr Ahmed	Male member
Mr. Lal Jan	Male member
Ms. Mumtaz	Data Collector
Ms. Saira	Data Collector
Ms. Shahzadi	Data Collector
Ms. Farzana	Data Collector
Ms. Asiya	Data Collector
Ms. Shakeela Panhwar	Data Collector

7.5 Field Operation Plan Sheet

Provincial Health Development Centre, Sindh @ Jamshoro

RAF ASSISTED PROJECT
"BASELINE SURVEY OF 08 KEY FAMILY PRACTICES IN SINDH"
DATA COLLECTION IN THE FIELD IN _____DISTRICT

FIELD OPERATION FOR DATA COLLECTION (FINAL)

District Code		Name of UC		Name of FLCF		Urban	Rural

Date	Team No./Male member name	Data Collector Code			Name of Village /Colony Visited	Name of Village /Colony where neonate found
	A					
	B					
	A					
	B					
	A					
	B					
	A					
	B					

A ( ) = ( ) = ( ) =
B ( ) = ( ) = ( ) =

7.6 List of district codes

Provincial Health Development Centre, Sindh @ Jamshoro

RAF ASSISTED PROJECT
"BASELINE SURVEY OF 08 KEY FAMILY PRACTICES IN SINDH"
DATA COLLECTION IN THE FIELD

Working Towards Millennium Development Goals
Research & Advocacy Fund

LIST OF CODES FOR SELECTED DISTRICTS, HEALTH FACILITIES AND DATA COLLECTORS

District Name	District Code	Health Facility Name	Health Facility Code	Team Male Member Name & Code	Data Collector's Name	Data Collector Code
Karachi (Ex-Malir)	01	MCH Model Colony, Liaquat Ali Khan Road, Model Colony, UC-1 (Urban)	01	Mr. Danish (A)	Ms. Syeda Sameeta Kazmi	01
		BHU Malir Shed, Moinabad Stop UC-2 (Urban)	02		Mrs. Najma Malik	02
		MCH Khokhrapar, Khokhrapar No.5, UC-6 (Rural)	03		Ms. Bushra Mumtaz	03
		SGD Adam Hangoro, Near Ground Adam Hangoro Goth, UC-6 (Rural)	04	Mr. Abbas Rhamat (B)	Ms. Uzma	04
		MCH Asso Goth, Bakra Peeri Road, Asso Goth, UC-7 (Rural)	05		Ms. Saira Nazish	05
					Ms. Neelum	06
		SGD Saudabad UC-3	99			
Hyderabad	02	CDFHospital (Urban)	06	Mohammad Hanif (A)	Ms.Rizwana	07
		Govt Dispensary Hussainabad (Urban)	07		Ms.Naila Soomro	08
		RHC Tando Jam (Rural)	08		Ms. Sheeba Siddiqui	09
		RHC Tando Qaiser (Rural)	09	Mr. Sikandar Ali (B)	Ms.Munawer Qureshi	10
		MCHCenter Seri (Rural)	10		Ms.Shazia Tanwari	11
					Ms.Sasui Dahri	12
		Civil Hospital Tando Allahyar (Urban)	11	Mr. Ghulam	Ms. Umme-Kulsoom	13

Tando Allahyar	03	TalukaHeadQuarterHospital Chambar (Urban)	12	Muhammad (A)	Ms. Sumera	14
		BHU Dhinghano Bozdar (Rural)	13		Ms. Shabana	15
		BHU Bukera Sharif (Rural)	14	Mr. Masoom Lashari (B)	Ms. Nadia Talib	16
		BHU Shahnawaz Muhajir (Rural)	15		Ms. Shahnaz	17
					Mrs. Maryam	18
Naushahro Feroze	04	Civil Hospital Noshero Feroz (Urban)	16	Mr. Mujeebullah (A)	Ms. Nighat	19
		TalukaHospital Moro (Urban)	17		Ms. Saira Bashir	20
		BHU Soomer Channar (Rural)	18		Ms. Aiasha	21
		BHU Khunda Khai (Rural)	19	Mr. Abdul Qadir (B)	Ms. Sultana	22
		BHU Chaheen Suleman (Rural)	20		Ms. Famida Samo	23
					Ms Shabana	24
Jacobabad	05	DistrictHeadQuarterHospital Jacobabad (Urban)	21	Mr. Israr Ahmed (A)	Ms. Mumtaz	25
		MCHCenter Jaffarabad, Mohallah Jacobabad (Urban)	22		Ms. Saira	26
		RHC Gari Hassan (Rural)	23		Ms. Shahzadi	27
		BHU Noor Muhammad Pathan (Rural)	24	Mr. Lal Jan (B)	Ms. Farzana	28
		BHU Mubarakpur (Rural)	25		Ms. Aasiya	29
					Ms. Shakeela Panhwar	30

7.7 Attendance Sheet

Provincial Health Development Centre, Sindh @ Jamshoro

RAF ASSISTED PROJECT
"BASELINE SURVEY OF EIGHT KEY FAMILY PRACTICES IN SINDH"
DATA COLLECTION IN THE FIELD IN _____DISTRICT

Working Towards Millennium Development Goals
Research & Advocacy Fund

ATTENDANCE SHEET

S. No.	Name of Data Collector	DATE						
1.								
2.								
3.								
4.								
5.								
6.								
7.								
8.								
9.								
10.								
11.								

7.8. DAILY LOG SHEET

Data Collection in the field for "Baseline Survey of Eight Key Family Practices in Sindh" in _____District

Daily log sheet

District Code		Date		Name of UC	

Q #	Respondent Code	Name of Data Collector	Name of FLCF	Urban/ Rural	Name of Village/Colony	Remarks
1.						
2.						
3.						
4.						
5.						
6.						
7.						
8.						
9.						
10.						
11.						
12.						
13.						
14.						
15.						
16.						
17.						
18.						

7.9 Monitoring Checklist

Development Centre, Sindh @ Jamshoro

Working Towards Millennium Development Goals
Research & Advocacy Fund

RAF ASSISITED PROJECT
"BASELINE SURVEY OF EIGHT KEY FAMILY PRACTICES IN SINDH"

DISTRICT LEVEL MONITORING CHECKLIST

Date _____

Name of Monitor: _____

Designation: _____

Name of District: _____

Name of District Focal Person: _____

Name of Field Supervisor: _____

S.No.	Activity	Yes	No	Remarks/ Comments
(A)	**At District Level Activities**			
1.	Data Collectors trained			
2	Training workshop report available			
3	Attendance sheet of trainee participants available			
4	Meeting held with selected FLCF Incharge by Field Supervisor			
5	Field Operational Plan prepared			
(B)	**Availability of Logistics**			
1.	Kits containing questionnaires, instruction manual stationary and drug samples for data collection teams available			
2.	Daily log sheet for filled questionnaires is prepared and maintained by the Field Supervisor			
3.	Attendance record of data collection team maintained by the supervisor			
4	Weekly progress report of data collection prepared			
(C)	**Community Level Activities**			
1.	Supervisor visited both teams adequately			
2.	ToRs of Field Supervisor is available with Field Supervisor.			

(D) At House Hold Level				
1.	All collected questionnaire filled properly			
2.	All collected consent forms filled properly			
3.	Instruction Manual available with data collectors			
4.	Data collection Kit available to data collectors			
5.	Teams have been present in the field according to the field operation plan.			

(E) On-spot Random Checking of Data Collectors and Questionnaire			
1.	Numbers of data collectors checked		
2.	Code Number of data collectors checked	1.	
		2.	
		3.	
		4.	
		5.	
		6.	
3.	Number of questionnaires randomly checked by the monitor?		
4.	Code Number of questionnaire checked	1.	
		2.	
		3.	
		4.	
		5.	
		6.	
		7.	
		8.	
5.	Re-interview done in order to ensure the validity of collected data	Yes	No
6.	Questionnaire identified and re-interview done to correct the identified deficiencies and missing data	Yes	No
7.	Feedback meeting with data collectors held at the end of the day	Yes	No
8.	Summary of problems with appropriate solutions		

Signature of Monitor: _____

7.10 Some Glimpses from Planning to Data Collection in the Field

Study Team working at PHDC, Jamshoro

Study Team briefs to Director General Health Services of Sindh Dr. Ghulam Sarwar Channa

Training of Field Supervisors at PHDC, Jamshoro

Interviews for the selection of Data Collectors held in the office of Nari Welfare Association, an NGO in district Tando Allahyar

Data Collection Team with Trainers and District Focal Person at District Tando Allahyar

Practicing administration of questionnaire during the training of Data Collection Team at District Tando Allahyar

Data Collection Team with Field Supervisors in District Tando Allahyar

Training of Data Collection Team at THQHospital in Qasimabad, District Hyderabad