Survey Report

Impact Assessment Survey 2019
Key Indicator Report
August 2019

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Foreword:

PPHI SINDH is pleased to disseminate Impact Assessment Survey (IAS) 2019 report during the 26th meeting of Board of Directors. PPHI SINDH has been working in province Sindh for more than 10 years now, with the aim to re-vitalize primary health care services delivery throughout the province. Primarily, PPHI Sindh is an innovative organisation by adopting the model of Public Private Partnership (PPP) approach to provide quality of primary health care services at grass root level.

PPHI SINDH routinely shares all performance indicators like (MNCH services, routine services and other intervetions) with concered stakeholder at district and provincial level by DHIS and periodic performance reports. However, in existing system there was absence of evidence-based findings to identify actual gaps to further enhance and improve the existing services and to validate the achievements and contribution in the improvement of MNCH services, immunization and family planning in rural areas of Sindh, Pakistan.

In order to assess impact, the most conveninent way is through the comparison of baseline, midline and end line data. However, due to the unavailability of baseline data for primary health care facility catchment area level (i.e at the time of inception of PPHI Sindh), impact assessment survey was designed to compare results between health situation of PPHI Sindh managed health facilities'catchment population and of Department of Health (DoH) managed health facilities' catchment population.

The report compares results for key MNCH, routine care, immunization and nutrition indicators for PPHI and DoH managed primary health care facilities catchment population. The survey report, in no way intends to criticize or demoralize the efforts of DoH in managing primary health care facilities under their umbrella. Furthermore, the second section compares the results between PPHI BHU level health facilities with BHU plus level facilities on key maternal health indicators.

The impact assessment survey was carried out in year 2019 by Research Wing of PPHI Sindh. The purpose of the survey was to provide evidence based findings for key health indicators to policy makers, planners and provincial stakeholders vis-à-vis evidence based decision making, program designing, policy drafting and evaluation of PPHI performance.

Impact assessment survey is providing a unique source of information, in which more than 25 indicators were covered for 20 primary health care level facilities and most importantly it is based on the type of helath facility like (BHU, MCHC/BHU plus) and according to the type of management of health facilities i.e. PPHI or DoH managed health facilities.

The IAS survey data collection tools were adapted using standardized latest MICS, PDHS and NNS survey tools.

Acknowledgements

Message from Chairman, Board of Directors, PPHI SINDH

From operating in only one district (Kashmore) in 2007 to currently 22 districts, PPHI Sindh has come a long way. From initial challenge of renovating and upgrading the primary healthcare infrastructure along with the induction of qualified and skilled human resources to making it functional and accessible for the community, over the period of more than 10 years, services provided by PPHI Sindh have evolved significantly including MNCH Services (ANC, PNC, NVDs, family planning), immunization, nutrition, diagnosing and managing of TB patients, radiological and laboratory services, ambulance for referral facilitation, and conversion of more than 300 BHUs to the BHU plus where round the clock MNCH services are available. Owing to its continuous hard work and success, it has been observed that almost all MNCH indicators, have been improved tremendously which is evident in last PDHS 2017-18 survey findings for rural Sindh.

Taking a step forward, to validate the achievements and contribution in the improvement of MNCH services, immunization, family planning and other services in Sindh, PPHI Sindh in year 2018 established its Research Wing for developing evidence-based strategies and contributing towards achievement of Sustainable Development Goals (SDGs). This Impact Assessment Survey is a community-based research project carried out by PPHI Sindh. By generating data on key indicators for children and women this survey intends to help shape policies for improvements in their lives.

As PPHI Sindh's Chairman, I am fully confident efforts like this research activity will help the organization achieve further milestones in providing state of the art primary health care services.

Mr. Fazul-ur-Rehman
Chairman (BOD),
PPHI Sindh

Message from CEO, PPHI SINDH

Since I assumed the responsibilities as CEO of PPHI Sindh in current year, my focus, in addition to improvising the provision of primary health care services, has been to initiate research activities for not only validating our existing data but to identify and rectify the gaps in our system if any on the basis of evidence-based practices. The rising demand for quality primary health care, due to rapidly growing population and not so rapidly improving living conditions, necessitate the evidence-based policy making for our health systems to become more efficient and sustainable.

Research enables us to examine our past in present to improvise in future. This Impact Assessment Survey, therefore, is an effort to identify how professionally our health care providers have been contributing in essential MNCH and routine care services, and what gaps need to be bridged. This report provides the policy makers an opportunity to shape their future policies and actions to address the weaknesses and gaps identified through this Survey. It is evident from the key indicators results, that there is growing demand among the population for primary health care services and where there is lack of essential primary health care services people have opted to seek care at private facilities bearing the costs out of pocket or have approached secondary or tertiary care hospitals for the services that should be provided at the community level by strengthening primary health care system.

I acknowledge and appreciate the efforts of all PPHI Sindh employees that were directly or indirectly part of this survey for successful execution and completion of this project.

Mr. Abdul Wahab Soomro
Chief Executive Officer,
PPHI Sindh

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Acronyms

ANC	Antenatal care
ARI	Acute Respiratory Infection
BCG	Bacille Calmette-Guerin
BHU	Basic Health Unit
BHU+	Basic Health Unit Plus
CAP	Catchment Area Population
CEO	Chief Executive Officer
CPR	Contraceptive Prevalence Rate
COO	Chief Operating Officer
DHQ	District Head Quarter
DMU	Data Management Unit
DO	District Office
DoH	Department of Health
E-MWRA	Ever-Married Women of Reproductive Age
EPI	Expanded Program of Immunization
GoS	Government of Sindh
HF	Health facility
HO	Head office
IAS	Impact Assessment Survey
MCHC	Maternal and Child Health Center
MICS	Multiple Indicator cluster survey
MNCH	Maternal, Neonatal and Child Health
MWRA	Married Women of Reproductive Age
NNS	National Nutritional Survey
NTP	Neonatal Tetanus Protection
PDHS	Pakistan Demographic & Health Survey
PHC	Primary Healthcare Center(s)
PHCF	Primary Health Care Facility
PHCFs	Primary Health Care Facilities
PNC	Post-natal care
PSU	Primary Sampling Unit
SSU	Secondary Sampling Unit
RHC	Rural Health Center
SDG	Sustainable Development Goals
SRSO	Sindh Rural Support Organization
TB	Tuberculosis
THQ	Taluka Head Quarter Hospital
TT	Tetanus Toxoid
U5	Children under 5 years of age
Under-5	Children under 5 years of age
WRA	Women of reproductive age

Background:

Health Care Context in Pakistan

Pakistan is situated in south Asia and has an area of ~800,000 sq. kilometers and a population of more than 200 million 2017 (PBS, 2017). Pakistan is a federation, consisting of four provinces: Sindh, Khyber Pakhtunkhwa, Punjab and Balochistan, and three territories: Islamabad Capital Territory, Gilgit-Baltistan and Azad Kashmir.

In the last few decades several social, political, economic, law and order issues added by successive natural catastrophes have overburdened the already fragile health care system of Pakistan. In comparison to its neighbors, country has adverse health indicators such as high infant, under-five and maternal mortality rates and even higher burden of vaccine preventable diseases such as measles, polio, tuberculosis and hepatitis B, in addition to a rising trend in the non-communicable diseases and as well as alarming situation of nutritional indicators. (WHO, 2013).

Healthcare Context of Sindh

Sindh is the second most populous province of Pakistan with a population of more than 50 million people (PBS, 2017). Sindh is divided into 5 regions (Karachi, Hyderabad, Larkana, Sukkur and Mirpurkhas), which are further divided into 29 administrative districts, out of which 22 are predominantly rural. For decades, the province, especially the rural districts, has experienced poorly developed health care infrastructure, resulting in dismal health care services provision and even poorer MNCH indicators. The under-five morality rate in Sindh is second highest in the country at 77 deaths per 1000 live births (NIPS 2019). Nearly 1 out of 2 children (45.5%) under-5 years in Sindh are stunted, 23.4% are wasted and 41.3% are underweight (UNICEF, 2019). Nonetheless, there has been some improvement for MNCH indictors like ANC by skilled provider, increase over the years in deliveries conducted by skilled birth attendants and post-natal health checkups for mothers and newborns. (NIPS, 2019).

PPHI Sindh

After a successful Public-Private Partnership (PPP) initiative in urban hospitals of Sindh (Zaidi, S, 2012), Government of Sindh (GoS) took this innovative approach to revitalize the primary health care infrastructure in rural area which was either sub-optimally operational or altogether dysfunctional. In 2007, GoS partnered with Sindh Rural Support Organization (SRSO) and outsourced the management of its PHC infrastructure under the name of "People's Primary Health Care Initiative" (PPHI) program. PPHI Sindh has now become a separate entity and is registered under section 42 of the Companies Ordinance, 2007. The primary goal of PPHI is to ensure availability of healthcare services specially MNCH services in rural areas of Sindh, by managing staff, logistics, essential medicines, as well as capacity building of staff of public primary health care facilities. PPHI Sindh started its journey from Kashmore, gradually expanding to other districts and at present it is fully operational in 22 districts of Sindh. Currently, PPHI SINDH manages overall 1176 Primary health care facilities, of which 10 are RHC, 657 are BHUS, 29 are MCHCs, 448 are Dispensaries and 32 are of other categories.

Background:

Rationale:

PPHI Sindh has been providing quality health care services to improve health status of rural Sindh but yet evidence-based impact has never been generated. There was a dire need to assess the performance of current MNCH and other routine care services provided by PPHI Sindh.Based on survey findings, strategies will be developed to further strengthen the health care services to achieve Sustainable Development Goals (SDGs).

Main Objectives:

Based on the rationale, following were the main objectives:

- To evaluate the impact of intervention package on MNCH indicators including routine health care services in the catchment area population (CAP) of PPHI managed health facilities in comparison of Department of Health (DoH) managed primary healthcare facilities.
- To evaluate the impact of PPHI BHU plus level health facilities' services delivery in its catchment area population in comparison to PPHI BHU level health facilities.

Secondary objectives:

- To compare PPHI Sindh and DoH primary health care facilities contribution in providing antenatal care, delivery care and post-natal care services in their respective catchment areas.
- To compare PPHI Sindh and DoH primary health care facilities' contribution in providing family planning services in their respective catchment areas.
- To assess nutritional status of Under-5 children in Dadu and Jacobabad
- To assess breastfeeding practices in Dadu and Jacobabad
- To assess full immunization coverage in Dadu and Jacobabad to evaluate the impact of PPHI Sindh's management of EPI program in Dadu.
- To compare PPHI SINDH and DoH primary health care facilities' contribution in providing care for childhood morbidities in their respective catchment areas.
- To compare BHU Plus and BHU level facilities contribution in providing antenatal, delivery and pos-natal care services in their respective catchment area populations.
- To compare BHU Plus and BHU level facilities' contribution in providing family planning services in their respective catchment area.
- To assess nutritional status of under-5 children in BHU Plus vs BHU level facilities.

Indicator assessed in Impact Assessment Survey:

1. Maternal Health
    1.1. Ante Natal Care
- 1.1.1. ANC-1: At least one antenatal care visit by skilled provider
- 1.1.2. ANC 4+: At least 4 or more ante natal care visits by any provider
- 1.1.3. NTP: (Neonatal Tetanus protection) 2 or more doses of Tetanus Toxoid during antenatal visits
- 1.1.4. Antenatal care services provider

    1.2. Delivery
- 1.2.1. Institutional Delivery
- 1.2.2. Home delivery
- 1.2.3. Delivery care services provider

    1.3. Post Natal Care
- 1.3.1. Post-natal care for mother
- 1.3.2. Post-natal care services provider for mother

    1.4. Family Planning
- 1.4.1. Contraceptive prevalence rate (any method)
- 1.4.2. Contraceptive prevalence rate (modern methods)
- 1.4.3. Family planning services provider

2. Child Health
    2.1. Immunization
- 2.1.1. Full immunization for 12-23 months children (Basic antigens)
- 2.1.2. Full immunization for 24 to 35 months children (all antigens)
- 2.1.3. Tuberculosis immunization coverage
- 2.1.4. Polio immunization coverage
- 2.1.5. Pentavalent immunization coverage
- 2.1.6. Pneumococcal Immunization Coverage
- 2.1.7. Measles immunization coverage

    2.2. Child Morbidity
- 2.2.1. Under 5 children with diarrhea
- 2.2.2. Under 5 children with symptoms of Acute Respiratory Infection (ARI)
- 2.2.3. Care seeking for diarrhea
- 2.2.4. Care seeking for ARI

3. Nutrition
    3.1. Nutritional Status (Under-5 Children)
- 3.1.1. Stunting
- 3.1.2. Wasting
- 3.1.3. Underweight

    3.2. Breastfeeding Practices
- 3.2.1. Early initiation of breastfeeding
- 3.2.2. Exclusive breastfeeding

Methodology:

The design of this study is cross-sectional. Prospective cross-sectional surveys (baseline, midline, end line) are required to evaluate the performance of interventions over the period of time. However, no baseline or midline surveys were conducted regarding provision of primary health care services and MNCH indicators at the health facility catchment area level at the time of inception of PPHI SINDH led services. Therefore, in this study we also surveyed DoH managed primary health care facilities' catchment areas and used its results as a proxy for baseline data to compare the performance of PPHI managed health facilities.

Study Sites

As per the availability of funds, the survey was restricted to be conducted in only 2 districts i.e Jacobabad and Dadu. Jacobabad was selected, as the survey apart from assessing MNCH and routine care indicators also aimed to assess the improvement in nutrition indicators in Jacobabad where PPHI SINDH is currently carrying out nutrition interventions through partnership with Nutrition Support Program (NSP) of Government of Sindh. While Dadu was selected to evaluate the coverage of Expanded Program of Immunization (EPI) program as since 2016 the management of EPI program of Dadu is under PPHI SINDH's management.

Figure 1: Survey Districts
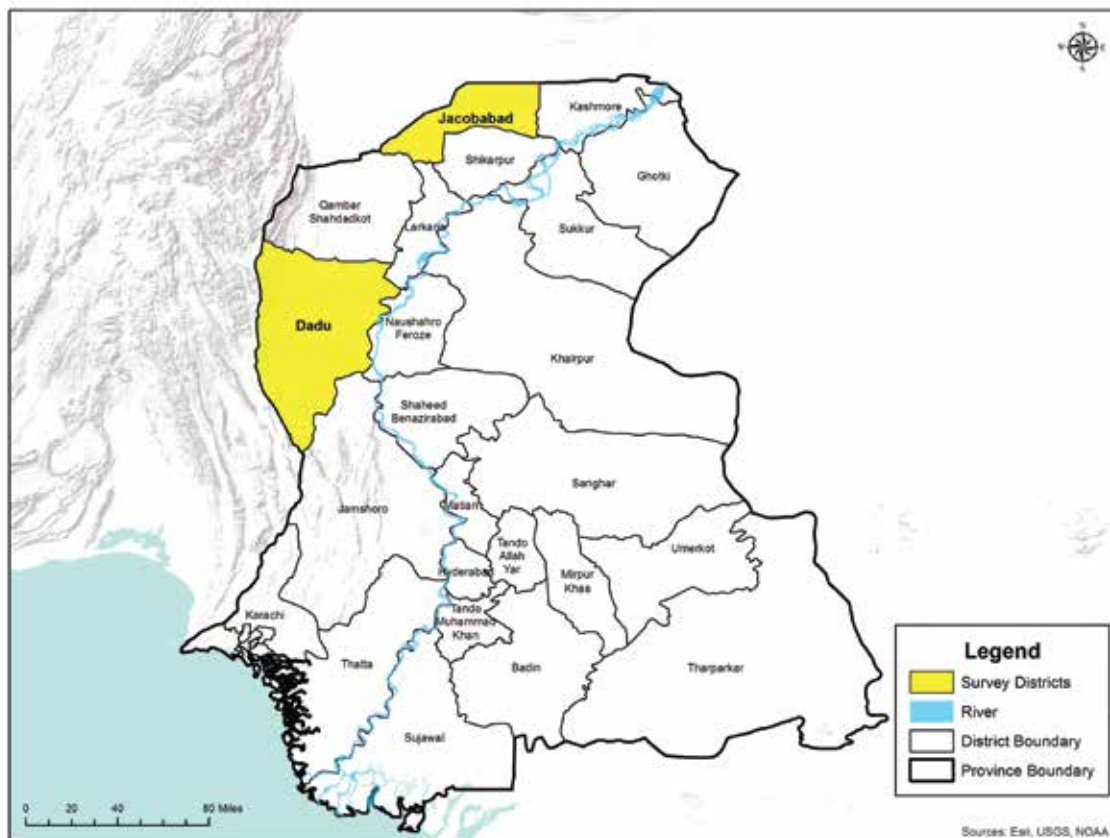
Sampling Strategy:

Health facility catchment area was defined as the primary sampling unit (PSU) of this survey. All the primary health care facilities (PHCFs) of district Dadu & Jacobabad were divided into three-performance categories i.e good, fair and poor based on their performance in following indicators of DHIS; number of OPD visits, number of family planning consultancies provided, number of ANC consultancies provided and number of deliveries performed at the health facility. Health facilities were then selected from each performance category using equal proportion for PPHI and DoH management i.e one of poor performance category, one of fair category and three of good category for both PPHI and DoH separately. In general, ten health facilities were selected from each district, including five from PPHI and five from DoH management. However, out of 5 at least two BHU+ or MCHC level health facilities depending on PPHI or DoH management respectively were selected for further comparison of results between types of primary healthcare facilities. Following 20 health facilities from both districts were selected in this survey.

Table 1: Name, type and location of health facilities selected for IAS in Jacobabad

Health Facility Name	Type of Health Facility	Managed by	Taluka/Tehsil	UC
BHU Plus Sheranpur	BHU Plus	PPHI	Garhi Khairo	Muhammad Pur
BHU Plus Bangul	BHU Plus	PPHI	Thul	Deenpur
BHU Plus Jaungul	BHU Plus	PPHI	Thul	Jaungul
BHU Banglow Saydan	BHU	PPHI	Jacobabad	Garhi Chand
BHU Sono Khan Rind	BHU	PPHI	Jacobabad	Ahmed Pur
MCHC Garhi Khairo	MCHC	DoH	Garhi Khairo	Garhi Khairo
MCHC Shaheed Benazeer Bhutto	MCHC	DoH	Jacobabad	Shah Ghazi
BHU Dadpur	BHU	DoH	Jacobabad	Nawra
BHU Sardar Abdul Rahim Khoso	BHU	DoH	Jacobabad	Qadir pur
BHU Khairo Wagho	BHU	DoH	Jacobabad	Ahmed pur

Table 2: Name, type and location of health facilities selected for IAS in Dadu

Health Facility Name	Type of Health Facility	Managed by	Taluka/Tehsil	UC
BHU Plus M. Bilawal	BHU Plus	PPHI	Dadu	M. Bilawal
BHU Plus Allah Yarani	BHU Plus	PPHI	Johi	Bahawalpur
BHU Burrira	BHU	PPHI	KN Shah	Burrira
BHU Mouder	BHU	PPHI	Dadu	Moudar
BHU Samtani	BHU	PPHI	Dadu	Yar Mohd Kalhoro
MCHC Masan Road	MCHC	DoH	Dadu	UC-3
MCHC Shah Panjo	MCHC	DoH	Mehar	Shah Panjo
BHU Mitho Babar	BHU	DoH	KN Shah	Mitho Babar
BHU Jhallo	BHU	DoH	Dadu	Siyal
BHU Pipri	BHU	DoH	Dadu	Pipri

Jacobabad

Figure 2: Geographical location of health facilities selected for IAS in Jacobabad
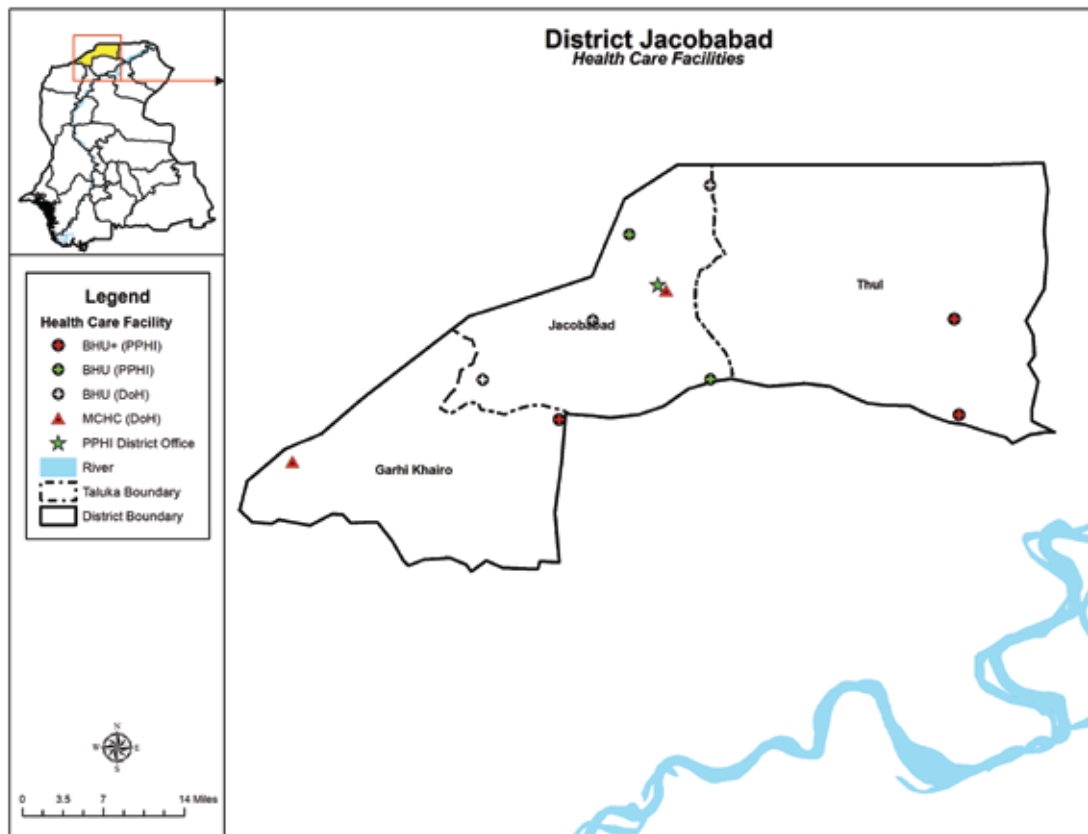
Dadu

Figure 3: Geographical location of health facilities selected for IAS in Dadu
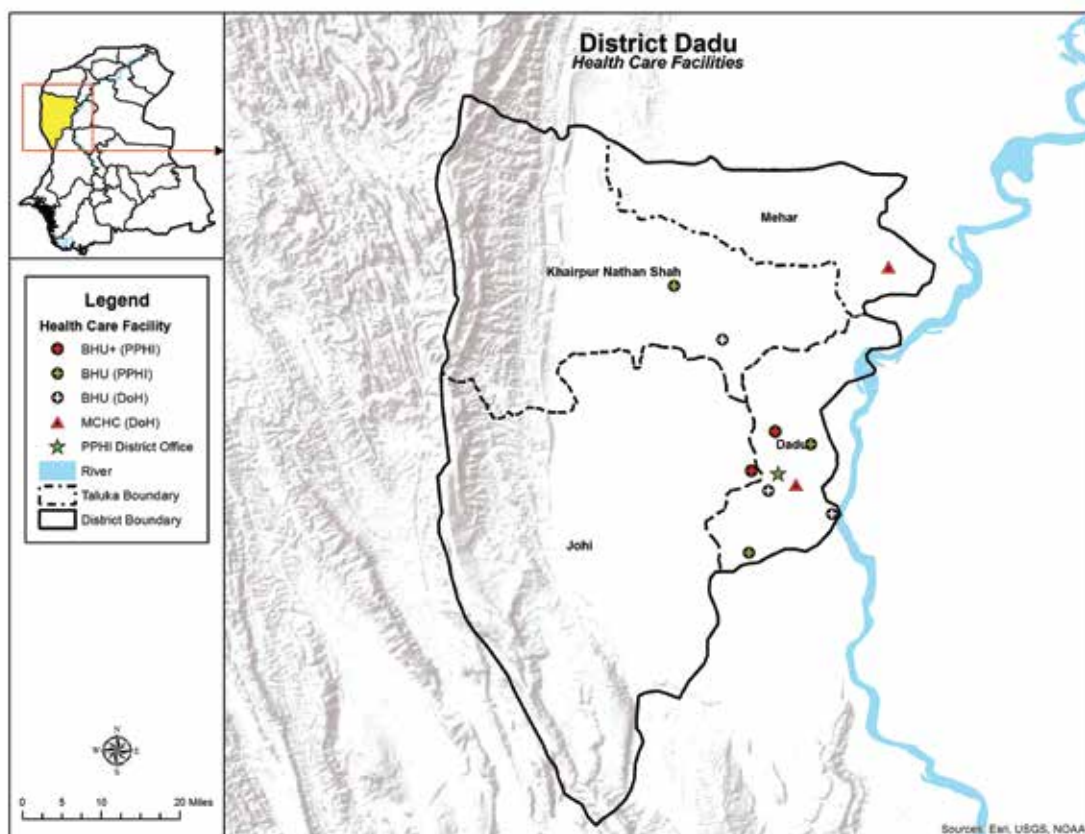
After the selection of PSUs, all the health facility catchment areas were freshly demarked and household listing was performed. To ascertain, the catchment area of health facility, we approached all the selected health facilities, and obtained the list of villages and nearby towns of their catchment areas. In general, the health facilities catchment areas started from the facility itself and extended up to 5-7 KM radius for facilities located in rural area, whereas the few facilities located in densely populated neighborhoods, catchment area were restricted to 1-2-kilometer radius. Our line listing team, physically verified each of the catchment areas, and included in list any village or town in vicinity which was not initially mentioned in the list of villages obtained from health facilities.

Households were considered as a secondary sampling unit (SSU) in this survey. A household was defined as any person or a group of people, living under one roof and sharing kitchen or living expenses and consider one member as the head of the household. Each structure and household within the catchment area were numbered and information on number of family members, males, females, married women of reproductive age (MWRA) of 15-49 years were obtained. After obtaining complete household lists of the catchment area, randomly 1002 households were selected to be interviewed from the household list of each health facility.

Survey Activities

Identification and Recruitment of field staff:
Research field staff was hired as per PPHI SINDH recruitment policy of PPHI SINDH. Positions were advertised in newspaper and online. A written test was conducted to assess the knowledge separately for all the categories of required staff, followed by personal interviews. An official, nominated by Deputy Commissioners Office of the concerned districts was invited in the selection panel.

Survey Field Teams
In total, four data collection teams were established. Two teams from each district. Each team consisted of one field supervisor, and 10 enumeratos/measurers divided into five sub-teams. Hence each field supervisors was responsible for five sub-teams each consisting of one enumerator and one measurer. Field monitoring was performed by core research team and monitoring and evaluation teams of PPHI SINDH district offices.

Line Listing:
Separately 8-line listers were also recruited, i.e. 4 from each district 1 month prior to data collection. line listing activity started from 1st January 2019 till 31st March 2019. Line listing teams were supported by local community facilitators as they visited each village in the catchment area of the selected health facility prior to data collection for demarcation as per catchment area lists obtained from the HF. During line listing activity, all structures and households were listed and assigned a unique ID. Additionally, basic data including number of family member by type of gender, number of MWRA (15-49 years of age), number of under 5 and under 2 children were obtained.

Training of Field Staff:

Training of line listing staff was conducted collectively at PPHI Sindh DO Dadu for both districts. While training of data collection team was conducted separately at each district. Training of data collectors lasted 12 days at each district. DC training included lectures on survey objectives, survey design, interviewing techniques, and detailed content of questionnaires. Mock interviews between participants were part of the training to gain practice and fluency in asking questions. Each training concluded with 2 days of field practice using both paper-based and CAPI questionnaires in order for teams to gain practical experience before the actual data collection of randomly selected households.

Survey field work (including line listing and Data collection) began in January 2019 in each district and was concluded in May 2019 lasting five months at both sites. During fieldwork, there were some challenges. Inaccessibility to some of the villages required special arrangements to be made to reach the difficult to reach areas. Different social mobilization strategies during field work were implemented that included effective communication mechanism, recruiting field teams from local communities and approaching community leaders, religious scholars, medical Officer in charge of the health facilities and lady health workers to minimize the refusal rate.

Target Population

Impact assessment survey had as its target groups:
- E- MWRA (Ever-Married Women of Reproductive Age)
- Children Under-5 Years of Age.

Questionnaire

The data collection tool comprised of three modules i.e A , B and C and a fourth component of anthropometry measurements : A) a household questionnaire collecting data on key demographic information of all de jure members of the household (usual residents), socioeconomic conditions and birth information; B) an individual questionnaire for all ever-married women age 15-49 years; assessing family planning methods use, antenatal care, delivery care and post-natal care C) an under-5 children questionnaire, administered to mothers (or primary care takers) for all the children under 5 years of age living in the household which asked questions regarding breastfeeding practices, immunization status and morbidity.

Anthropometry Component: In addition to the administration of questionnaires, survey teams also measured the weight, height and mid upper arm circumference (MUAC) of children age under 5 years.

The data collection tools were customized using (MICS, NNS and PDHS) model questionnaires and translated into Sindhi and were pre-tested in 5 villages at each district, that were not part of catchment area of any health facility selected for this survey. Based on the pilot testing, necessary correction or modifications were made to the wording and translation of the questionnaires. The IAS 2019 data collection was conducted through Computer Assisted Personnel Interviews (CAPI) using android based software application developed by Data Management Unit (DMU), Research Wing PPHI SINDH.

Survey Coverage

Dadu

Household

Sampled: 10.020

Occupied: 9.463

Interviewed; 8.645

Household response rate: 91.4%

Ever Married Women

age 15-49 years

Eligible: 7.492

Interviewed: 7.244

Women's response rate: 96.7%

Children Under 5 Years

Eligible: 6.150

Mother/caretaker interviewed:

5.715

Children under 5 years response

rate: 92.9%

Jacobabad

Household

Sampled: 10.020

Occupied: 9.528

Interviewed: 8.829

Household response rate: 92.7%

Ever Married Women

age 15-49 years

Eligible: 7.339

Interviewed: 7.160

Women's response rote: 97.6%

Children Under 5 Years

Eligible: 6.486

Mother/caretaker interviewed:

5.984

Children under 5 years response

rate: 92.3%

Head of the Household Characteristics

Head of the Household Characteristics

Head of Household's Gender (%)

Dadu: 97.5
Jacobabad: 97.3

Dadu: 2.5
Jacobabad: 2.7

Socioeconomic Status (%)

Poorest
6
33

Poor
17
23

Middle
26
14

Rich
26
13

Richest
24
16

Educational Status (%)

None
57
70

Primary
14
8

Secondary
15
12

Intermediate & +
14
10

Occupational Status (%)

None/Retired	8	9
Unskilled manual labor	22	23
Skilled manual labor	22	12
Agricultural	28	42
Sale/Services/Professional	16	10
Other	4	4
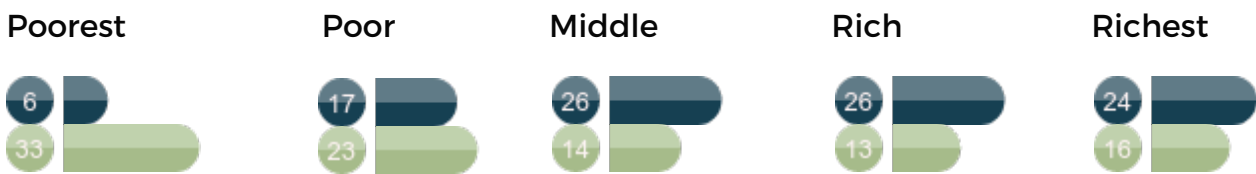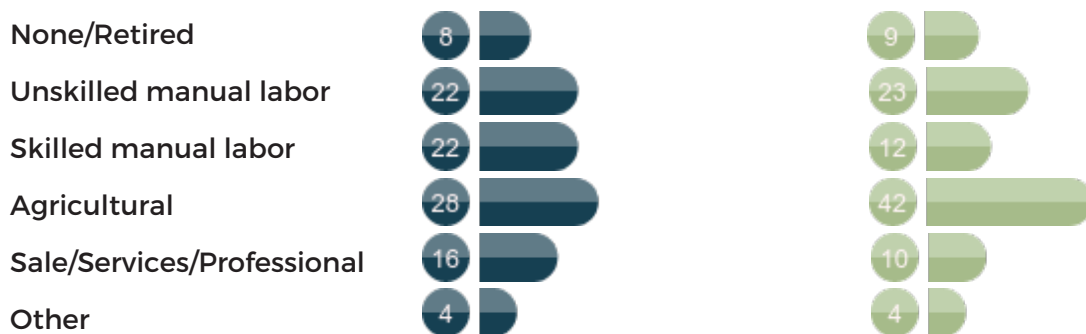
Results:

Antenatal Care

Antenatal care (ANC) refers to the care provided to pregnant women and their fetus. During ANC, a pregnant woman receives a number of interventions which are vital for the well-being of both the mother and her fetus. World Health Organization (WHO) recommends at least four or more ANC visits in low- and middle-income countries (LMIC) (WHO, 2016).

This survey measured three relevant ANC indicators; ANC-1 i.e. ANC received at least once by a skilled health personnel; ANC 4+ i.e. ANC received at least four times by any provider and Neonatal Tetanus protection (NTP) i.e. 2 or more doses of Tetanus Toxoid vaccine received during pregnancy with a minimum of 1 month of space (WHO, 2016).

The figure 4 shows the results for the above mentioned three indicators of antenatal care for Dadu and Jacobabad in comparison with PDHS 2017-18 results for rural areas of Sindh for each indicator (NIPS, 2008). In general, results for Dadu were found to be at par with those of PDHS. However, for Jacobabad IAS found comparatively low proportion of pregnant women who received at least 4 or more ANC visits and low proportion of those women who received at least 2 doses of TT vaccine. As shown in the figure below; only 31.3% and 20% of the women with a live birth in the 2 years before the survey had received at least 4 antenatal care visits in Dadu and Jacobabad respectively. While 45.5% and 41.2% of women with a live birth in 2 years preceding the survey had received recommended doses of tetanus toxoid injections to protect their last live birth against neonatal tetanus.

Figure 4: District wise prevalence of antenatal care coverages for ANC-1, ANC 4+ and NTP
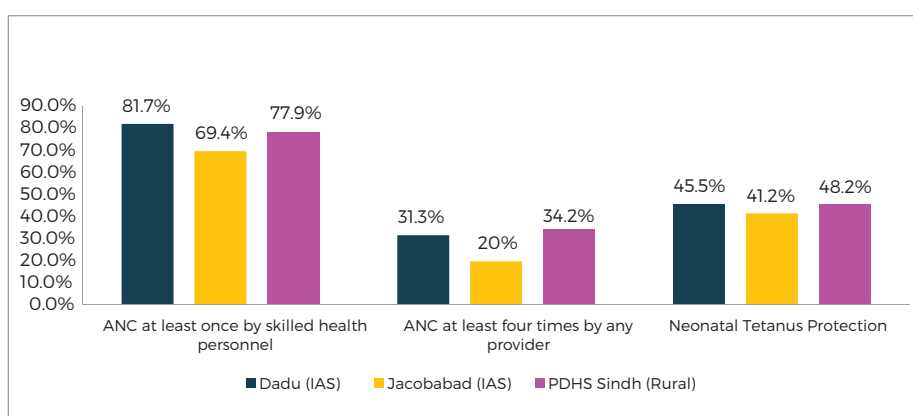
To evaluate the role of primary health care facilities in providing ANC services, we assessed the contribution of PPHI and DoH primary healthcare facilities (PHCF) in providing ANC services in their respective catchment areas i.e ANC provided by PPHI PHCFs (BHU/BHU+) in PPHI health facilities' CAP and ANC provided by DoH PHCFs (BHU/MCHC) in their respective CAP.

The results show significant differences between both catchment areas (p<0.001). In Dadu, DoH PHCF's contribution was found to be 2.4 % in its catchment areas, whereas in PPHI catchment area, 42.3% of mothers received their ANC services from PPHI health facilities itself (Figure 5). Similar trends were observed in Jacobabad (p<0.001), where PPHI performance was observed to be 47.3% in comparison to 2.7% by DoH for their respective catchment areas (Figure 6).

With regards to other contributors in providing ANC services, private sector which includes private clinics and private hospitals seemed to be dominating in DoH catchment areas of both districts with more than 60% of women seeking ANC services from private providers. While in PPHI catchment areas, as evident from figure below, PPHI PHCFs were the main service providers in both districts, followed by private sectors and government referral facilities which included RHC, THQ and DHQ level hospitals. Furthermore, nearly 7% of pregnant women from Dadu and 8% from Jacobabad of DoH catchment areas received antenatal care services from PPHI health facilities.

It can be inferred from the results that, PPHI PHCFs are providing quality and accessible services. This subsequently results in decrease in out of pockets expenditures by minimizing the number of people acquiring services from private sectors and as well as reduction in burden from Govt referral facilities which include Rural Health Center (RHC), Taluka Head Quarter (THQ) hospitals, and District Head Quarter (DHQ) level hospitals.

Figure 5: Catchment area wise contribution of antenatal care service providers (Dadu)
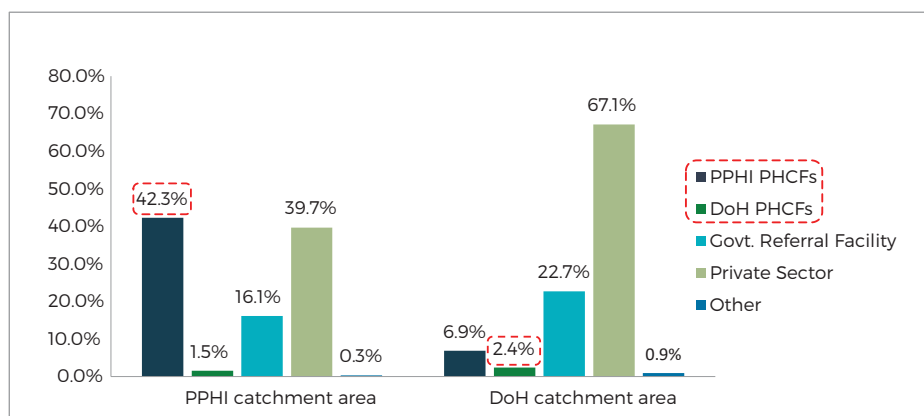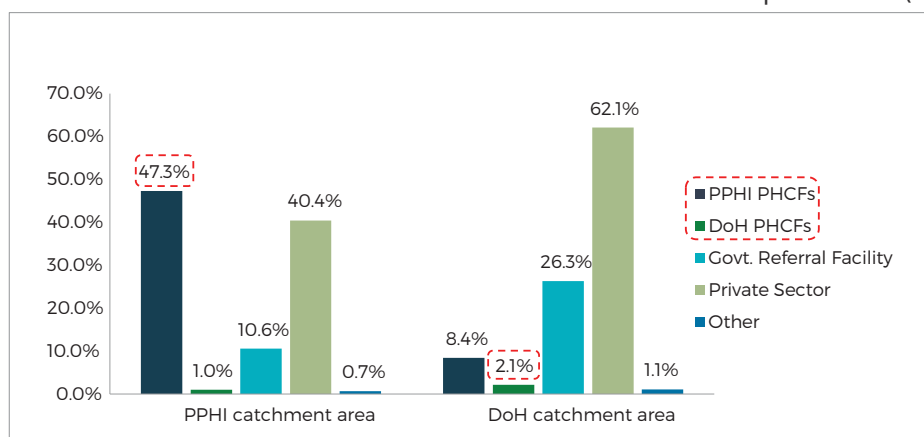

Figure 6: Catchment area wise contribution of antenatal care service providers (Jacobabad)

Delivery Care:

Figure 7 presents percent distribution of MWRA who had a live birth in the two years preceding the survey according to their place of delivery. As shown in figure, 61.7% and 66.0% of women delivered their most recent live birth in a health facility in Dadu and Jacobabad (p<0.001) respectively, which is slightly higher than 58.2% as reported by PDHS (NIPS 2018).

Figure 7: District wise proportion of institutional and home deliveries in comparison with PDHS 17-18 results
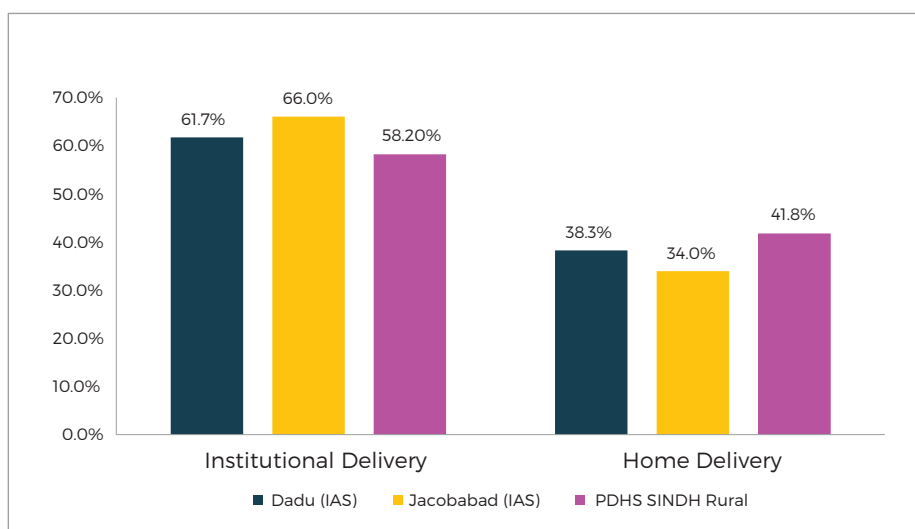

Figure 8 & 9 show percent distribution of type of health facility where MWRA delivered their most recent live birth in 2 years preceding the survey. It is observed that in PPHI catchment areas of both districts, PPHI PHCFs are the major service provider for delivery care services (Dadu: 34% & Jacobabad: 53%), followed by private healthcare facilities. While in DoH catchment areas of Dadu and Jacobabad, the role of DoH PHCFs is minimal (4% & 2.7%, respectively). The minimum results are due to the fact that in BHU level primary health care facilities managed by DoH in Jacobabad, MNCH services are still nonfunctional, requiring beneficiaries to seek services either from private providers or from Government referral facilities which include RHCs, THQ and DHQ. Moreover, it is also observed that around 9% of MWRA belonging from DoH catchment areas of each districts, had received delivery care services at some PPHI PHCFs, reflecting the demand for primary health care services at community level.

Figure 8: Catchment area wise contribution of delivery care service providers (Dadu)
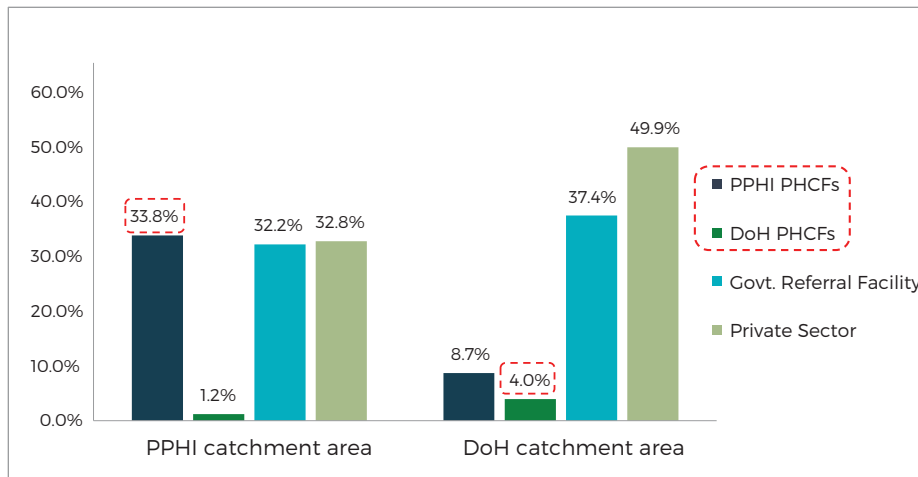
Figure 9: Catchment area wise delivery care service providers (Jacobabad)
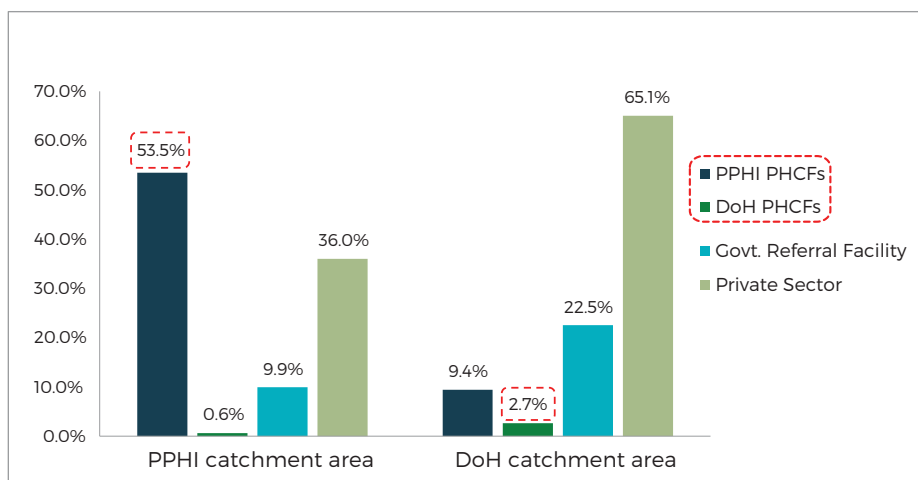
Regarding other contributors in providing delivery care services in both catchment areas, private sector is dominating in DoH catchment areas of both district accounting for nearly 50% of institutional deliveries in Dadu and 65.1% in Jacobabad, followed by Government referral facilities. Whereas in PPHI catchment area, private sector's contribution is relatively low as compared to DoH catchment area with only 32.2% and 36% of women delivering their babies in private clinics or hospitals in Dadu and Jacobabad respectively.

Postnatal Care:

According to World Health Organization guidelines for postnatal health checkups, mothers should receive at least three additional postnatal health checks after delivery excluding initial checks at health facility or at home at the time of birth (WHO, 2015). We analyzed percentages of last live births in the 2 years preceding the survey for which women and newborns received a postnatal care visit during the first 6 weeks after delivery. PNC visits exclude initial health check-ups performed after delivery at the health facility if delivered at health facility or at home before the departure of birth attendant from home. In Dadu 33.6% of MWRAs reported to have received at least 1 PNC visit, as compared to 26.9% in Jacobabad (p<0.001). These results are higher as compared to 18.6% reported by MICS 2014 results for Sindh rural (Figure 10) (UNICEF, 2015).

Figure 10: District wise postnatal care coverage for mothers
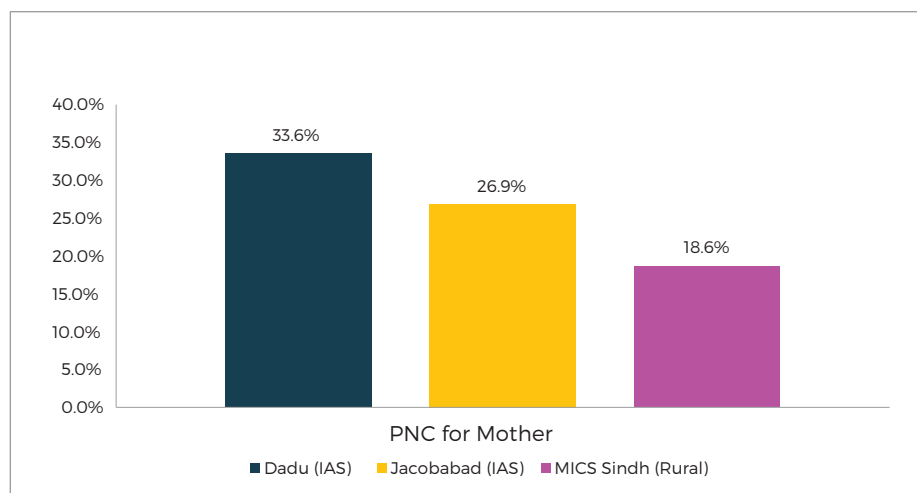
IAS also assessed about the type of service provider from mothers who received at least one postnatal care visit within 6 weeks after delivery. Figure 11 and 12 shows percent distribution of MWRA for PNC service provider in both districts demonstrated that PPHI PHCFs are main service providers for PNC services among PPHI catchment area population. Nearly 40% and 60% of mothers from PPHI catchment areas received PNC visits at PPHI health facilities in Dadu (figure 11) and Jacobabad (figure 12) respectively. In comparison, percent distribution of mothers from DoH catchment areas in both districts revealed least contribution by DoH PHCFs. However, approximately two-third of MWRAs from PPHI catchment area of Dadu and one-third from Jacobabad availed PNC services from non-PPHI service providers that included private facilities and government referral facilities (RHC, THQ, DHQ). The difference in results for both types of catchment areas (PPHI/HD) in both districts were found to be significant (p<0.001).

Figure 11: Catchment area wise contribution of postnatal care service providers-Dadu

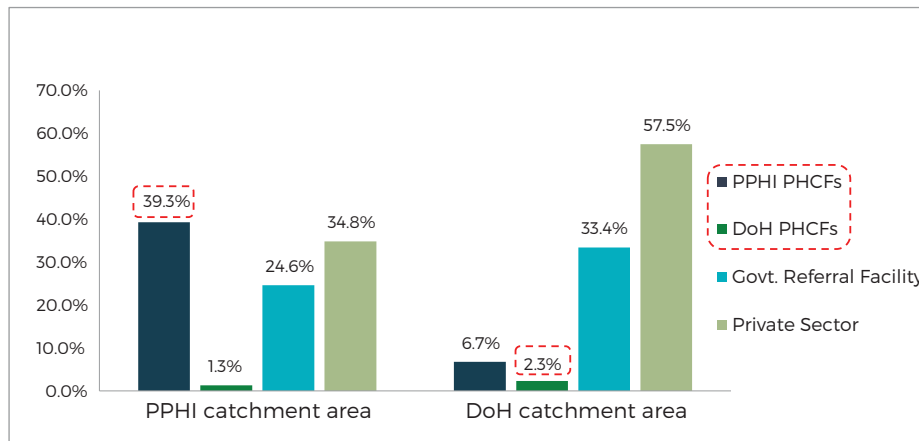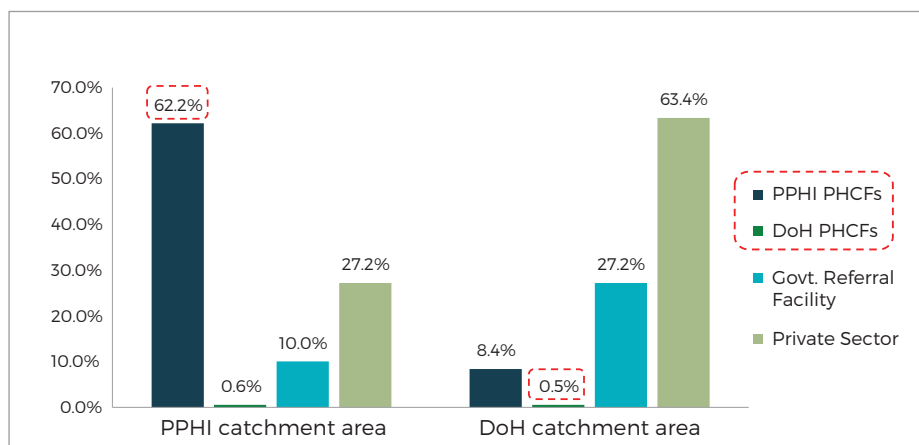Figure 12: Catchment area wise postnatal care service provider -Jacobabad

Family Planning:

Figure 13 shows the prevalence of use of contraceptive methods (CPR) among currently married (15-49 years) women in Dadu and Jacobabad. We assessed the contraceptive prevalence rate (CPR) from currently married women of reproductive age by inquiring whether she and/or her husband are currently using any contraceptive method to delay or avoid pregnancy and inquired about the method of contraception used. We then separately estimated contraceptive prevalence rate for any method and modern method. Modern contraceptive methods include female sterilization, male sterilization, intrauterine contraceptive device (IUCD), implants, injectables, the pill, condoms, and lactational amenorrhea method (LAM). We observed very low results for Jacobabad as compared to Dadu (p<0.001) and to those of PDHS 17-18 for rural area of Sindh (NIPS, 2018). In Dadu, 18.9% of MWRA reported using any contraceptive method and 17.8% are using a modern method of family planning. While in Jacobabad, CPR for any family planning method was found to be only 11.2% and 9.7% for modern method.

Figure 13: District wise Contraceptive Prevalence Rate (CPR) for any and modern methods.
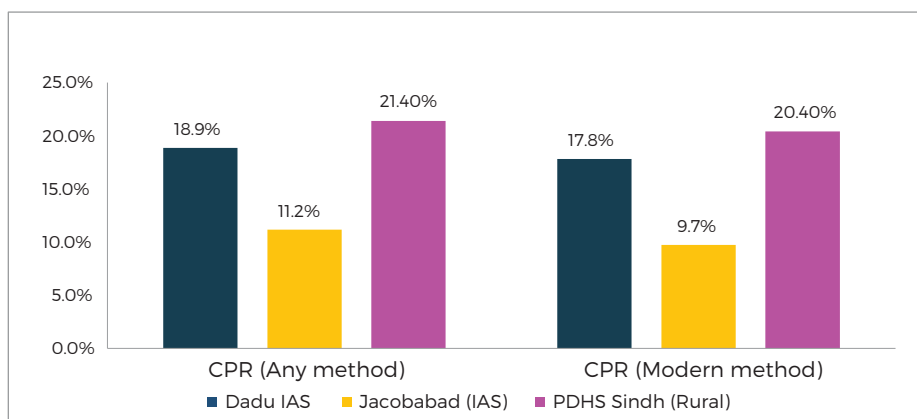
To address the objective of the study i.e. to evaluate the contribution of primary health care facilities in providing family planning services at community level, we asked study participants who reported using any modern family planning method about the provider of family planning services and supplies. The study found that in Dadu 49.6% of the MWRA from PPHI catchment area have received their family planning services and supplies from PPHI PHCFs, whereas only 14.5% of MWRA of DoH catchment areas received FP services from DoH PHCFs (p<0.001) (Figure 14). While in Jacobabad more than 50% of MWRA of PPHI catchment areas received FP services from PPHI health facilities and only 2.3% of women from DoH catchment area received FP services from DoH PHCFs itself (p<0.001) (Figure 15).

The main contributors of FP services in DoH catchment area of Dadu were found to be private sector (28.2%) followed by government referral facilities (23.8%), and LHW House (22.5%) (Figure 14). Where as in Jacobabad, approximately 1 out of 2 (54%) MWRAs who used a modern family planning method received services and/or supplies from government secondary care services (Figure 15). Interestingly, study also found that nearly 8% of MWRA in Dadu and 10% of MWRA from DoH catchment area of Jacobabad availed family planning services from PPHI health facilities.

Figure 14: Catchment area wise contribution of family planning services providers -Dadu
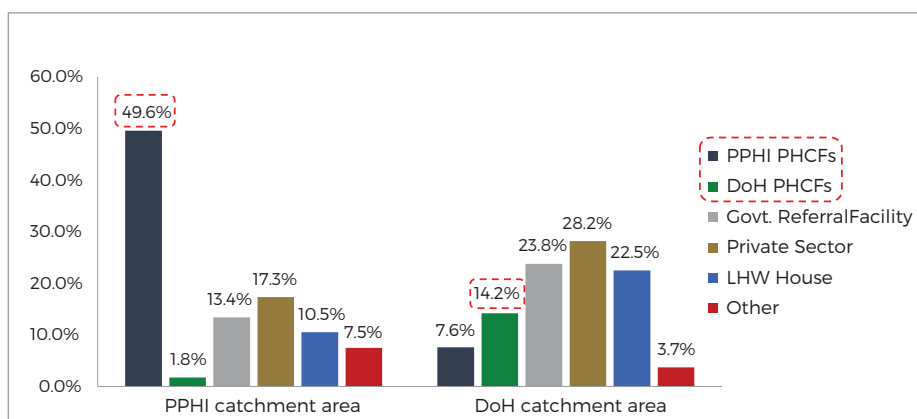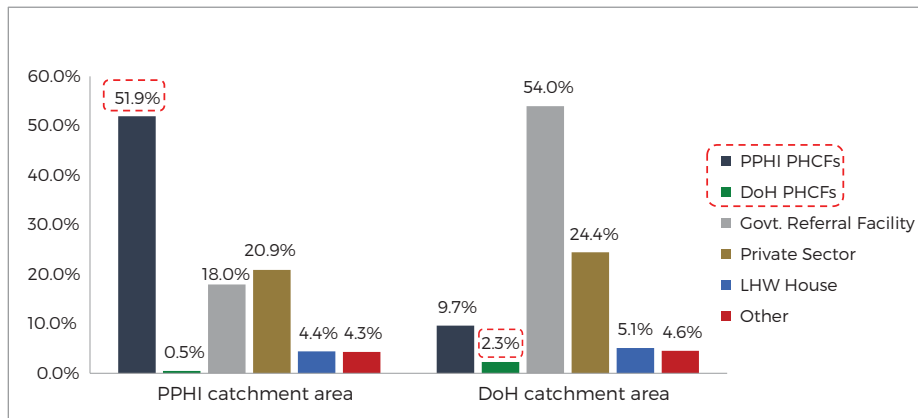
Figure 15: Catchment area wise contribution of family planning services provider -Jacobabad
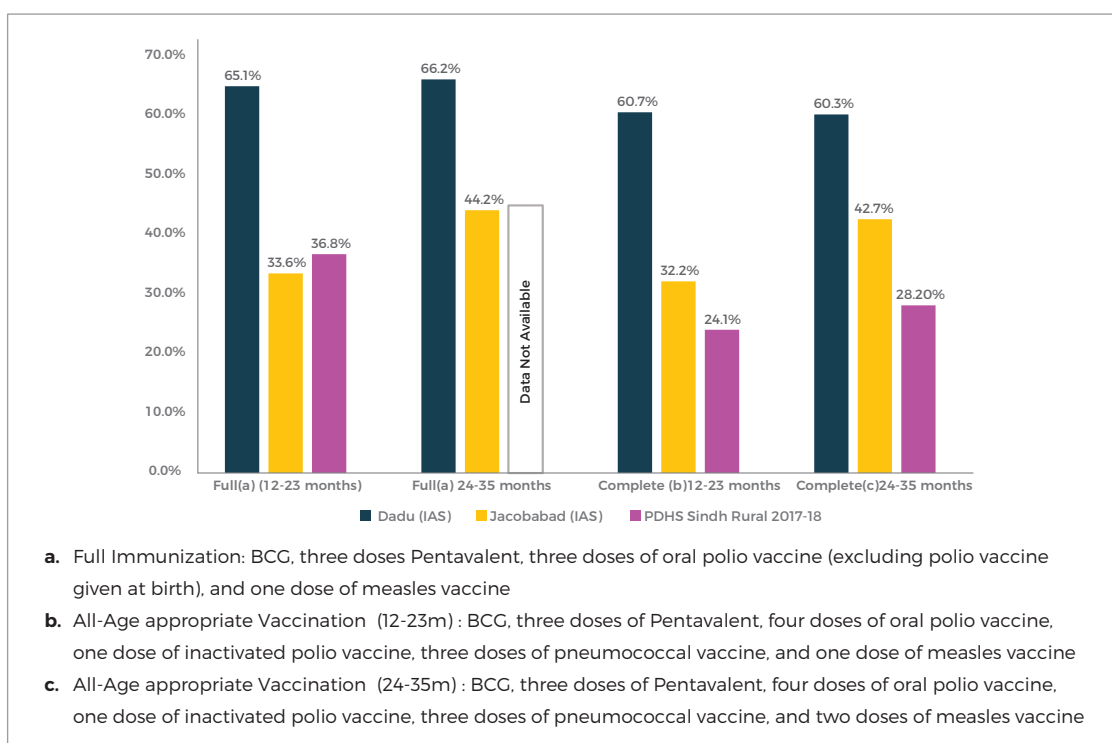

Childhood Immunization:

Immunization is one of the most cost-effective interventions for preventing childhood diseases and preventing nearly 3 million deaths per year worldwide. It is a key intervention to promote the health, well-being and survival of children. Research has shown that 29% of deaths among children 1-59 months old are vaccine-preventable. Since the introduction of the Expanded Programme on Immunization in 1974 by the World Health Organization (WHO), global efforts have been in place to expand the benefits of vaccines across all countries and population groups. Expanded Program on Immunization (EPI) was launched in 1978 in Pakistan. Initially the program aimed at protecting children by immunization against Childhood Tuberculosis, Poliomyelitis, Diphtheria, Pertussis, Tetanus and Measles. Later, a number of new vaccines e.g. Hepatitis B, Haemophilus Influenza type b (Hib) and Pneumococcal vaccine (PCV10) were introduced in 2002, 2009 and 2012, and IPV in 2015 respectively. EPI also aims at protecting mothers and newborn against Tetanus. The national immunization program contributed in significant decrease in childhood morbidity and mortality due to Vaccine Preventable Diseases (VPDs). Many countries have shown progress in achieving coverage target while some countries, like Pakistan, continue to struggle towards meaningful improvement in complete immunization coverage.

Since January 2017, overall management of EPI program of district Dadu and Khairpur has been handed over to PPHI Sindh. In this regard, PPHI Sindh has developed various strategies to overcome challenges and barriers faced to increase the coverage of routine childhood immunization, including a three-month crash program to improve routine immunization coverage and defaulter catch-up campaign in 2017. Currently PPHI Sindh manages 68 EPI centers in Dadu.

Data analysis for complete immunization status was done using WHO standard criteria of Full immunization Status(a)   i.e all basic vaccinations which includes BCG at birth, three doses Pentavalent, three doses of oral polio vaccine (excluding polio vaccine given at birth), and one dose of measles vaccine. A second, more critical, measure of vaccination coverage used in this report is the proportions of children age 12-23 months and age 24-35 months who have received all age-appropriate vaccinations. A child age 12-23 months is considered to have received all age-appropriate vaccinations (b) if the child has received all basic vaccinations, plus a dose at birth of polio vaccine, one dose of inactivated polio vaccine, and three doses of pneumococcal vaccine. Similarly, a child of age 24-35 months has received all age-appropriate vaccinations (c) if the child is given a second dose of measles vaccine at 15 months in addition to all age-appropriate vaccinations for a child age 12-23 months.

Figure 16 shows the proportion of children 12 - 23 months and 24 - 35 months children with full immunization(a) status and all age-appropriate vaccination(b,c) in both districts in comparison with PDHS 2017-18 results for rural Sindh . Proportions of children with full immunization(a) for both age groups are significantly higher in Dadu as compared to the proportions from Jacobabad (p<0.001). According to WHO criteria of full immunization (a), in Dadu nearly 65.1%% of children aged 12-23 months and 71.4% children of 24-35 months are fully immunized. However, only 33.6% of children 12-23 months and 47.1%% of children aged 24-35 months are fully immunized in Jacobabad, which is considerably lower than Dadu where PPHI is managing EPI program (Figure 16). According the second more critical measures of vaccination coverage (b,c) results drop a bit but the trends remain similar, with full immunization coverage (a,b,c) for Dadu being considerably higher than those of Jacobabad (p<0.001).

Figure 16: District wise complete immunization status of children 12-23 months and 24-35 months in comparison with PDHS 2017-18

a. Full Immunization: BCG, three doses Pentavalent, three doses of oral polio vaccine (excluding polio vaccine given at birth), and one dose of measles vaccine
b. All-Age appropriate Vaccination (12-23m) : BCG, three doses of Pentavalent, four doses of oral polio vaccine, one dose of inactivated polio vaccine, three doses of pneumococcal vaccine, and one dose of measles vaccine
c. All-Age appropriate Vaccination (24-35m) : BCG, three doses of Pentavalent, four doses of oral polio vaccine, one dose of inactivated polio vaccine, three doses of pneumococcal vaccine, and two doses of measles vaccine

For antigen-specific coverage, it can be observed from the following graph that Dadu has shown considerably higher proportions of antigen-specific immunization as compared to Jacobabad (p<0.001). In Dadu, the maximum coverage was found for BCG (91.5%, which is administered at birth) and lowest for Measles 1 (77.8%, administered at 9th month) for children aged 12-23 months at the time of survey, reflecting a notable proportion of dropouts (Figure 17). Therefore, one of the strategies to increase full immunization coverage would be to implement a rigorous follow up plan throughout the EPI schedule in order to reduce the rate of dropouts.

Figure 17: Antigen wise vaccination coverage for 12-23 months children in Dadu , Jacobabad and PDHS 2017-18 results for Rural Sindh
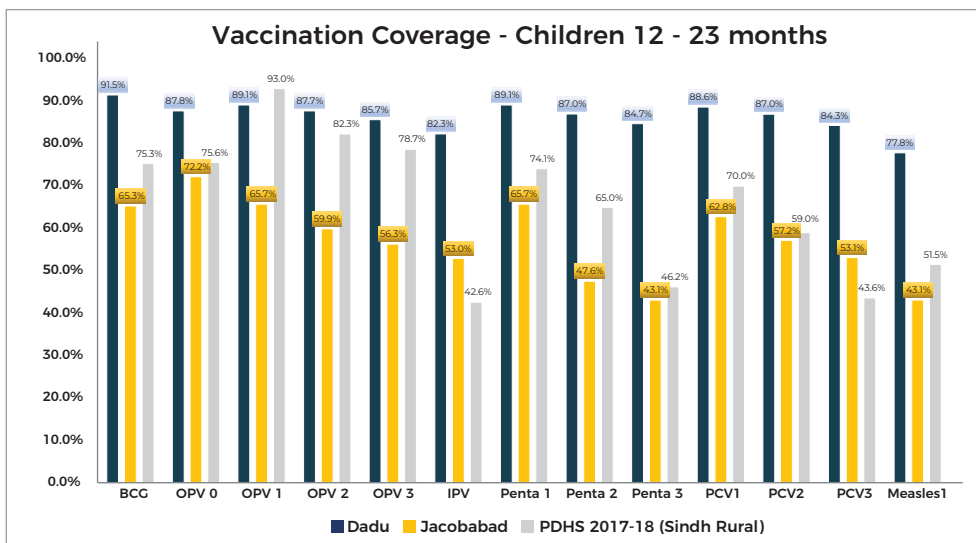
Nutritional Status:

In March 2016, PPHI Sindh in collaboration with Nutrition Support Program (NSP) initiated nutritional intervention in 10 districts of Sindh including Jacobabad district. Under NSP, PPHI Sindh established OTP - a nutritional clinic where management of Severe Acute Malnutrition (SAM) is done - sites, provided treatment of SAM children with Ready to Use Therapeutic Food (RUTF) and nutrition specific sessions to the communities. Under NSP, PPHI Sindh established 270 OTP sites in the PPHI Sindh managed health facilities in 256 Union Councils of nine districts of Sindh.

Measurement of Nutritional Status among Young Children

Impact Assessment Survey measured the height and weight of eligible children under age 5. Weight measurements were taken using lightweight SECA (Model 876) scales with a digital display. Height was measured with a standard measuring board designed by UNICEF. Recumbent length (lying down) was measured for children younger than age 24 months; standing height was measured for older children.

In general, IAS results for anthropometric measurements (i.e. prevalence of underweight, wasting and stunting) are consistent with PDHS 2017-18 rural Sindh and NNS 2018 rural Sindh, except for stunting for which we observed higher prevalence then reported by NNS 2017-2018 as shown in figure 18 below.

Stunting:

"Stunting is the impaired growth and development that children experience from poor nutrition, repeated infection, and inadequate psychosocial stimulation" (WHO 2018). Children are considered as stunted if their height-for-age is more than two standard deviations below the WHO Child Growth Standards median while those below three standard deviations are considered as severely stunted (WHO 2018).

The chart below (Figure 18) shows that 60.4% and 64.6% of under-5 children are stunted (-2 SD) and around 39.0% and 46.7% are severely stunted (-3 SD) in Jacobabad and Dadu respectively (p<0.001).

Figure 18: District wise percentage of under 5 years old children with Stunting
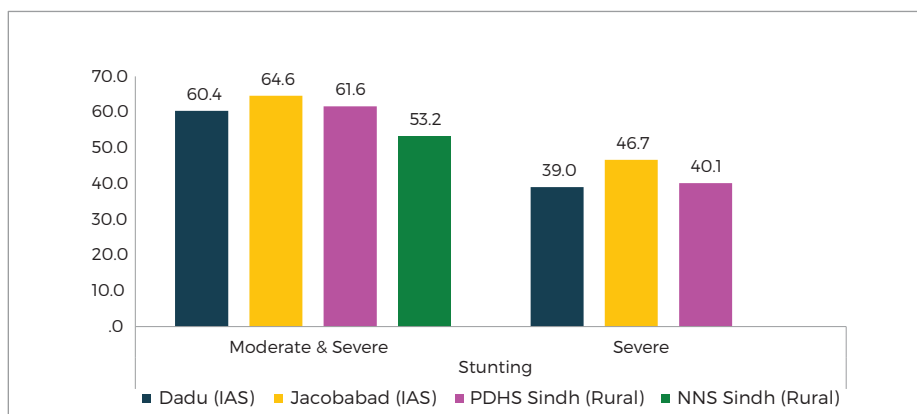
Wasting:

Wasting, or low weight-for-height, is a measure of acute undernutrition. It represents a failure to receive adequate nutrition in the period immediately before the survey (WHO, 2010). Wasting may result from inadequate food intake or from a recent episode of illness causing weight loss. Children are defined as wasted if their weight-for-height is more than two standard deviations (-2 SD) below the WHO Child Growth Standards median and severely wasted if below three standard deviation (-3 SD).

The results for wasting show significant difference between two districts. Near 20% of children are wasted (moderately & severely) in Jacobabad, where is in Dadu this percentage is around 17% (p=0.004). While 9.4% of children under-five years are severely wasted in Jacobabad in comparison to 7.4% in Dadu (p =0.007) (figure 19).

Figure 19: District wise percentages of under 5 years old children with wasting
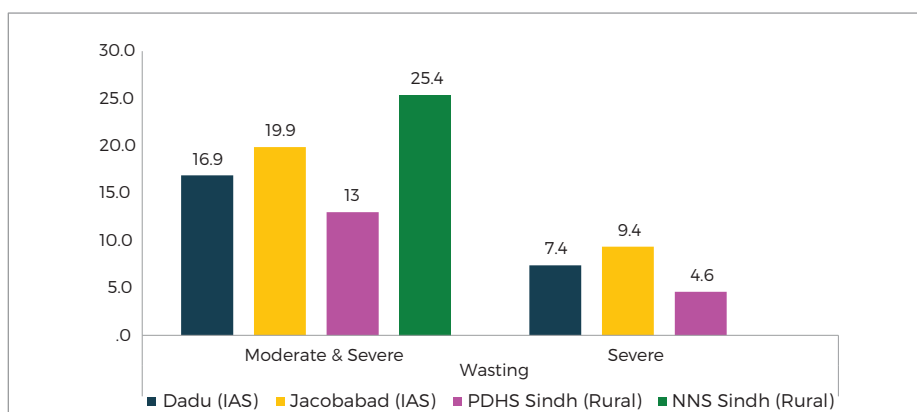
Underweight:

Weight-for-age is a composite index of height-for-age and weight-for-height. It takes into account both acute and chronic undernutrition. Children whose weight-for-age Z-score is below (-2 SD) from the median of the reference population are classified as underweight. Children whose weight-for-age Z score is below minus three standard deviations (-3 SD) from the median are considered severely underweight.

The graph 20 shows the prevalence of under-5 children who are underweight and severely underweight. According to the results nearly 1 out of every 2 under-5 children (48.8% Dadu and 54.5% Jacobabad) had low weight for his/her age (p<0.001), and approximately 1 out of every 4 children are severely underweight (p<0.001), which is consistent with PDHS 2017-18 and NNS 2018 results for rural Sindh as shown in figure 20. Similar to stunting and wasting, more under-5 children are moderately and severely underweight in Jacobabad then compared to Dadu.

Figure 20: District wise percentages of under 5 years old children with underweight
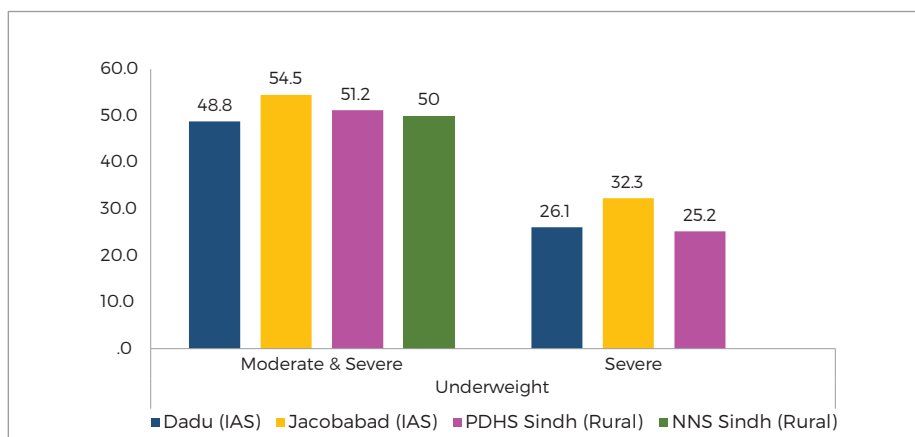

Breastfeeding Practices:

Proper infant and young child feeding (IYCF) practices include early initiation of breastfeeding within the first hour of life, exclusive breastfeeding for at least first 6 months of life, continued breastfeeding for up to 2 years of age or beyond, introduction of a range of semisolid and solid foods at age 6 months, and gradual increases in the amount of food given and frequency of feeding as the child gets older (Aakre et al, 2016).

The IAS results for breastfeeding indicators show that in Dadu and Jacobabad only one in two children under the age of 6 months are exclusively breastfed (Figure 21). These results are consistent with those of NNS 2018 which reports 53.4% of children in Sindh rural area are exclusively breastfed in their first 6 months of life. However, the results for continued breastfeeding at one year of age in Dadu (85.3%) and Jacobabad (80.9%) are only slightly higher than the average of Sindh rural (79.6%) reported by NNS 2018. Subsequently continued breastfeeding at 2 years, decreases to 66.2% and 72.4% in Dadu and Jacobabad, respectively.

"Provision of mother's breast milk to infants within one hour of birth is referred to as "early initiation of breastfeeding" and ensures that the infant receives the colostrum, or "first milk", which is rich in protective factors"(WHO).

Evidence suggest that early initiation of breastfeeding helps reduce neonatal mortality by 19.1% (Adhikari et al, 2011). Figure 21 demonstrate that, around 60% of children were given their first breastfeed within first hour of their birth, this percentage is noticeably high as compared to the average of rural areas of Sindh (46.2%) as reported by NNS 2018, while in Jacobabad results show that only 38% of children were breastfed within first hour of their birth.

Figure 21: District wise percentages of breastfeeding indicators
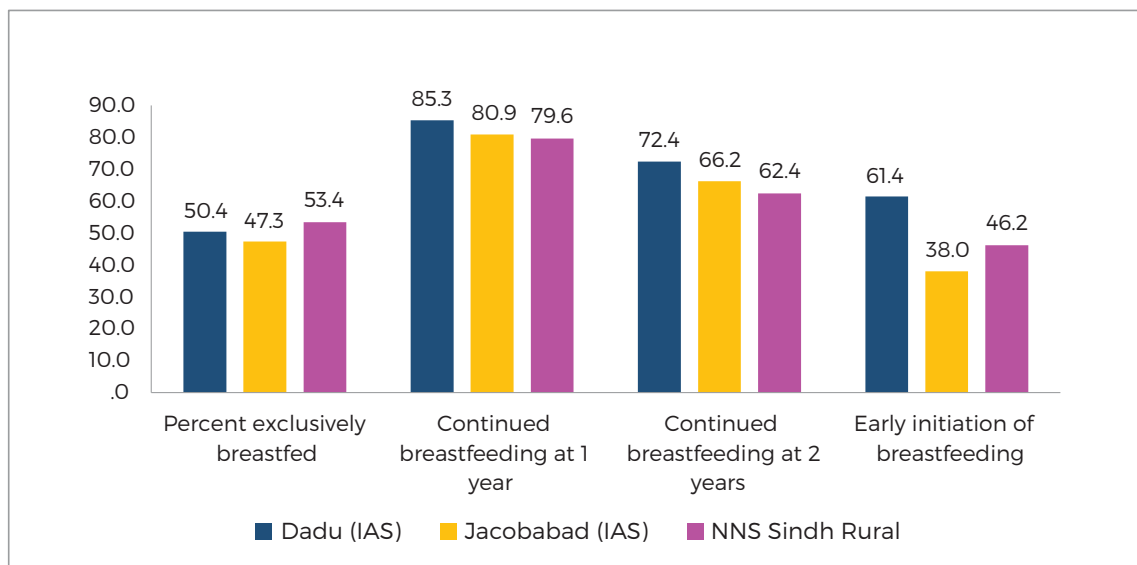

Overall, the results for the IYCF indicators of Jacobabad are slightly lower as compared to Dadu, except for early initiation of breastfeeding, which is found remarkably low in Jacobabad. As the evidence now suggests that early initiation of breastfeeding plays vital role in development, growth and overall health of the child during his life (Adhikari et al, 2011), a detailed qualitative study should be designed to investigate reasons for such low percentage of mothers practicing early initiation of breastfeeding to their newborns. The lower IYCF indicators in a population, higher would be prevalence of malnutrition in the given population (Disha et al, 2012). This suggests the need of further strengthening of nutrition specific and nutrition sensitive programs to achieve the set targets of reducing malnutrition among under-5 children.

Childhood Morbidity:

In IAS, mother of under 5 years of age were inquired if the child experienced a cough accompanied with fast breathing, fever (symptoms of ARI) or an episode of diarrhea in the 2 weeks preceding the survey. Furthermore, mothers were also asked whether the child had received any medical intervention for his/her illness and from where he/she had received treatment.

In Jacobabad, 6.4% of children in Dadu and 7.3% in Jacobabad were reported to have presented with diarrhea within 2 weeks prior to the date of household interviewed, and about 12.7% of under-5 children in Dadu and 11.2% children in Jacobabad presented with ARI symptoms.

Figure 22: District wise percentages of under-5 years old children with Diarrhea and Acute Respiratory Infection (ARI)
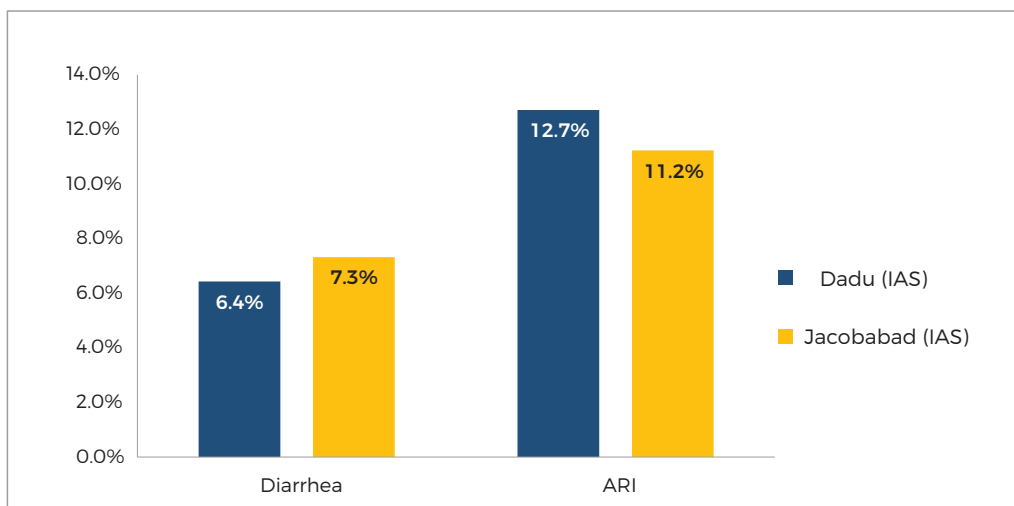
Healthcare seeking behavior for diarrhea:

In terms of seeking treatment for diarrhea, nearly 80% of mothers/caretakers sought treatment for diarrhea in both districts. Figure 20 shows data for type of place from where treatment or advise was sought for diarrhea and ARI for children. The difference in results for PPHI and DH catchment areas in both districts are significant with p value of < 0.001. In PPHI catchment area of both districts PPHI PHCFs were the major service providers (54.2% in Dadu & 46.2% in Jacobabad), accounting for approximately one half of children with diarrhea for whom treatment was sought. Whereas in DoH catchment area, the role of DoH PHCFs was absolutely inconsiderable (Dadu;0.6% Jacobabad; 1.2%) thus making private sector (88.2%) a leading service provider.

Figure 23: Catchment area wise contribution of health care providers from where treatment for Diarrhea was sought (Dadu)
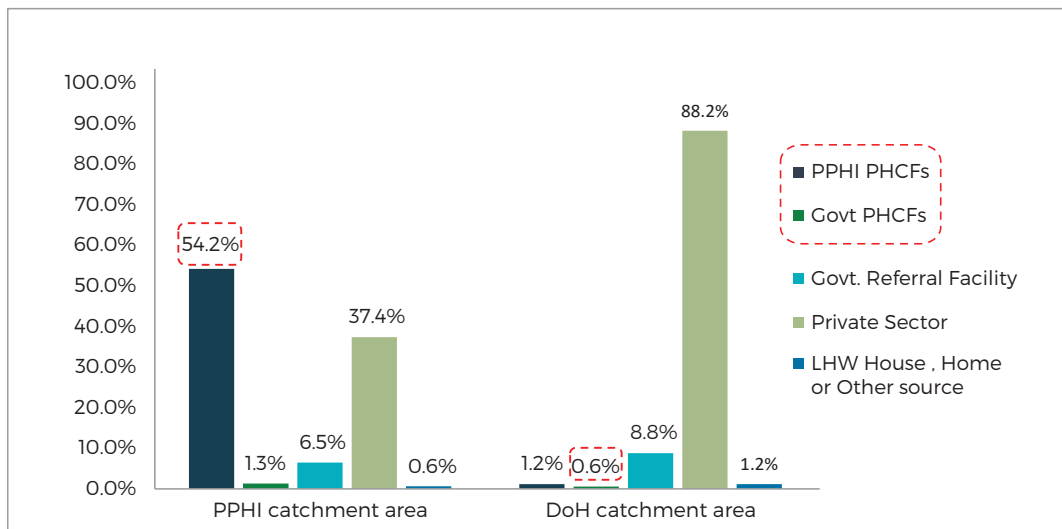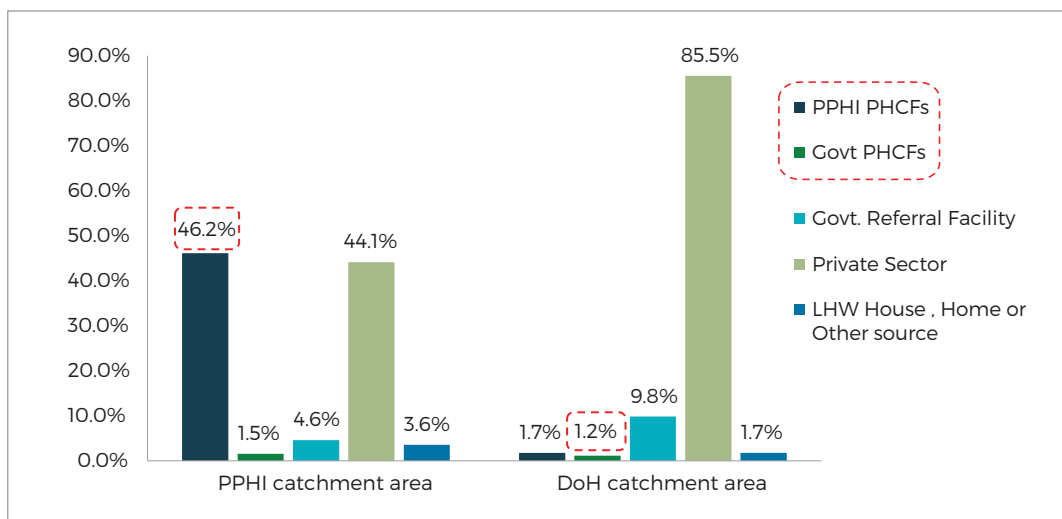

Figure 24: Catchment area wise contribution of health care providers from where treatment for Diarrhea was sought (Jacobabad)

Healthcare seeking behavior for ARI:

With regards to the treatment seeking behavior for ARI, 85.3% and 77.8% of mothers/caretakers reported to have sought treatment or advice for their children in Dadu and Jacobabad, respectively. This trend was identical across both PPHI and DoH catchment areas. In Dadu, 40.1% of children belonging to PPHI catchment areas for whom treatment was sought for ARI were provided care at PPHI PHCFs. In contrast, only 3.8% of their counterpart belonging to DoH catchment areas received treatment at DoH PHCFs, which reflects a huge number of families opting for treatment from private sector (80.8%) (p<0.001).

Similar trend of ARI treatment seeking behavior was found in Jacobabad resulting in exaggerated proportion of children belonging to DoH catchment areas being treated by private sector (83.6%) (p<0.001).

Figure 25: Catchment area wise contribution of health care providers from where treatment for Acute Respiratory Infection (ARI) was sought (Dadu)
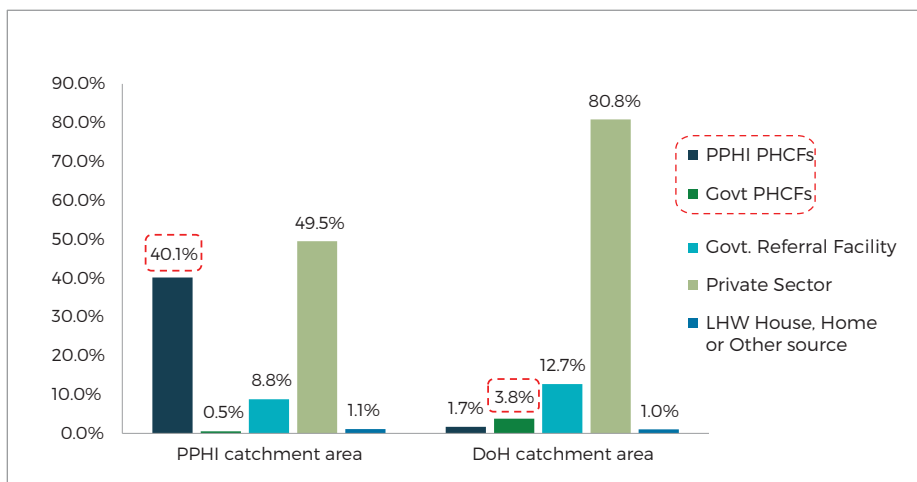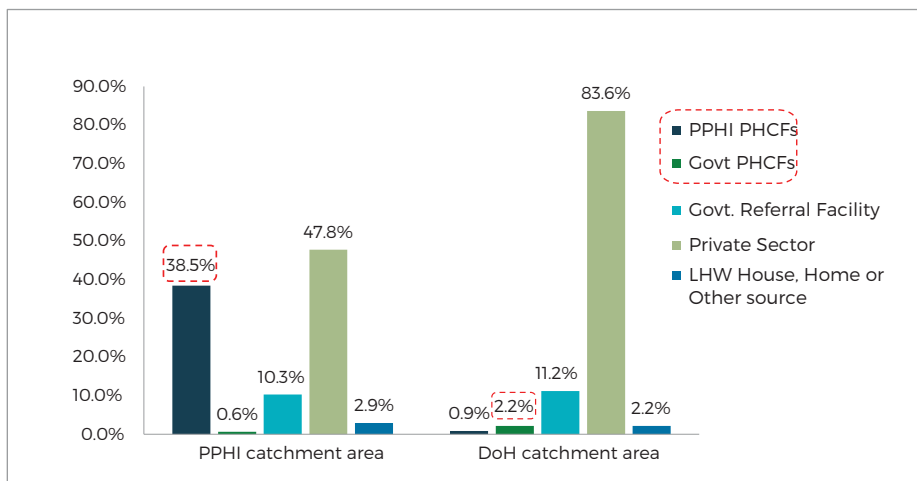

Figure 26: Catchment area wise contribution of health care providers from where treatment for ARI was sought (Jacobabad)

## Impact of BHU Plus or 24/7 primary health care services on MNCH Indicators

Since its inception, PPHI Sindh has always aimed at providing quality primary health care services in rural Sindh. For achieving SDGs targets by 2030, further improvement in functionality, accessibility and availability of health care services is imperative. To achieve these objectives a model has been introduced by PPHI to upgrade various primary level health facilities into "BHU Plus" level, which not only provides routine health care services but also offers round the clock MNCH facilities to the catchment population. In total, 310 health facilities have been upgraded to BHU Plus level out of 1176 facilities under PPHI management so far.

  A comparative analysis by the level of health facilities (i.e. BHU and BHU Plus) has been performed in order to see the impact of BHU Plus services on selected key maternal health indicators. Ten health facilities are included in this analysis from PPHI pool, out of which five are BHU and five are BHU Plus.

Ante Natal Care

It is observed from the figure 27 that ANC-1 i.e at least one antenatal care visit from any skilled provider in both models has non-significant differences (p 0.121). However, there is a significant difference between the two models (P < 0.001) for ANC four or more visits. Results show that for PPHI BHU Plus level facilities catchment area 28.4% of women received at least 4 or more antenatal care visits during their last pregnancy which ended in a live birth in last 2 years preceding the survey, while only 20.5 % of women from BHU level facilities' catchment area received 4 or more ANC visits, resulting in an increase of 8% between the two models. However, the difference in results for women receiving two or more doses of TT were non-significant (p 0.55)

Figure 27: Antenatal care coverages in BHU and BHU Plus catchment area
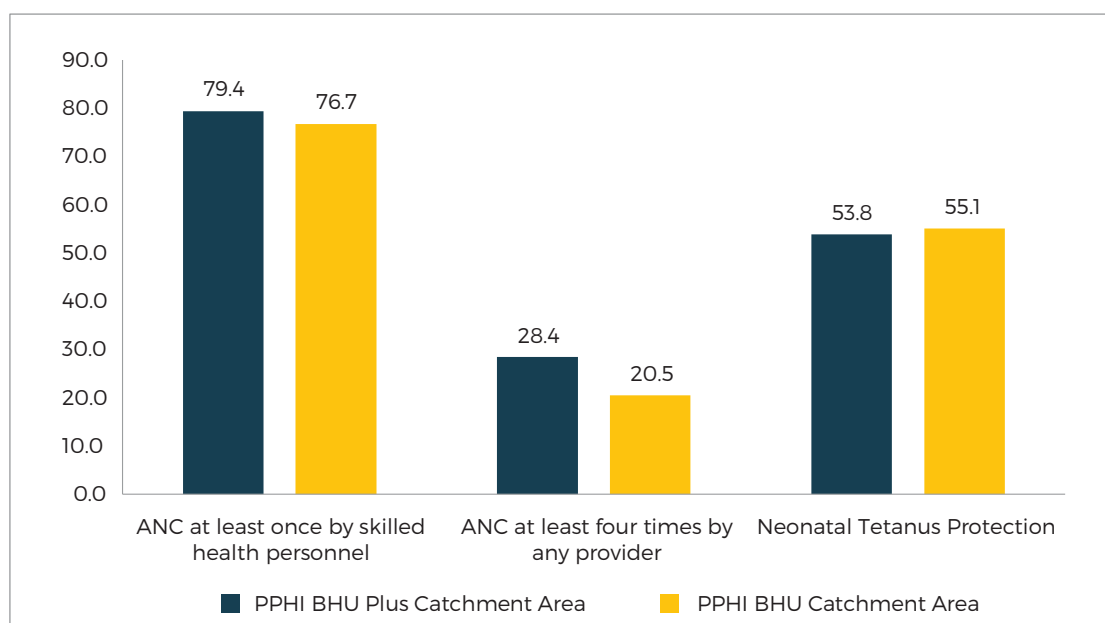
We further analyzed the contribution of both models (BHU/ BHU plus) in providing ANC services at their respective catchment area. Figure 28 demonstrates that, in BHU catchment area 31.9 % of women received ANC services from PPHI health facilities, however, 45.1% of women from BHU plus level facilities received ANC services from PPHI PHCFs. The difference in contribution of different health care providers in BHU and BHU plus level catchment area is significant (p < 0.001).

Figure 28: Contribution of antenatal care services providers at BHU and BHU Plus catchment areas.
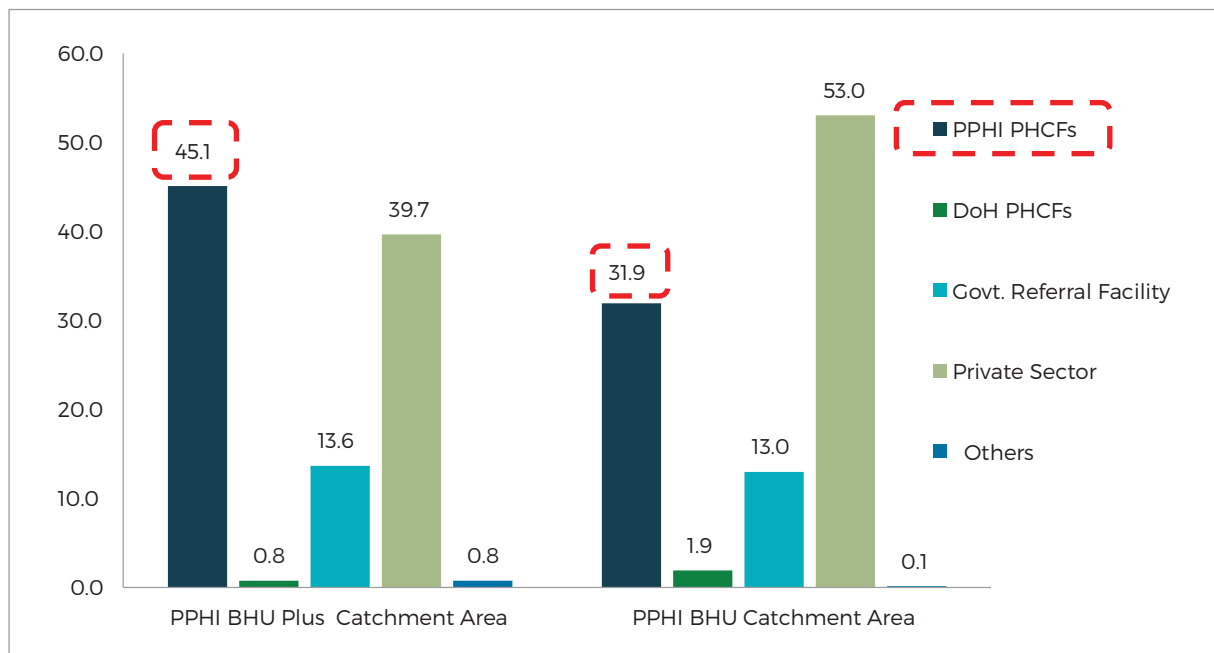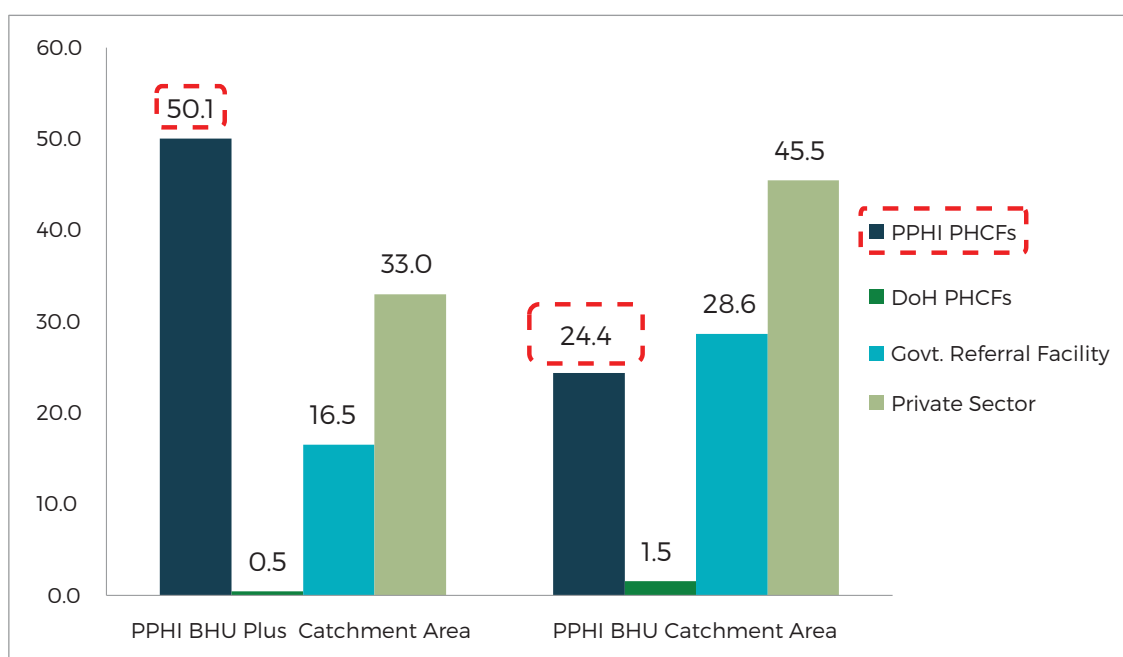

Delivery Care

We assessed the proportion of institutional and home deliveries and the percentage of births attended by skilled birth attendants (SBA) in BHU and BHU plus catchment areas. Result show significant differences (p < 0.001) between both. Figure 29 shows higher percentage of deliveries conducted at health facilities and conducted by skilled birth attendants in BHU plus catchment area (69 % and 69.1%) then at BHU facilities' catchment area (57.7% and 57.8%) respectively.

Figure 29: Proportion of Institutional and Home Delivery and births by Skilled Birth Attendants in BHU and BHU Plus catchment areas.
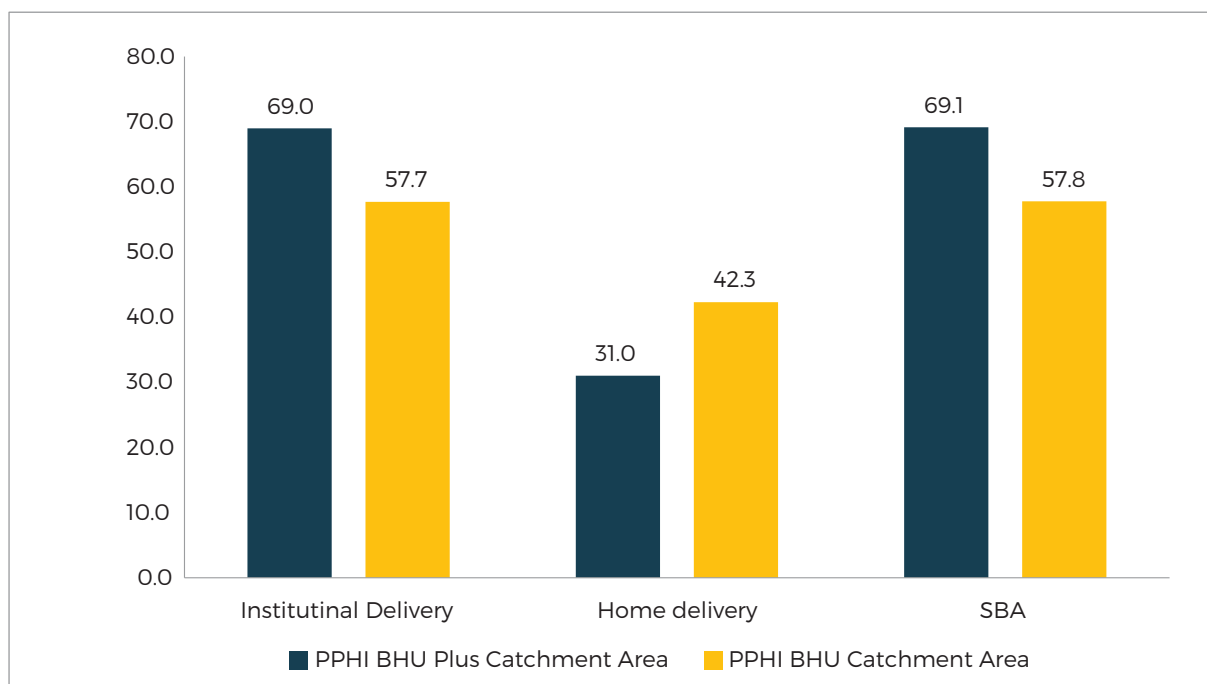
On further analyzing data for those women who delivered their last live birth at a health facility, it is observed that nearly half of all women (50.1%) from BHU plus catchment area received delivery care services from PPHI PHCF, in comparison only about one-fourth (24.4%) of women who delivered at health facility from BHU catchment area received services from PPHI HF itself (figure 30). This difference is found to be significant (p < 0.001) between both catchment areas. It is inferred from the results that availability of round the clock services at BHU plus facilities have eventually led to increase in the prevalence of institutional deliveries in their catchment area as evident from results in figure 29.

Figure 30: Contribution of delivery care services providers at BHU and BHU Plus catchment areas.

Postnatal Care

We assessed results for postnatal care services coverage i.e. at least one postnatal care visit with in six-weeks after delivery from mothers who delivered a live birth in last 2 years preceding the survey for both BHU and BHU plus catchment area. Figure 31 indicates a significant (p <0.001) difference between both catchment area. BHU plus catchment area demonstrate (figure 31) higher proportion of women (32.9%) while only 26.9% of women from BHU health facilities catchment area received at least one PNC visit within six-weeks after their delivery.

Figure 31: Proportion of mothers receiving postnatal care in BHU and BHU plus catchment areas.
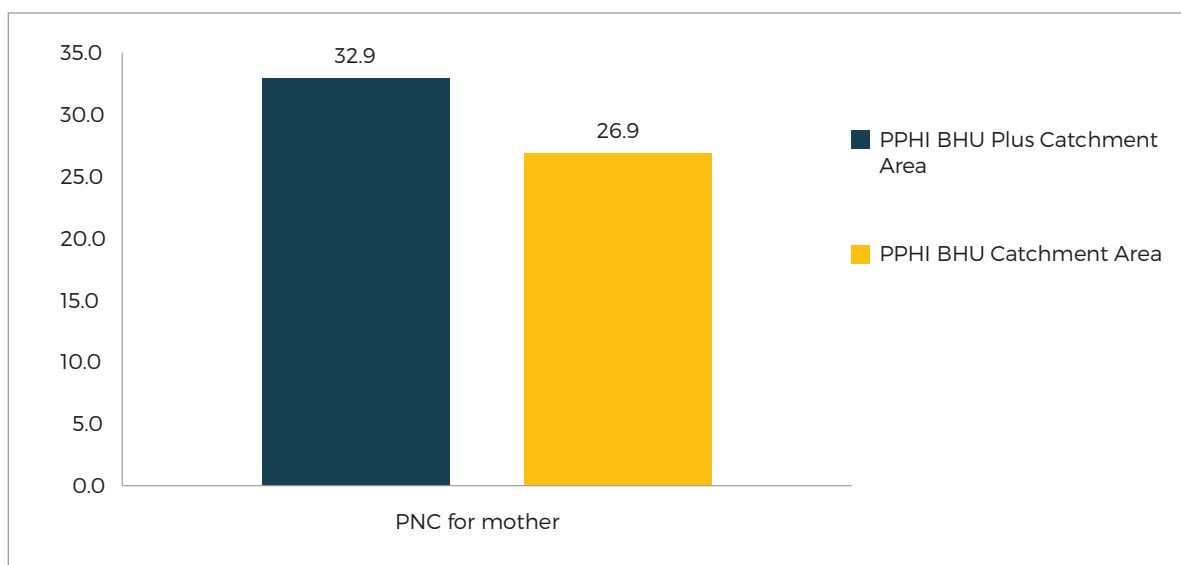
On further analyses, women were inquired regarding the provider of postnatal care services. Figure 32 shows that, nearly 60% of women from BHU plus catchment area received PNC services from PPHI, in comparison only 32.3% of women from BHU facilities catchment area received services from PPHI.

Figure 32: Contribution of postnatal care services providers at BHU and BHU Plus catchment areas.
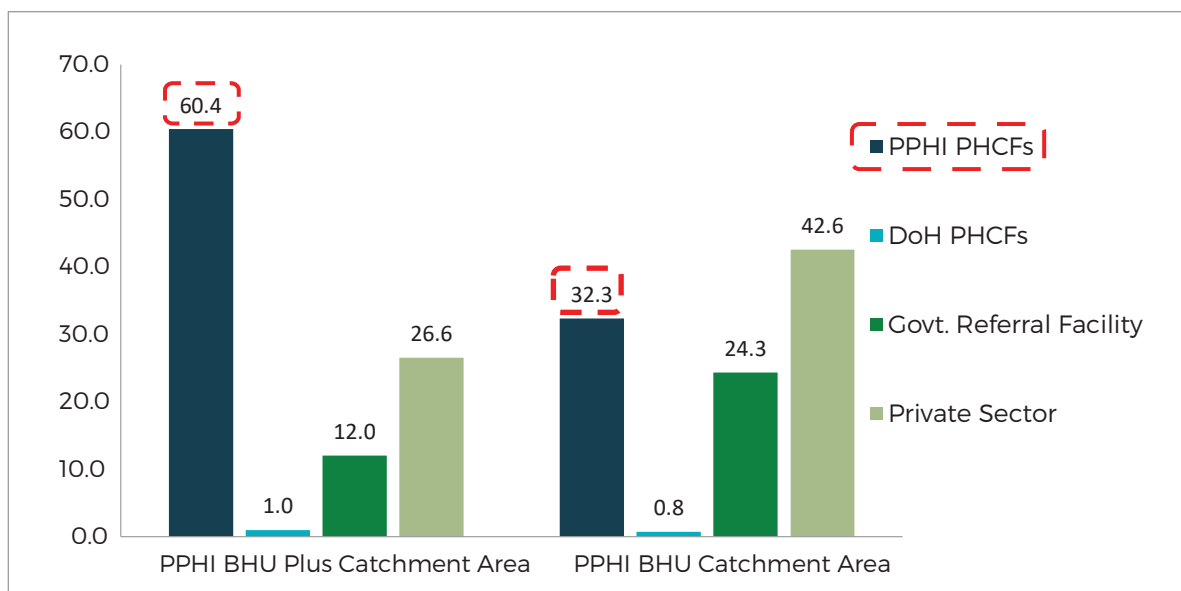
Family planning

We also analyzed the contraceptive prevalence rate (CPR) in catchment area of both BHU and BHU plus level facilities of PPHI separately. Currently married women in the survey population were inquired about the current use of any (traditional + modern) contraceptive method. Figure 33 demonstrates significant differences for current use of any contraceptive methods (p = 0.018) and modern methods (p<0.001) between both catchment areas. Results show that 14.1 % of married women in BHU plus catchment areas are currently using any traditional or modern contraceptive method, however CPR for BHU level health facilities catchment area is only 12%. While analyzing the use of modern contraceptive methods for both catchment area, the results show similar trend as that of any contraceptive method. 13.6% of currently married women in BHU plus catchment area use a modern method for family planning in comparison to only 10.8% in BHU level catchment area.

Figure 33: Contraceptive Prevalence Rate (CPR) in BHU and BHU Plus catchment areas
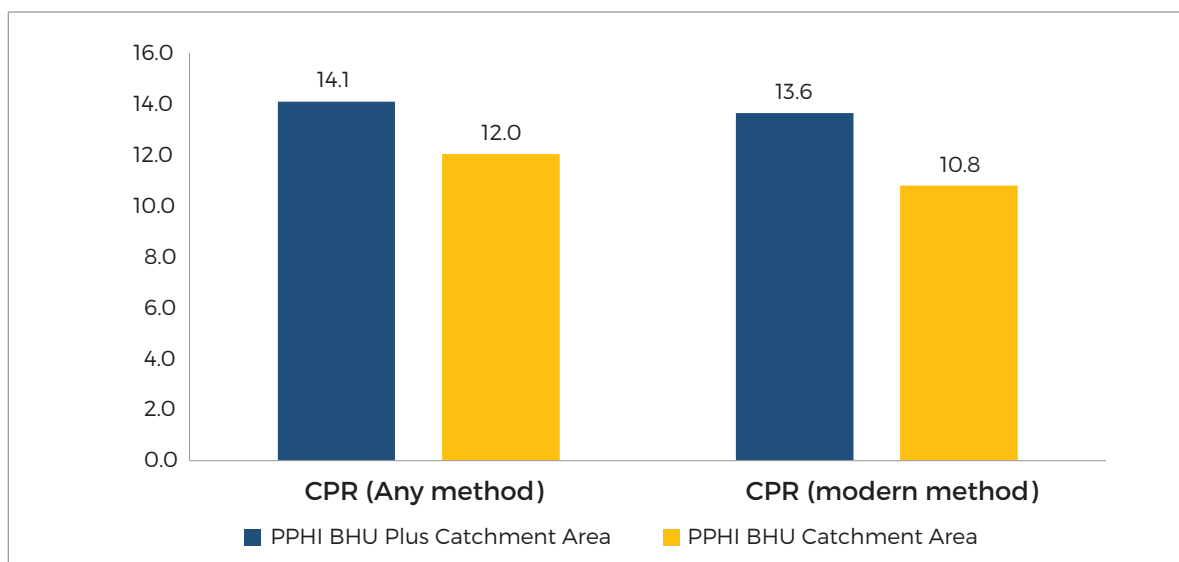
On further analyzing the data regarding the provider of contraceptive supplies and family planning services from those women who reported using any modern method of contraception, results (figure 34) show that more than half of women (54%) of women from BHU plus catchment areas received FP supplies and services from PPHI, while only 44.7% of women from BHU reported having received FP supplies and services from PPHI (p < 0.001).

Figure 34: Contribution of family planning services providers at BHU and BHU Plus catchment areas.
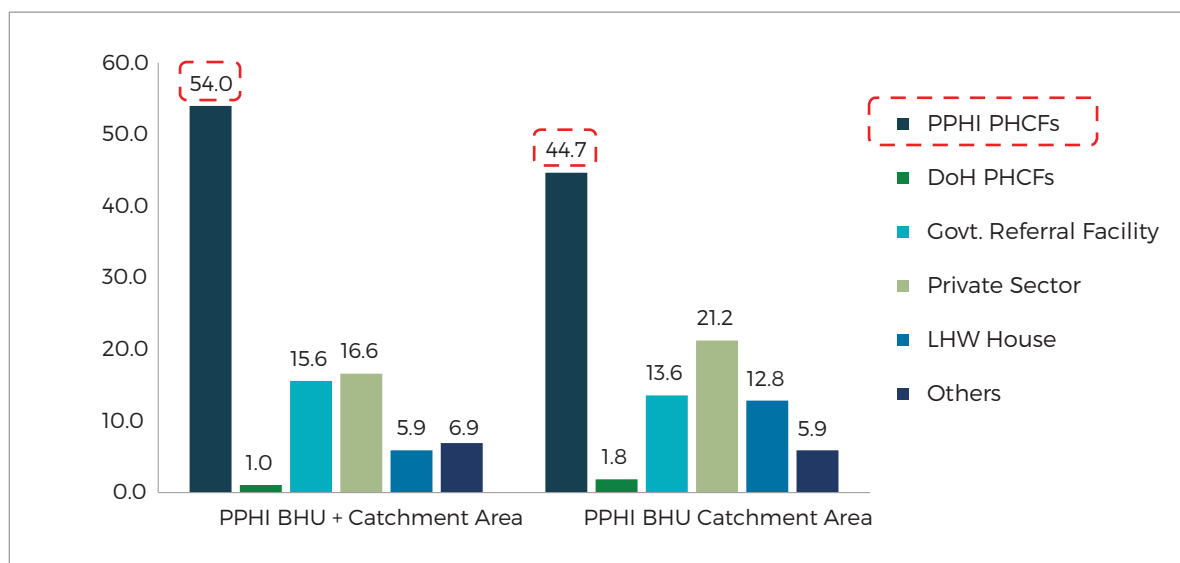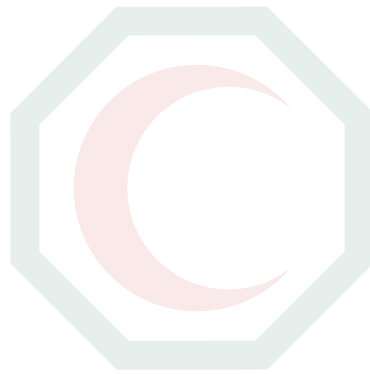

Conclusion

Strong primary healthcare systems are effective in reducing inequities of access by providing local services and facilitating continuous, comprehensive, and coordinated care. It is evident from the findings of this study, that PPHI is the leading organization in providing primary health care services especially MNCH in rural Sindh. Immunization results for Dadu has also shown promising results towards achieving SDG targets of full immunization coverage. Extending Public-Private Partnerships in EPI will help improve coverages in other districts as well. However, Prevalence of malnutrition is higher in district Jacobabad, which can be linked with overall low MNCH indicators and also have association with highest illiteracy rate and high poverty rate as compared to Dadu.

The findings for BHU Plus health facilities have proven that increase in functionality, accessibility and availability of MNCH services led to improved health outcomes. Therefore, upgradation of BHUs to BHU Plus is imperative and would be step ahead for achieving Sustainable Development Goals (SDGs) targets by 2030 of lowering maternal, neonatal, infant and under-5 mortality rates.

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