REPUBLIC OF TURKEY
HACETTEPE UNIVERSITY
INSTITUTE OF HEALTH SCIENCES

AVAILABILITY AND UTILIZATION OF SOME PRIMARY HEALTH CARE SERVICES IN ADULTS AGED 20-60 IN BIHSUD DISTRICT OF NANGARHAR PROVINCE, AFGHANISTAN

Dr. Mohammad HAROON

Epidemiology Program
MASTER OF SCIENCE THESIS

ANKARA
2014

REPUBLIC OF TURKEY
HACETTEPE UNIVERSITY
INSTITUTE OF HEALTH SCIENCES

AVAILABILITY AND UTILIZATION OF SOME PRIMARY HEALTH CARE SERVICES IN ADULTS AGED 20-60 IN BIHSUD DISTRICT OF NANGARHAR PROVINCE, AFGHANISTAN

Dr. Mohammad HAROON

Epidemiology Program
MASTER OF SCIENCE THESIS

SUPERVISOR OF THESIS
Prof. Dr. Bahar GÜÇİZ DOĞAN

ANKARA
2014

Department	:	**Epidemiology**
Program	:	**Epidemiology-Master of Science**
Thesis Title	:	**Availability and utilization of some primary health care services in adults aged 20-60 years in Bihsud District of Nangarhar Province-Afghanistan**
Name of the Student	:	**Mohammad HAROON**
Date of the Defense	:	**19/ 09/ 2014**

This study has been accepted and approved as a Master of Science thesis in the program of Epidemiology by the Examining Committee, whose members are listed below.

Chairman of the Committee:	**Prof. Dr. Lütfiye Hilal ÖZCEBE (Hacettepe University)**	( )
Advisor of the Thesis:	**Prof. Dr. Bahar GÜÇİZ DOĞAN (Hacettepe University)**	( )
Member:	**Prof. Dr. Birgül PİYAL (Ankara University)**	( )
Member:	**Assoc. Prof. Dr. Sarp ÜNER (Hacettepe University)**	( )
Member:	**Assoc. Prof. Dr. Sibel KIRAN (Hacettepe University)**	( )

APPROVAL

This thesis has been approved by the committee above in conformity of the regulations and by laws of Hacettepe University Graduate Programs and has been accepted by the Board of Directors of the Institutes of Health Sciences.

Prof. Dr. Ersin FADILLIOĞLU
Institute Director

ACKNOWLEDGEMENT

This thesis was carried out in Hacettepe University, Institute of Health Sciences Department of Epidemiology. I wish to thank for Prof. Dr. Lütfiye Hilal ÖZCEBE Head of the Institute and all other members of this Institute.

My sincere appreciation goes to my academic supervisor Prof. Dr. Bahar GÜÇİZ DOĞAN for guiding me during my thesis and consistently giving valuable advices and constructive criticisms towards the correctness of the final report. Her guidance helped me throughout the research and writing process of this thesis. I could not have imagined having a better advisor and mentor for my master study.

Additional thanks to my best teachers Prof. Dr. Banu ÇAKIR, Prof. Dr. Ü. Şevkat BAHAR ÖZVARIŞ, Prof. Dr. Nazmi BİLİR, Prof. Dr. Reha ALPAR, Prof. Dr. Osman SARAÇBAŞI, Prof. Dr. A.Ergun KARAAĞAOĞLU, Prof. Dr. Mutlu HAYRAN, Assoc. Prof. Dr. Sarp ÜNER, Assoc Prof. Dr. Sibel KIRAN and all other Professors for their immeasurable whilst conducting this study.

I would like to express my profound gratitude to my colleagues who were by my side throughout data collection process in the area. Also thanks for all participants who answered the questions completely and sincerely.

I wish to thank gratefully my dear family, my wife and my children, my parents and my brothers, for their support that has kept me going. I donate this thesis to my father, Mr. Rahim Jan, who guides me, in all my endeavors.

Finally, thanks to the Afghan Government, Directorate and Deputy Directorate of Nangarhar Medical Faculty-Nangarhar University and Chief of Public Health Department for giving me opportunity to study Master of Science program and for their advices and financial support.

ABSTRACT

Haroon M. Availability and Utilization of Some Primary Health Care Services in Adults Aged 20-60 in Bihsud District of Nangarhar Province, Afghanistan. Hacettepe University, Institute of Health Sciences, Epidemiology Program, Master of Science Thesis, Ankara, 2014. Availability and utilization of primary health care is the best measure to evaluate the existent status of health care services of a community. The aim of this study was to assess the utilization of some available primary health care services among adults aged 20-60 in, Bihsud District of Nangarhar Province of Afghanistan. In this cross sectional survey, the data were gathered via a structured pre-tested questionnaire form. Responses from 880 participants were analyzed by using IBM SPSS Statistics 21 Program, and the findings were presented in marginal and contingency tables. Mainly Chi Square test was used with α=0.05 to find out significance level of differences and then binary logistic regression was used to assess the strength of association, between utilization health services and independent factors of the participants. 91.2% utilized improved water source; utilization of sanitary latrine was low as 51.1%. Primary health care services were available in the survey district. 75.3% of people utilized only public health center, 13.3% only private and 11.4% utilized public and private center for obtaining health services. Mean distance from the nearest health center was 4.6 ± 2.2 km, 44.7% used public transportation and mean time to travel to the health center was about 29.8 ± 9.9 minutes. Of the women who had at least one pregnancy 63.0% were utilized ANC services (54.7% at least once 17.1% at least 4 visits) during their last pregnancy, while 50% PNC services, 68.5% were delivered at home, and 31.5% of the deliveries was assisted by health personal. 29.5% of the participants were using a contraceptive method; prevalence of contraceptive use in males was 23.6%, and in females 36.4%; the more frequently used method in males was condom, in female's oral pill. Overall 69.8% of the participants were satisfied from the cost of the health services, 67.4% from distance to the health center, 54.2% form travel time to reach the services; and 23.1% was satisfied from the existed health services. Economic limitations, traditional barriers, poor services and inaccessibility were the most common reasons for not utilizing MH services.
Key words: Availability, Utilization, Primary health care, Adults, Afghanistan.

ÖZET

Haroon M. 20-60 Yaş Arası Erişkinlerde Bazı Temel Sağlık Hizmetlerinden Yararlanma Düzeyi, Nangarhar Vilayeti Bihsud Bölgesi, Afghanistan. Hacettepe Üniversitesi, Sağlık Bilimleri Enstitüsü, Epidemiyoloji Programı, Yüksek Lisans Tezi, Ankara, 2014. Temel sağlık hizmetlerinin varlığı ve hizmetten yararlanma durumu, bir toplumdaki sağlık hizmetlerini değerlendirmek, için en iyi göstergelerdir. Bu çalışmanın amacı Afganistan'ın Nangarhar Vilayeti Bihsud Bölgesinde 20-60 yaş arası erişkinlerinde var olan bazı temel sağlık hizmetlerinden yararlanma düzeyini değerlendirmektir. Kesitsel bir epidemiyolojik araştırma olan bu çalışmada veriler yapılandırılmış ve ön testi yapılmış bir anket formu aracığıyla toplanmıştır. Sekiz yüz seksen katılımcının yanıtları, IBM SPSS 21 programı kullanılarak analiz edilmiş, bulgular tek boyutlu ve iki boyutlu tabloları ile sunulmuştur; Gözlenen farkların anlamlılık düzeyi Ki-kare testi ile değerlendirilmiş, daha sonra sağlık hizmetlerinin kullanımı ile bağımsız faktörler arasındaki ilişkinin gücünü değerlendirmek için lojistik regresyon testi kullanılmıştır. Katılımcıların %91,2'sinin "geliştirilmiş suyu kaynağı" kullandığı belirlenmiştir. Sıhhi tuvalet kullanma düzeyi düşüktür (%51,1). Araştırma bölgesinde temel sağlık hizmetleri mevcuttur, Katılımcıların %75,3'ü sağlık hizmetleri için sadece kamu sağlık merkezlerinden, %13,3'ü sadece özel sağlık merkezlerinden, %11,4'ü de hem özel hem de kamu sağlık merkezlerinden yararlandıklarını belirtmişlerdir. En yakın sağlık merkezine uzaklık ortalama 4,6±2,2 km dir; katılımcıların %44,7'si sağlık merkezine ulaşmak için toplu taşıma araçlarını kullanılmaktadır. Sağlık merkezine ulaşmak için ortalama 29,8±9,9 dakika harcanmaktadır. Şimdiye dek en az bir kez gebe kalmış olan kadınların %63,0'ı son gebelikleri esnasında doğum öncesi bakım hizmetlerin yararlanmıştır (%54,7'si en az bir kez %17,1'i dört kez). Son bir yılda doğum yapan annelerin yarısı doğum sonrası bakım hizmetlerinden yararlanmış, doğumların %68,5'i evde ve sadece %31,5'i bir sağlık elemanı yardımıyla olmuştur. Katılımcıların %29,5'i gebeliği önleyici bir yönetim kullanmaktadır (erkeklerin %23,6'sı, kadınların %36,4'ü); erkekler arasında en sık kullanılan yöntem kondom, kadınlarda oral haptır. Katılımcıları %69,8'ü genel olarak sağlık hizmetlerinin maliyetinden, %67,4'ü hizmete erişimde mesafeden ve %54,2'si hizmete erişimde harcanan süreden memnundur, ayrıca %23,1'i mevcut sağlık hizmetlerinden memnun olduğunu belirmiştir. Ana sağlığına ilişkin hizmetlerden yararlanmama nedeni olarak en çok ekonomik kısıtlılıklar, kültürel engeller, hizmetlerin yetersizliği ve hizmetlere ulaşılamaması bildirilmiştir.

Anahtar Kelimeleri: Mevcut olma, yararlanma, Temel sağlık hizmetleri, Yetişken, Afganistan.

LIST OF CONTENTS

LIST OF ABBREVIATIONS

Af	Afghanistan
AIDS	Acquired immune deficiency syndrome
AHS	Afghanistan Health Survey
AMICS	Afghanistan Multiple Indicators Cluster Survey
AMS	Afghanistan Mortality Survey
ANC	Antenatal Care
ANDS	Afghanistan National Development Strategy
BHC	Basic Health Center
BPHS	Basic Package of Health Services
CHC	Comprehensive Health Center
CHWs	Community Health Workers
CI	Confidence Interval
CMs	Contraceptive Methods
CSO	Central Statistics Organization
DE	Design Effect
DH	District Hospital
DOTS	Directly Observed Treatment, Short-course
EPHS	Essential Package of Health Services
FDs	Free Dugs
GDP	Gross Domestic Product
GOA	Government of Afghanistan
HC	Health Center
HE	Health Education
HFs	Health Facilities
HIV	Human Immunodeficiency Virus
Hos	Hospital
HP	Health Post
HSC	Health Sub Center

IUD	Intra Uterine Device
MDG	Millennium Development Goals
MHs	Maternal Health Services
MHT	Mobile Health Team
MDSs	Millennium Development Summits
MoPH	Ministry of Public Health
NGOs	Non-Governmental Organizations
Ngr	Nangarhar
NHs	National Hospitals
NMF	Nangarhar Medical Faculty
No.	Number
OR	Odds Ratio
PF	Family Planning
PH	Provincial Hospital
PHC	Primary Health Care
PNC	Postnatal Care
RgH	Regional Hospital
SBA	Skill Birth Attendance
SD	Standard Deviation
SPSS	Statistical Package for Social Science
TB	Tuberculosis
TBA	Traditional Birth Attendant
TIA	Transitional Islamic republic of Afghanistan
UN	United Nations
UNICEF	United Nations Children's Fund
USAID	United Sates Agency for International Development
WHO	World Health Organization

LIST OF FIGURES

LIST OF TABLES

1. INTRODUCTION

Health has been recognized as a fundamental human right, regardless of sex, political affiliation, social class or ethnicity, as well as the right to minimum condition of wellbeing, including the provision of medical care and public services for all people (1). The International Conference on primary health care at Alma-Ata, Kazakhstan (USSR) on the 12th September 1978 was organized in response to widespread dissatisfaction with existing health care services. It was at this Conference that a declaration was made that the main social target of governments, international organizations and the whole world community in the coming decades should be the attainment of a level of health that will permit all people to lead a socially and economically productive life by the year 2000. Primary Health Care (PHC) was seen as the key to attain this target. Each country was to formulate national policies, strategies and plans of action to sustain PHC as part of a comprehensive national health system (2). Governments have a responsibility for the health of their people which can be fulfilled only by the provision of adequate health and social measures. A main social target of governments, international organizations and the whole world community in the coming decades should be the attainment by all peoples of the world by the year 2000 of a level of health that will permit them to lead a socially and economically productive life. Primary health care is the key to attain this target as part of development in the spirit of social justice (2). The goal of PHC was to provide accessible health for all by the year 2000 and beyond. Unfortunately, this is not yet to be achieved in Afghanistan and seems to be unrealistic in the next decade. The PHC aims at providing people of the world with the basic health services, though PHC centers were established in both rural and urban areas in Afghanistan with the intention of equity and easy access, regrettably, the rural populations in Afghanistan are seriously underserved compared with their urban counterparts and other under developed countries(3).

In many parts of the developing world, factors that affect the availability of health services include lack of infrastructure, medical equipment and supplies; shortage of or inadequate drugs; lack of and unequal distribution of qualified health personnel;

and week capacity for planning, managing and supervising human resources (4). Health status and health services utilization vary according to social, economic, cultural, demographic and geographic conditions, Utilization of health care services is an important public health and policy issue in developing countries. However, levels of health care services are not satisfactory in many countries of the world (5). Distance and time are both important factors of accessibility. In developing countries, roads are unpaved and adopted by convenience for travelling on foot or by vehicle. There is no well-established and functioning public transport system in many areas in developing countries. Instead measuring access to health services in developing countries remains imprecise and relies mostly on asking patients about the time and distance they travelled although most patients are not accustomed to watches. Additionally, acute (emergency) and preventative medical services are often taken together, which risks conflating two different challenges where physical barriers to care are different (6). The World Health Organization (WHO) recommended using travel time, rather than distance, to assess geographical accessibility.

Accessibility coverage determines how physically accessible resources are for the population; in the case of accessibility coverage, the maximum capacity of the services is limited by the number of people who can reach and use it (4, 7). Geographical accessibility, the distance that must be traveled in order to use health facility, may present an important barrier of access to health services. Studies in developing countries have presented strong evidence that physical proximity of health services can play an important role in the use of primary healthcare (8, 9). Many countries seek to increase utilization of health services and promote equitable access to health care, especially in developing countries (10, 11).

1.1. Statement of the problem

Development in Afghanistan is complicated by unstable political situation, poor economy and ongoing violence. Afghanistan emerged from decades of war, poor governance, and widespread human rights abuses (12). Afghanistan’s health indicators

are currently near the bottom of international indices and far worse than any other country in the region. When the Millennium Summit was held in September 2000, Afghanistan was in the midst of a conflict. It was only in March 2004 that the Government officially endorsed the Millennium Development Goals (MDGs) and began participating in this effort. As the country was then recovering from two decades of conflict, it was decided to modify the calendar for achieving the MDGs and to amend the benchmarks taking into account the still devastated state of the country. In other words steps were taken to 'Afghanize' the MDGs. This involved extending the time period for attaining the targets to 2020, revising the targets to make them more relevant to Afghanistan and adding a ninth goal on enhancing security (13).

Afghanistan is ranked 155th out of 169 countries for its human development index (0.349), a composite measure of three basic dimensions of human development: health, education and income, in Afghanistan literacy rate is very low; overall literacy rate is 31.4%. Nationally only, around one in six (17%) adult women is able to read and write, compared to 45% for men (14,). Overall 57% of the Afghan population is using an improved source of drinking water, including 82% who use an improved source in urban areas and 51% who are using an improved source in rural areas, only 20% of households are using an appropriate treatment for drinking water, Of the populations 31% live in households using improved sanitation facilities, including 60% in urban areas and 25% in rural. Use of improved sanitation facilities is strongly correlated with wealth, and also differs profoundly between urban and rural areas (15, 16). Antenatal care from a skilled provider (doctor, midwife, nurse or community health worker) is 48%, only 15% of women received at least four antenatal visits. More than two out of three births (67%) take place at home, only one in three births (33%) take place in health facilities, doctors assisted with the delivery of 20% of births, overall, more than 60% of the births delivered with the assistance of non-skilled personnel. The use of non-skilled birth attendants is far more frequent in rural areas (29%) than in urban areas (10%), most likely attributable to the limited health facilities and shortage of female health workers in rural areas. Contraceptive method

use is extremely low with almost 80% of women not using any form of contraception (15, 16).

Only 2% have comprehensive and correct knowledge of HIV prevention and transmission, numerous disparities were found in HIV/AIDS awareness and knowledge levels. For instance, more than half (55%) of urban dwelling women had heard of AIDS, compared to 21% of rural women (15). Access to primary health care services or basic package of health services was 9% in 2003 and 66% in 2006 (16, 17). According to the states of World's Mothers' Report, although maternal mortality has declined from around 1000 to 460 per 100,000 live births between 2000 and 2010, Afghanistan is "the worst country in which to be a mom" and one out of five children die before his/her fifth birthday (18, 19).

When the Ministry of Public Health (MoPH) began reconstructing the Afghan health system in 2003, it faced serious challenges. Decades of war severely damaged health infrastructures and the country's ability to deliver services. A national health resources assessment in 2002 revealed huge structural and resources disparities fundamental to address care access, including the geographic distribution of health facilities and availability of female health worker (20). To establish essential primary health-care services as the foundation of a new system serving the entire population and increase to appropriate and effective care, the MoPH developed a Basic Package of Health services (BPHS) that standardized minimum services at primary care facilities. Subsequently, the MoPH developed an Essential Package of Hospital Services (EPHS) to complement the BPHS with defined referral-level services. Whereas the, MoPH oversees the Afghan health care system, both packages have been implemented mostly by Non-Governmental Organization (NGOs) and supported by three main donors; World Bank, United Sates Agency for International Development (USAID) and European Commission. Despite coordination challenges, as many as 85% of Afghan had access to BPHS Services by late 2008 (defined as access within 1 hour by any type of transport). The Ministry of Public Health (MoPH) is targeting 95% coverage to be achieved by 2015, which is also the year for achievement of the MDGs (21, 22).

The package had seven components: maternal and newborn health, child health and immunization, nutrition, control of communicable diseases, mental health, disability and physical rehabilitation, provision of essential drugs, mental health and disability became second tier components, only implemented where financial and human resources permitted. The government has committed itself ensuring that the BPHS is delivered to all Afghans, regardless of location, ethnicity or gender, as soon as possible, also the government will continue to pursue this over-arching goal as its first priority, as a means to provide a peace dividend to Afghans and to achieve the MDGs. The key elements of BPHS included those services which would have the greatest impact on the major health problems; services that were cost-effective in addressing the problems faced by many people; and services which could be delivered to give equal access to both rural and urban populations (22). The BPHS has two purposes: to provide a standardized package of basic services which forms the core of service delivery in all primary health care facilities, and to promote a redistribution of health services by providing equitable access, especially in underserved areas. The BPHS defined each type of health facility in the primary care system – Health Post, Basic Health Center, Comprehensive Health Center and District Hospital – and the size of its catchment population. It also clearly linked specific health services to each type of facility and defined the corresponding types and number of staff needed, equipment required and essential drugs necessary for the services provided (22, 23).

Two decades of conflict and war left Afghanistan's instuitional system devastated. The Central Statistical Organization (CSO) and most governmental agencies and institutions suffered enormous destruction. Afghanistan does not have a completed data related to health records since 1979, but CSO has estimated of population at province and district level, which are based on information collecting during 2003-2005 household listing, which has also been updated in 2009. It has been found difficult to collect information on morbidity history of infants and health indicators of children under five who are under women's custody. Similar difficulties has been encountered in collection and recording of data related to women's economic participation, participation

in public life, women's role in decision making and women's access to justice. Lack of access to certain regions bogs down data collection. In rural areas, surveys can cover only 40% of the areas. Human development in Afghanistan is showing improvement in the health and education indicators. Public administration and services have gradually been restored, especially in respect of health, education, rural development and finance (24). Limited availability of documented knowledge about primary health care system in Nangarhar Province, aimed this study to assess accessibility, availability and utilization of primary health care services in adults in "Bihsud District" one of the rural district of Nangarhar Province, Afghanistan.

1.2. Aim of the study

The main purpose of this study was to evaluate the availability and utilization of primary health care services in Bihsud District, Nangarhar Province-Afghanistan.

1.3. Objectives:

1.3.1. Short term objectives

1. To determine the utilization of improved drinking water sources and improved sanitary facilities.
2. To determine the availability and utilization of primary health care services and prevention of locally endemic disease (malaria).
3. To determine the utilization of maternal health services and using of family planning.
4. To determine the barriers towards utilization of existed maternal health services.

1.3.2. Midterm and long term objectives

1. Making some documented knowledge related to the primary health services utilization for the Public Health Directorate of Nangarhar Province
2. To formulate recommendation for the development of Primary Health Care in Nangarhar Province.
3. To Increase the acceptability and accessibility of health services in the study area.

2. GENERAL KNOWLEDGE

Health is the basic element of success of a nation. The social, economic, biological and environmental factors affect the health of a society. To achieve better health, people participation individually, as a family, or as a whole community is a must. This is also important that they should do something themselves such as good habit of health or to make a healthy environment. The existing gross inequality in health status of the people particularly between developed and developing countries as well as within countries is politically, socially and economically unacceptable and is, therefore, of common concern to all countries (25). The World Health Organization defined primary health care as essential care at the nucleus of the health care system. It is the first level of contact of individual, the family and the community with the national health care system bringing health care as close possible to where people live and work and constitutes the first element of a continuing health care process (26).

2.1. The Alma-Ata Declaration and Primary Health Care

The 1978 Alma-Ata declaration is often described as a landmark event for primary health care. This PHC approach was proposed and unanimously embraced as the model for global health policy by 3000 delegates from 134 governments and 67 international organizations. The Conference organized by the World Health Organization (WHO) and the UNICEF reaffirmed that the enjoyment of health was a basic right of every human and that health constituted more than just the absence of disease or illness but included the achievement of total physical, mental and social wellbeing (27). The Alma-Ata Declaration created a PHC revolution that embodied the principle of equity, social justice, and health for all. PHC “is the first level of contact of individuals, the family, and the community with the national health system bringing health care as close as possible to where people live and work, and constitutes the first element of a continuing health care process” (28) .

The Conference strongly reaffirms that health, which is a state of complete physical, mental and social wellbeing, and not merely the absence of disease or infirmity, is a fundamental human right and that the attainment of the highest possible level of health is the most important world-wide social goal whose realization requires the action of many other social and economic sectors in addition to health sector (28).

2.1.1. Definition of Primary Health Care

The official declaration of PHC as the vehicle for delivering an acceptable level of "health for all" was made at the Alma-Ata Conference. The Declaration declared the following:

"Primary health care is essential health care based on practical, scientifically sound and socially acceptable methods and technology made universally accessible to individuals and families in the community through their full participation and at a cost that the community and country can afford to maintain at every stage of their development in the spirit of self-reliance and self-determination" (28). It forms an integral part both of the country's health system, which is the central function and main focus, and of the overall social and economic development of the community. The International Conference on Primary Health Care calls for urgent and effective national and international action to develop and implement primary health care throughout the world and particularly in developing countries in a spirit of technical cooperation and in keeping with a New International Economic Order. (28)

2.1.2. Primary Care

Primary Care is a constituent of PHC: "While primary care is distinct from PHC, the provision of essential primary care is an integral component of an inclusive PHC strategy". Primary care can be seen as a set of activities, a level of care, a strategy for organizing health services and a philosophy that should permeate the entire health care system. Also primary care is frontline, ongoing care which is comprehensive and

coordinated and health care system with a higher primary care orientation tend to be produce better health of a population at lower cost (29).

2.1.3. Health Care

Health care is an expression of concern for fellow human beings, defined as: "Multitude of services rendered to individual, families or communities by the agents of the health services or professions, for the purpose of promoting, maintaining, monitoring or restoring health". Such services might be staffed, organized, administrated and financed in every imaginable way, but they all have one thing in common: people are being "served" that is diagnosed, helped, cured, educated and rehabilitated by heath personal. In many countries, health care is completely or largely governmental function. Health care has many characteristic they include: (30).

1. Appropriateness
2. Comprehensiveness
3. Adequacy
4. Availability
5. Accessibility
6. Affordability
7. Feasibility

2.1.4. Core Activities for PHC

The Declaration of Alma-Ata stated that primary health care includes at least:

1. Education about prevailing health problems and methods of preventing and controlling them
2. Promotion of food supply and proper nutrition
3. An adequate supply of safe water and basic nutrition
4. Maternal and child health care, including family planning
5. Immunization against infectious diseases
6. Prevention and control of endemic diseases

7. Appropriate treatment of common diseases and injuries, and
8. Provision of essential drugs.

A strong primary health care system is essential to provide effective and efficient care in both resource-rich and resource-poor countries. It was recognized that in both developed and developing countries, the standard of health services the public expected was not being provided. The services do not cover the whole population. There is lack of services in some areas and unnecessary duplication in others. A very high proportion of the population in many developing countries, and especially in rural areas does not have already access to health services. The health services favored only the privileged few and urban dwellers. Although there was the recognition that health is a fundamental human right, there is a denial of this right to millions of people who are caught in the vicious circle of poverty and ill-health (28).

In the Millennium Declaration of September 2000, member states of the United Nations made a most passionate commitment to address the crippling poverty and multiplying misery that grip many areas of the world. Government set a date of 2015 by which they would meet the Millennium Development Goals (MDGs); eradicate poverty and reduce hunger; achieve universal primary education; promote gender equality and empower women; reduce child mortality; improve maternal health, combat HIV/AIDS, malaria and other disease; ensure environmental sustainability and develop (improve access to water, sanitation, and good housing) and establish effective global partnerships for development (31). These eight Millennium Development Goals (MDGs) emerged from the United Nations (UN) Millennium Declaration in 2000, and are arguably the most politically important pact ever made for international development. They identify specific development priorities across a very broad range, including poverty, education, gender, health, environment, and international partnerships (32).

More than 30 years later, the tenets of Alma-Ata remain relevant. PHC has both the potential to accelerate the achievement of the Millennium Development Goals (MDGs) and fulfill the “Health for All” doctrine of the Alma-Ata Declaration by

providing acceptable, accessible, appropriate, and affordable health care (33). There are remarkable differences in health status between people in different countries as well as between different groups in the same country. The cost of health care is rising without much improvement in their quality. In short, there has been a growing dissatisfaction with the existing health services and a clear demand for better health care (34). Many challenges remain, however, in achieving the goal of "Health for All" and the MDGs. health systems consistently contribute to widening inequities in health. Access to health care is still governed by the inverse care law: the availability of good quality medical care tends to by inversely related to the need for it (35). Access to health services is difficult to define. It is a multidimensional process that in addition to the quality of care, it involves geographical accessibility, availability of the right type of care for those who need it, financial accessibility and acceptability of services; it is also considered a determinant of health inequalities, access to health care services is multidimensional, which is described as the following:

1. Geographical accessibility: The physical distance or travel time between the services delivery point and the user.
2. Availability: The opportunity to access the right type of health care services when needed as well as having the appropriate type of services providers, materials, and equipment.
3. Financial accessibility: The relationship between the price of services and the willingness and ability of users to pay for those services, as well as protection from financial consequences of health expenses.
4. Acceptability: The responsiveness of health services providers to the social and cultural expectations of individual users and communities (36, 37).

A variety of factors have been identified as determinants of utilization of health services, including socio-demographic status, cultural beliefs, economic conditions, health services satisfaction, health status, and health services issues (38). To increase health services utilization and improve health status, one needs to understand the forces that encourage and inhibit health services utilization. Policy makers need to identify

pattern of health seeking behaviors and health services utilization, to ensure fair access to health care services (39).

2.2. Challenges to the Development of Health Care System in Afghanistan

The Human Development Index of the 2009 Global Human Development Report ranks Afghanistan as lowest in Asia and second lowest in the world. In spite of annual progress, per capita income remains, the lowest in the region. Poverty is compounded by a lack of health and social services, as well as poor education and nutrition levels (24). Afghanistan's history of the past two decades is characterized by war, anarchy, insecurity, political instability and international neglect. During this time drastic changes in regimes have disabled the country from making strides towards structural development. Although peace has prevailed since 2002, the country faces real challenges in the form of extreme poverty, insecurity, political instability, lack of infrastructure and large gender disparities. In addition, the lack of social and human capital, absence of government income through taxation or natural resources and the volatile political system are adding to the complexity of health sector development. Civil societies (non-profit organizations) in Afghanistan had a major role in provision of mainly primary health care in rural parts of the country for more than two decades (40). Decades of war and civil strife have adversely affected the delivery of health services to the population of Afghanistan. Until recently, the network of public service delivery had been disrupted by prolonged war and the lack of a central government. In response, many international and national nongovernmental organizations (NGOs) had assumed responsibility for the provision of essential primary health-care services via direct contracts with donor agencies (40, 41, 42). The Government of Afghanistan, in post-conflict period, has embarked on a policy of contracting out primary health care services to the NGOs instead of directly providing essential health services; establish an integrated package of minimum services called the Basic Package of Health Services that envisaged would be available to the population of Afghanistan regardless of how remotely they were located. This was followed by the development of Essential Package of Hospital Services (EPHS) designed to complement and support the BPHS (40, 41). There are many

barriers for creating an accessible, effective, and sustainable health care system in Afghanistan. The main challenges of rebuilding Afghanistan's health care system include a lack of security, lack of infrastructure, economic hardship, poor coordination among government and health care providers, difficult access to health care facilities, unsuitable hospital conditions, and few trained health care workers, especially women.

2.2.1. Security

The security situation in Afghanistan remains unsafe and unpredictable. There are many threats such as suicide bombers, the widespread narcotics trade, and kidnapping for ransom. Afghanistan has more land mines and improvised explosive devices than any other country in the world (43). In addition to general insecurity, health centers and health care workers are targets. Some health care centers have been closed due to violence. Health and reconstruction workers were killed, specifically for being health care workers. Lack of security also affects those trying to seek medical care. Utilization of services in secure provinces is three times greater than in areas of active conflict; better security is required for continued improvement in Afghanistan's emergency health care system (44).

2.2.2. Lack of Infrastructure and Economic Instability

The lack of infrastructure in Afghanistan is manifested in many ways. A poor road network and near complete absence of railways make some rural areas inaccessible during heavy winter snowfalls. Improvement of the health care system will require investment in transportation, electricity, improved water, and communications. Health care quality and resources available vary widely from urban to rural areas. Medications for hospitalized patients must be purchased from an outside pharmacy by family members and brought to the hospital. This situation is common throughout the country, if there is medical equipment, most health care workers are not properly trained to operate or maintain it. Medical laboratories lack supplies and personnel (45).

Another issue is economic instability. Nearly 70% of Afghans live in extreme poverty with a 32% unemployment rate. Health care funding mainly comes from outside sources such as the European Commission, World Bank, and USAID, while external funding is key domestic support of health care must increase. External funding has unpredictable availability; domestic health care spending is a low priority with per capita spending on health care at 0.6% of the country's gross domestic product. Improvement in the economy, viable internal funding sources, and more spending by the Afghan government will improve access and affordability of health care (13, 44).

2.2.3. Health Care Workforce and Public Health Infrastructure

Another obstacle for Afghanistan's health care system is the lack of qualified health care workers. During the war years, many health care workers were killed or fled the country. The "brain drain" in Afghanistan left few health care workers. Of those who remain, medical training is inconsistent because of the lack of standardized training programs (43). During the 1990s, medical schools were operated according to ethnic and religious rivalry. Consequently, medical students were often admitted through nepotism. A survey by the WHO showed 70% of nurses, midwives, and laboratory technicians did not meet minimum knowledge and skills standards when they were tested. The Ministry of Public Health cannot employ those trained by some NGOs because they do not meet the government's strict requirements. As a result, a nationwide survey indicated a shortage of at least 7,000 physicians and 20,000 nurses, midwives, and allied health professionals (13, 46). The salary for physicians is too low for a reasonable standard of living, forcing physicians to practice at hospitals or public clinics in the morning and spend the afternoon in private clinics. The few residency training programs that exist provide minimal guidance in terms of lectures, clinical practice, or supervision, few health care workers desire to work in rural areas due to the poor living and working conditions, lack of education for their children, security issues, and poor transportation (13, 46). A discussion of health care access improvements is not complete without attention to basic needs. While basic health care is important, the lack of food, clean water, and shelter must also be addressed to improve community health. Due to the

recent years of drought and poor food security; nearly 5 million people depend on food assistance from the United Nation and other relief organizations ensuring the population of Afghanistan has adequate food, water, and shelter must keep pace with improving health care access (13).

2.2.4. Role of women

While the number of overall health care workers is improving, the focus must be on female. Afghan societal norms dictate that only women can provide medical care for women. During the Taliban regime, women were forbidden from going to school; thus, virtually no female doctors or nurses were trained during this period. In 2002, only 21% of health care facilities had at least one female health care provider. Today, nearly 60% of facilities have at least one woman staff to provide care. Access to health care for women is improving, but there are still many obstacles to overcome to decrease the health disparities between men and women (20, 13).

2.3. Afghanistan Health Care System and Services

There was no ‘health system’ to speak of in 2002; what little public health care was provided at that time was operated by non-governmental organizations in a fragmented way or, in the case of disease-specific programs, vertically by the UN agencies. Unregulated private health care provision dominated the market. A major and early decision taken by the donors and the Ministry of Public Health in 2003 was the introduction of the Basic Package of Health Services for Afghanistan, which is implemented to date largely through a process of contracting-out to NGOs. Uptake of public health services has been slower than expected; the people’s preference still lies with the private sector (which includes non-professional providers) (22.40). Although general mortality information is seriously outdated, it is estimated that Afghanistan is one of the few countries in the world where women have lower life expectancy than men. Overall, reproductive health complications is a leading cause of women’s mortality, compounded by poor general health conditions, such as those related to nutrition, lack of access to safe drinking water and adequate sanitation and gross

absence of access to skilled birth attendants and timely access to emergency obstetric care. In addition, early pregnancies, narrowly spaced births and high fertility exacerbate maternal mortality. Approximately, a million babies are born annually in Afghanistan, which exacerbates maternal mortality. Key to the reduction of maternal mortality is eradication of child marriages, spacing of births and awareness building in both male and female population on women's reproductive rights (22, 24)

The overall contraceptive prevalence rate has been found to be 23%; only 15% women reported using one modern family planning method. Reduction in fertility rate is one of the first essentials in a poverty stricken economy. A fast growing population, without a fast expanding economy poses a number of challenges- food insecurity, income insecurity and absence of education and skills training to prepare the younger generation to earn decent incomes. These issues create disenfranchised youth who serve as easy recruits to the insurgencies and anti-governmental elements. Addressing fertility issue is central to containing such problems. Ante-natal Care (ANC) has increased in Afghanistan, which would help to reduce maternal mortality rates. The percentage of pregnant women receiving Ante-natal Care is low in international and regional perspective. Yet, there are signs of slight improvements, with 39% of women reporting use of skilled Ante-natal care services; use of Ante-natal care services was more than twice in urban when compared to rural areas, the number of births attended by skilled personnel has made improvements. Even though the overall figure of skilled birth attendants is very low, the trend indicates a substantial increase compared to the previous estimates (22, 24, 40).

2.4. Basic Package of Health services

In March 2002, the Afghan Ministry of Public Health developed the Basic Package of Health services (BPHS) as a guide for the health services that the Afghan government would commit to provide for all Afghan citizen (Table 2. 1). The BPHS has seven primary elements. Services were identified that would have the greatest impact on major health problems, be achievable given the limitation in infrastructure, be cost

effective, and give equal access to health care in both rural and urban areas. Six elements involve basic services but the seventh element is necessary for the success of the six service element. The seventh element is the regular and dependable supply and availability of essential drugs (22).

2.1. Table: Distribution of Basic Package of Health services (20).

1	Maternal and Newborn care	1. Antenatal care 2. Delivery care 3. Postpartum care 4. Family planning 5. Care of the newborn
2	Child Health and Immunization	1. Expanded program on immunization 2. Integrated management of childhood illness
3	Public Nutrition	1. Prevention of malnutrition 2. Assessment of malnutrition
4	Communicable Disease Treatment and Control	1. Control of Tuberculosis 2. Control of malaria 3. Prevention of HIV/AIDS
5	Mental Health	1. Mental health education and awareness 2. Case identification, diagnosis and treatment
6	Disability and Physical Rehabilitation Services	1. Disability awareness, prevention and education 2. Provision of physical rehabilitation services 3. Case identification, referral and follow up
7	Regular Supply of EDs	1. Listing all essential drugs needed

The Government of Afghanistan (GOA) has developed a medium term strategic plan, the Afghanistan National Development Strategy (ANDS), along with the Health and Nutrition Sector Strategy, within these two umbrella strategies a number of important public health considerations were recognized as falling within

the GOA/MoPH mandate to address; namely the previously neglected areas within population health. Additionally, a number of health concerns have recently been identified as priorities for the government as a result of broader enquiry into areas such as mental health, disability, dental health, and renal disease.

National health strategies for these and other priority health issues have identified areas for intervention that fall outside the current framework of the BPHS such as the public health and non-BPHS primary health care interventions that go beyond service provision. These are currently unplanned and have no commitment for funding. Private providers are also being encouraged to contribute to better health outcomes for Afghans by delivering services that complement the scope of the BPHS and the GOA commitment to provision of free essential health care to all. The MoPH has commenced the process of developing provincial level strategic plans which will address population health, primary care and secondary/tertiary care. It is therefore essential to differentiate between what is included within the BPHS package and what will fall outside that package or within other levels of intervention or care. (22, 41)

2.5. Types of Health Facilities Used by the BPHS

The standardized classifications of health facilities that provide the basic services now include the following:

1. Health Posts (HPs)
2. Health Sub-centers (HSCs)
3. Basic Health Centers (BHCs)
4. Mobile Health Teams (MHTs)
5. Comprehensive Health Centers (CHCs)
6. District Hospitals (DHs)

This standardized classification establishes a common language used by the MoPH and its partners. Being based on measurable considerations such as population size and the locations of the target areas, the standardized classification of facilities emphasizes the equitable distribution of health care all over the country. In addition, the

standardized classification has increased the ability of the MoPH to oversee, monitor and manage the health system. It has been particularly important when one considers the number of key donors of financial resources for provision of the BPHS with whom the MoPH has had to deal. The BPHS will be offered at six standard types of health facilities, ranging from community outreach provided by CHWs at health post, through outpatient care at health sub center and basic health centers and provided by mobile health teams, to inpatient services at comprehensive health center and district hospital. The section below summarizes the services available at each type of center (22).

2.5.1. Health Posts (HP)

At the community level, basic health services are delivered by Community Health Workers (CHWs) from their own homes, which function as community health posts. A health post, ideally staffed by one female and one male CHW, cover a catchments area of 1,000– 1,500 people, which is equivalent to 100–150 families. CHWs offer limited curative care, including diagnosis and treatment of malaria, diarrhea, and acute respiratory infections such as pneumonia; distribution of condoms, oral contraceptives, and depot medroxy progesterone acetate injections; community Directly Observed Treatment, Short-course (DOTS); growth promotion, nutrition counseling, and micronutrient supplementation. CHWs are responsible for treating minor illnesses and conditions common in children and adults, for awareness-raising on disability and mental health, and for identification of persons with disabilities and mental conditions. The routine management of normal deliveries is not part of the CHW's job description, but female CHWs focus on promoting birth preparedness, safe home deliveries with a skilled birth attendant (when possible), awareness of the danger signs of pregnancy, the need for urgent referral when delivery complications occur, and basic essential newborn care (22, 42).

2.5.2. Health Sub-Centers (HSC)

The Health Sub-Center (HSC) is an intermediate health delivery facility to bridge the services gap between Health Posts and other BPHS levels of service delivery. The

MoPH has agreed to establish a number of HSCs with financial support from the international community to benefit that people who are currently not served by the healthcare system. The HSCs are additional inputs to the BPHS and are integrated into the overall BPHS system rather than serving as a vertical program.

The overall objective of establishing HSCs is to increase access to health services for underserved populations residing in remote areas. A HSC is intended to cover a population of about 3,000-7,000. The maximum walking distance to a HSC is two hours for the consumer of health services living in remote areas. HSCs are initially being established in private houses. The HSC will provide most of the BPHS services that are available in BHCs including health education, immunization, antenatal care, family planning, TB case detection and referral, and follow up of TB cases in coordination with community DOTS. In addition, HSCs will be able to treat infectious diseases such as diarrhea and pneumonia. HSCs will refer severe and complicated cases to higher level facilities. Where feasible, HSCs will support health posts and CHWs, CHWs will provide a copy of their monthly reports to the HSC or the mobile team in their areas. The HSC will be staffed by two technical staff (a male nurse and a community midwife), as well as a cleaner/guard (24, 42).

2.5.3. Mobile Health Team (MHT)

Another way to ensure access to basic health services in remote areas is the provision of health care services through mobile health teams. While the provision of mobile health services is often perceived to be costly, establishing more (fixed) health facilities within current available financial and human resources appears to be a less feasible option at this stage. The principal idea of mobile health services is to establish a limited number of mobile health teams in each province by dividing the province into clusters of districts .1) to ensure the provision of essential and basic health services in remote villages located in geographically hard to access areas; 2) to expand and strengthen community-based health care (CBHC) through the identification of additional CHWs in hard to access areas and to link community level interventions with BPHS

facility-based services; 3) to encourage greater community participation and community ownership of health services. Mobile health services are an extension of BHC services, therefore, the services they provide are in most cases those recommended for a BHC. The MHT ideally has the following staff, male health provider (doctor or nurse), female health provider (community midwife or nurse), vaccinator and driver (22, 42).

2.5.4. Basic Health Center (BHC)

The BHC is a facility offering primary outpatient care, immunizations and maternal and newborn care. Services offered include antenatal, delivery, and postpartum care; new born care ,non-permanent contraceptive methods; routine immunizations; integrated management of childhood illnesses; treatment of malaria and tuberculosis, including DOTS; and identification, referral, and follow-up care for mental health patients and persons with disabilities including awareness-raising. BHC supervises the activities of the health posts in its catchment area. Services of the BHC cover a population about 15,000–30,000, depending on the local geographic conditions and the population density. In circumstances where the population is very isolated, the catchment population for a BHC can be less than 15,000. The minimal staffing requirements for a BHC are a nurse, a community midwife, and two vaccinators. A male/female ratio of 1/1 is recommended, and at least one female health worker should be part of the BHC staff. The MoPH will allow a physician to be at a BHC only to replace a midwife or a nurse (22, 42).

2.5.5. Comprehensive Health Center (CHC)

The CHC covers a catchment area of about 30,000–60,000 people and offer a wider range of services than does the BHC. In addition to assisting normal deliveries, the CHC can handle certain complications, grave cases of childhood illness, treatment of complicated cases of malaria, and outpatient care for mental health patients. Persons with disabilities and persons requiring physiotherapy services will be screened, given advice and referred to appropriate services in the area. The facility usually has limited space for inpatient care, but has a laboratory. The staff of a CHC is larger than that of a

BHC; it includes both male and female doctors, male and female nurses, midwives, one (male or female) psychosocial counsel or when mental health activities are implemented, and laboratory and pharmacy technicians. Physiotherapists will visit CHCs on an outreach basis from the district hospital (22, 42).

2.5.6. District Hospital (DH)

At the district level, the district hospital handles all services in the BPHS, including the most complicated patients. Patients referred to the district hospital level include those requiring major surgery under general anesthesia, X-rays, comprehensive emergency obstetric care, and male and female sterilizations. It offers comprehensive outpatient and inpatient care for mental health patients and rehabilitation for persons requiring physiotherapy with referral for specialized treatment when needed. The district hospital also provides a wider range of essential drugs, treatment of severe malnutrition renewable supplies and laboratory services than do the health centers. The district hospital is staffed with a number of doctors, including female obstetricians/gynecologists; a surgeon, an anesthetist, a pediatrician, a doctor who serves as a focal point for mental health; psychosocial counselors/supervisors; midwives; laboratory and X-ray technicians; a pharmacist; a dentist and dental technician; and one to two physiotherapists (male and female). Each district hospital covers a population of about 100,000–300,000 (22, 42).

2.6. Essential Package of Health Services (EPHS)

Established in 2005, Afghanistan's Essential Package of Hospital Services (EPHS) provides a framework for the provision of secondary health services within the hospital system. It defines the standardized package of services at each hospital level (district, provincial and regional); provides a guide for all stakeholders for how these hospitals should be staffed, equipped and provided with drugs and other supplies; and promotes a health referral system that integrates the primary health care system (delivered through the Basic Package of Health Services) with the hospital system. The Essential Package of Hospital Services (EPHS) has three purposes:

1. To identify a standardized package of hospital services at each level of hospital
2. To provide a guide for MoPH, Private sector, NGOs on how to the hospital sector should be staffed, equipped and provided materials and drugs, and
3. To promote a health referral system that integrates the BPHS with hospital.

The EPHS defines, for the first time, all the necessary elements of services, staff, facilities, equipment, and drugs for each type of hospital in Afghanistan. The EPHS identifies, with tables, the following elements for each type of hospital so that the inputs or resources needed at each level may be easily compared:

- Diagnostic and treatment services for various condition's
- Diagnostic tests
- Staffing
- Equipment and supplies
- Essential drugs

2.6.1. The Foundation of the Health System and Its Relationship to Hospitals

Health services in Afghanistan operate at three levels: 1) Primary Care Services i.e. at the community or village level as represented by health posts, CHWs, HSCs, BHCs and MHTs; 2) Secondary Care Services i.e. at the district level, as represented by CHCs and District Hospitals operating in the larger villages or communities of a province; and 3) tertiary care services at the provincial and national levels, as represented by provincial, regional, national, and specialty hospitals.

BPHS is complemented by the EPHS which defines essential elements of hospital services and promotes a referral system in synergy with the BPHS. Together, the BPHS and the EPHS represent a number of key elements of the health system being built by the MoPH in Afghanistan. At the planning stage, they have illustrated where essential primary care and hospital services will be provided and have explained the referral hospital system necessary to support the BPHS. However, the EPHS which was developed at a later phase cannot attain the coverage nor achieve the mortality impact of

the BPHS. The hospital sector is generally a less cost effective service of the MoPH, but provides high profile and highly desired services to the population. The initial expectation that the referral system will complete the synergy between BPHS and EPHS has not materialized to the extent expected. This can be attributed to inappropriate utilization of hospital services and an unstructured referral system. EPHS coverage has expanded from 0 to 34 provincial Hospitals (22, 47). The mission of Afghanistan Ministry of Public Health is to improve the health and nutritional status of the people of Afghanistan in an equitable and sustainable manner through health services provision quality; advocating for the development of healthy environments and living conditions; and the promotion of healthy lifestyles (47).

2.6.2. Levels of Hospital

Hospitals play a critical role in the Afghan health sector; they are part of the referral system, which aims to reduce high maternal and early childhood mortality rates. Hospitals are classified into three groups according to size of the referral population, number of beds, workload, and complexity of patient services offered (47).

2.6.2.1. Provincial Hospital (PH)

The PH is the referral hospital for the Provincial Public Health Care System. In essence, the PH differs little from a DH; it offers the same clinical services and a few possible additional specialty services. In most cases, the PH is the final referral point for patients from the districts. In some instances, the PH can refer patients to higher levels of care in the regional hospital or to a Specialty Hospital in Kabul (47).

2.6.2.2. Regional Hospital (RgH)

The RgH is primarily a referral hospital with a number of specialties for assessing, diagnosing, stabilizing and treating, or referring back to a lower-level hospital. The RgH provides professional inpatient and emergency services at a higher level than is available at District Hospitals (DHs) and Provincial Hospitals (PHs), yet the

overall objective remains reduction of maternal mortality, infant mortality, and under-5 mortality as well as reduction in other diseases and conditions responsible for high mortality and morbidity (15, 47).

2.6.2.3. National Hospitals (NH)

NHs or SHs are referral centers for tertiary medical care and are located primarily in Kabul. They provide education and training for HCWs and act as referral hospitals for the PHs and RgHs. As of 2011, there are 10,277 health posts, 468 health sub-centers, 807 basic health centers, 388 comprehensive health centers, 67 district hospitals, 29 provincial hospitals, 5 regional hospitals and 24 national hospitals throughout the country (15, 47).

At the present time Afghanistan's socioeconomic indicators show a mixed picture of progress and challenges, some of which remain a major concern. Life expectancy is low (60 years) Despite a significant decline, infant, under-five and maternal mortality, 77 per 1000 live births, 99 per 1000 live births and 460 per 100 000 live births respectively are still high. There is high burden of communicable diseases which account for more than 60% of all outpatient visits and more than half of all deaths. Non communicable diseases contribute to more than 35% of all of the mortality. Afghanistan's health system has been steadily progressing over last the 13 years with an increasing coverage of primary health care services throughout the country. Afghanistan health system's vision, roadmap and policy framework top priorities has been developed within the Afghanistan National Development strategy (ANSD) in 2008, reaffirmed in National Strategic Health Plane 2011-2015 and National Health and Nutrition Policy 2012-2020. Afghanistan has transformed a conflict-torn health system both in infrastructure and services delivery terms to a relatively functional one through an innovative approach by contracting out Basic Package of Health Services and Essential package of Health Services (BPHS/EPHS) at Primary and tertiary level to competent NGOs (13, 41) .

2.7. The Future of Health Care in Afghanistan

Afghanistan's health sector made significant progress over last decade which translated in substantial decline in infant, child and maternal mortality. The concerted efforts have enabled Afghanistan to stay on track in achieving Millennium Development Summits (MDSs) 4 and 5. However the baseline indicators were extremely poor and until now remain high in regional and global comparison. The coverage of primary health care services has been expanded to districts was 82% of the population resides. Albeit the improvement in the quantity of health services of health services delivery that resulted in an increase of number of functioning health facilities from 496 in 2002 to more than 2000 in 2011 and five-fold increase in the number of outpatient visits. The coverage, quality and accessibility still remain suboptimal. Thirty percent of population has limited access due to lack of security, 40% of population living more than one hour travel from nearby health facility and skill birth attendance is less than 40% (13).

The challenges of establishing a functional health care system in Afghanistan include those of a developing nation, post-conflict nation, and a combat zone. The long-term goal of quality health care for all citizens will only be met by a combination of specific goal-oriented projects, foreign aid, and domestic responsibility. Health care in Afghanistan is improving as evidenced by improved access to care, enhanced quality of patient care, and more knowledgeable health care workers in rural areas. Unfortunately, the country's health care system still needs significant improvement before it meets basic and higher-level health care needs. The focus on primary care is appropriate primary care. It is the first line of defense and it yields large dividends. Hospitals should be adequately stocked and staffed to ensure a patient with an emergency can be treated. Once emergency departments are properly staffed and stocked, more extensive pre hospital training can be developed. The health care situation in Afghanistan today is dire, but improving. Time and commitment will ensure a brighter, healthier future for the nation of Afghanistan and its people. Access to a primary health care facility is seen as a basic social right (13, 20, 41)

3. METHOD AND MATERIALS

3.1.Type of the Study

A cross-sectional study design was used to the assess availability and utilization of primary health care services.

3.2.Study area and its characteristics

The study was accomplished in one rural area (District Bihsud) of Nangarhar Province Afghanistan, in April 2014, representing various geographical and ethno cultural region of the province.

Afghanistan is a landlocked country located in South-western Asia, bounded on the North by Turkmenistan, Uzbekistan and Tajikistan; on the East by China and the part of the disputed territory of Jammu and Kashmir controlled by Pakistan; on the South by Pakistan; and on the West by Iran. Kabul is the capital and largest city of Afghanistan (Figure 3.2.1). Afghanistan's area with square kilometer is 652,864 and High Mountain covers much of Afghanistan (48). The last official census is Afghanistan was conducted in 1979, when the population registered at 15,551,358; since then no official census has been made; the total population of Afghanistan was estimated around 27 million in the year 2012. In total 51% of the populations are male, and 49% female (figure 3.2.2). Almost three-fourth people (72%) live in rural areas, 22.5% people (6.1 million) live in urban area and in addition 5.5% people (1.5 million) live as nomads.

Figure 3.2.1 Map of Afghanistan and its neighbor countries (48)

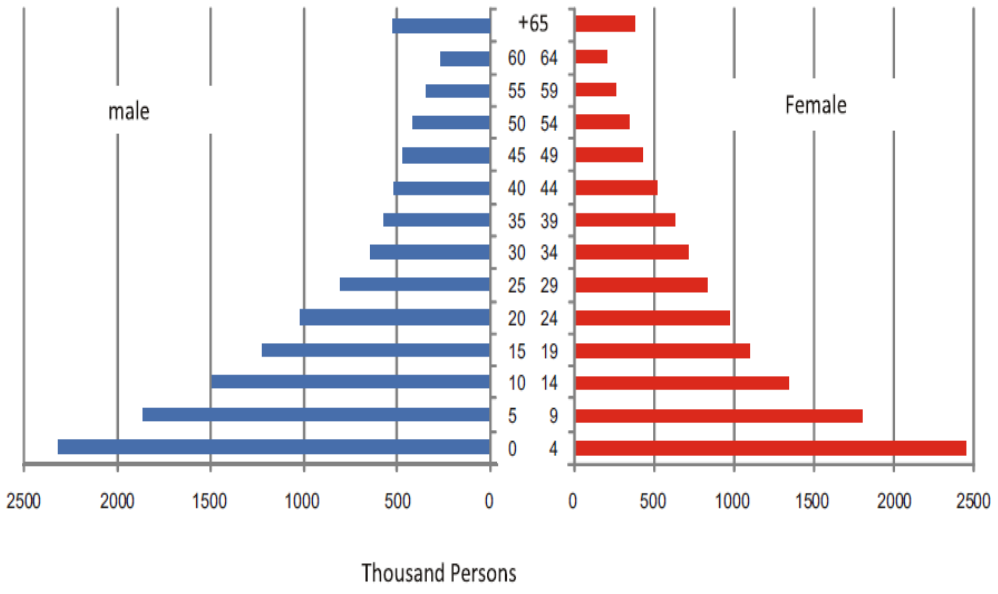

Figure 3.2.2. Settled populations by sex and age groups, Afghanistan 2012-2013 (48)

The most striking feature of the Afghan population is its very young structure (Figure 3.2.2). Some 46.1 % (11.7 million) are under age of 15 years, where elderly of 65 and over are around 3.7%. The proportion under 15 is among the highest in the world and significantly higher than that of the neighboring countries (48).

Nangarhar Province is located in the Eastern region of Afghanistan. Its area with square kilometer in 7,641.1 and estimated total population is 1,775,401. Nangarhar Province has 21 rural areas (districts). Jalal Abad is the capital of Nangarhar Province (figure 3.2.3). Ethnic groups living in Nangarhar are Pashtun (90.1%), Pashai (3.6%), Arab (2.6%), Tajik (1.6%) and others (2.1%). Major occupations of the people are agriculture, animal husbandry, day labor, forestry, and nurseries. Overall literacy rate in Nangarhar province is 29% with a female, male ratio 1:3, little or no access to electricity outside of the Jalal Abad (48, 49).

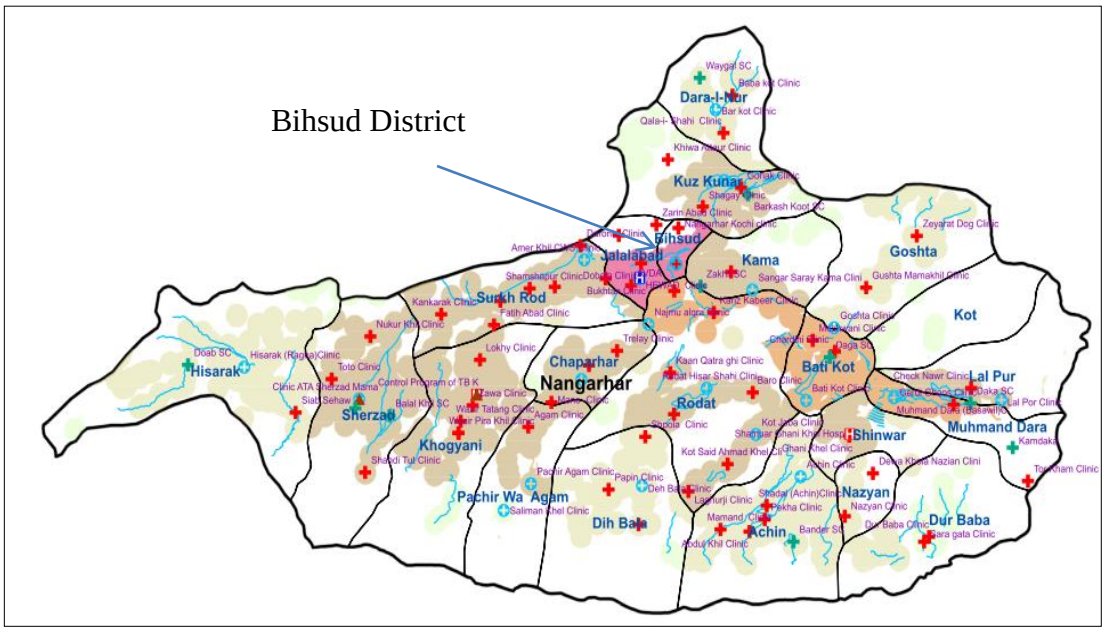

Figure 3.2.3. Map of Nangarhar province Afghanistan 2014 (50)

Security remains Afghanistan's key challenge. South and East part of the country is mostly unsecure. Some rural district of Nangarhar Province is also among the non-secure areas, therefore, very fewer researches have been done in these regions. Because

of the security problem, it is decided to perform the research in one of the more secure areas of Nangarhar Province namely Bihsud District (Figure 3.2.4).

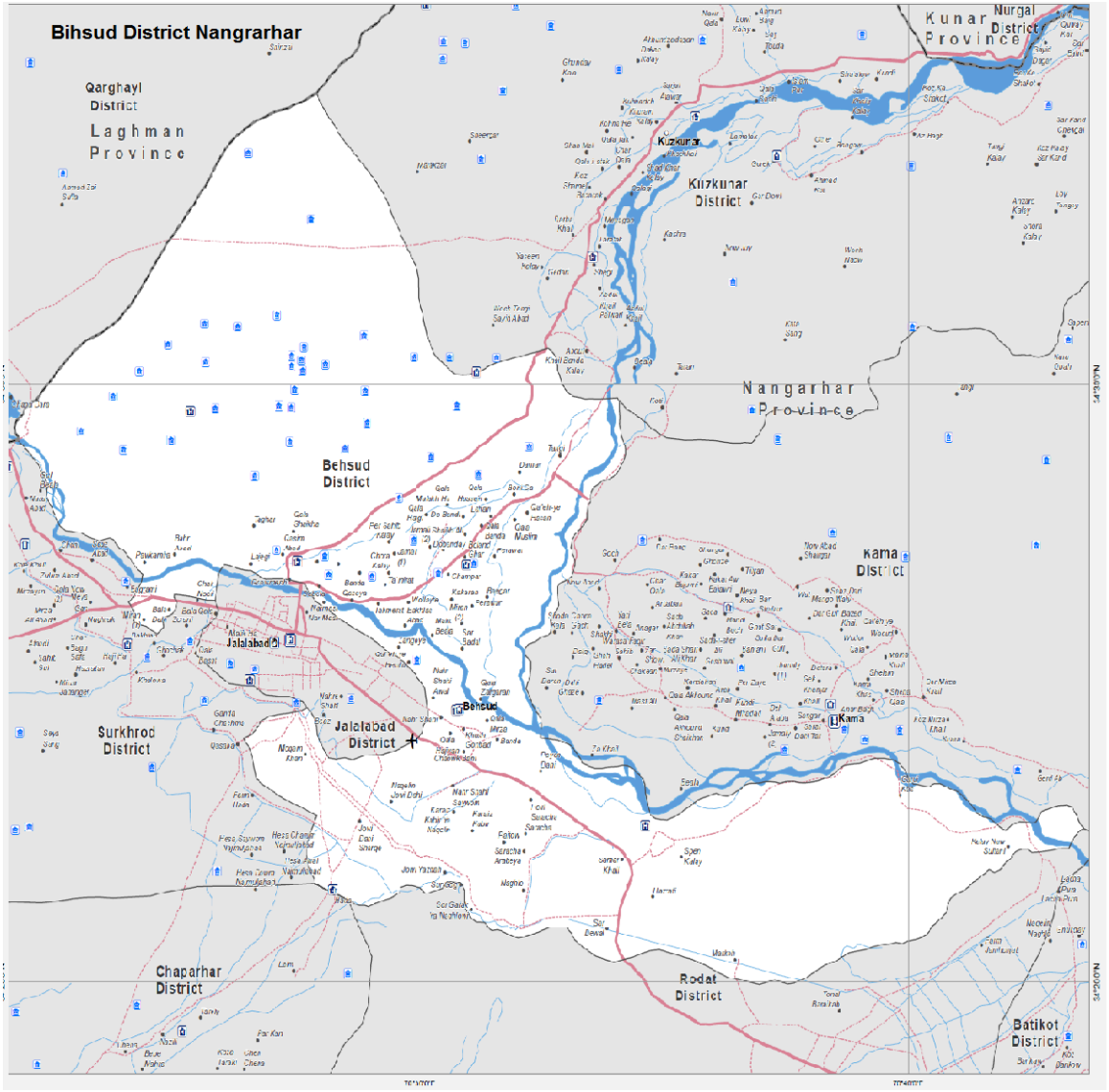

Figure (3.2.4) Map of Bihsud District Nangarhar Afghanistan 2014 (49)

The District of Bihsud has totally 12 active Health Centers (50). Out of 12 Health Center three are Comprehensive Health Centers and the others are Basic Health Centers Table 3.2.1 Show an overview of active health facilities in Bihsud District.

Table 3.2.1. Distribution of Health Centers by names and types (Bihsud District Nangarhar Province-Afghanistan, 2014)

Name of Health Center	**Type of Health center**
Wach Tangy Clinic	Basic Health Center
Qalay khyaley Clinic	Basic Health Center
Beland Ghar Clinic	Comprehensive Health Center
Nehri Shahi Clinic	Basic Health Center
Faram hada Clinic	Basic Health Center
Najmul Qura Clinic	Comprehensive Health Center
Qalay Malakh Clinic	Basic Health Center
Saracha Ali khan Clinic	Basic Health Center
Kariz kabir Clinic	Basic Health Center
Zarin abad Clinic	Basic Health Center
Najmul Jihad Clinic	Comprehensive Health Center
Madrasa (Hamim sahib) Clinic	Basic Health center

3.3. Study population and sampling frame

The universe includes all people aged between 20-60 years in the study site. Total estimated population of Bihsud District was 110,500 and population aged between 20-60 years interval was 43,095, which consist 39% of the total estimated population (44). The following formula has been used for calculating the sample size:

$$n = \frac{N z^2 PQ}{(N-1)d^2 + z^2 PQ} * DE$$

$\alpha = 0.05$ Z= 1.96

P= 0.5 (Assumed Prevalence) Q= (1-P)

d= 0.05 DE (Design effect) =2

$$n = \frac{43095\ (3.84)*(0.25)}{(43094)(0.05)^2 + (1.96)^2(0.5*0.5)} = 381 * 2 \text{ (Design Effect)} = 762$$

Considering the non-response rate as 20%, in order to ensure to reach the calculated sample size, finally it is targeted to offer 915 people to participate the study. Out of 915 eligible persons, 880 were accepted to participate in the study. Of the 35 persons who did not want to participate the study 20 (57.2%) were males and 15 (42.8%) were females.

3.3.1. İnclusion and Exclusion Criteria

People aged between 20-60 years, permanent resident or have been living at least for 2 years in the selected villages and people who accepted to participate, were included to the study. People aged less than 20 or more than 60 year, who were not permanent or have been lived for less than two years at the selected villages and people who did not accept to participate, were excluded from the study.

3.4. Data collection and manpower

The study was conducted in from 1 to 30th of April 2014. Two stage cluster sampling method has been used. There were totally 12 active health centers in Bihsud District, as was mentioned above. These health centers coverage area was considered as 12 clusters. One of the three CHC clusters (Beland Ghar) and three of the nine BHC clusters (Fame Had, Qalay Malakh and Zarin Abad) were randomly selected on purpose. Since there was no information about the population distribution of these clusters, it was assumed that the eligible people in the district were similarly distributed in each cluster. Starting from these assumptions the target sample was divided by four and data have been tried to be collected from 230 people from each cluster. In order to reach every village in the sampled clusters, the targeted cluster sample was also further divide to the number of villages in each cluster.

In Beland Ghar cluster 217 (117 males, 100 females), in Qaly Malakh cluster 211 (115 males, 96 females), in Farme Hada cluster 224 (124 male, 100 female) and in the Zarine Abad cluster 228 (123 males, 105 females) participated in the study.

Table.3.4.1. Distribution of sample clusters by villages (Bihsud District Nangarhar, Afghanistan 2014)

Cluster name	**Name of villages**	**Number of participants**
Beland Ghar	Qaly Ali, Kakaran	14
	Banda kakaran, shikhan Mulakhil	14
	Pirawar, Pirawar Biland Ghar	13
	Juydag, Juydag Meyagan	14
	Shikh Ali, Shikh Ali Najaran	14
	Char Misra	14
	Bila, Bila Gul Abad, Bila Tapo	14
	Benigah,	13
	Qaly Hussain	13
	Tapo Miran	13
	Sarbandyali	14
	Meran	14
	Shikhan Daman	13
	Chawarkhil	14
	Pirawar Payeen	13
	Tangi Tukhchi	13
Total		**217**
Qaly Malakh	Jamali	18
	Qaly Malakh	18
	Khwaja Omar	20
	Dubandi	19
	Qaly pir Sahib	20
	Qaly Salo	19
	Shikhano Kaly	18
	Sawey Tank	20
	Engineer Ghafar Kaly	20
	Jabarkhilo Kaly	19
	Arabono Kaly	20
Total		**211**

Table.3.4.1. (Continue) Distribution of sample clusters by villages (Bihsud District Nangarhar Afghanistan 2014)

Farme Heda	Farme Hada Kamp	26
	Zeytun Fabrika	25
	Farme Hada Family	25
	Ganda Chishma	27
	Mayubino Kamp	28
	Muqam khan	28
	Kabul Hada	24
	Sayaf Family	41
Total		**224**
Zarine Abad	Name of villages	
	Majbur Abad	27
	Zarine Abad	27
	Gul Abad	26
	Bezey Ekmalatey	27
	Zafar Abad	28
	Muqam khan Ghundey	28
	Kanal 10. Veyalla	33
	Kanal 11. Veyalla	32
Total		**228**
Grand Total		**880**

Since there were no streets and household numbers in the villages, the household selection was done as below: The village was divided from a central point, into four parts hypothetically and then, in each part, one household were selected randomly as the starting point, and until reaching the required sample size, moving from the nearest households, all households were visited. In every household first all eligible household members were listed and, one individual from each of the sampled household was selected randomly and interviewed. In the case of more than one eligible person, only one of them was selected randomly for interview. Data was collected by researcher himself with the support of trained health staff (one male, two female nurses). There were two teams (each team was consist of one male and one female staff) and the questionnaire form was fulfilled by the interviewers with face to face interview.

3.5. Variables

3.5.1. Dependent variables:

- Utilization of improved drinking water source and improve sanitary facilities (latrines)
- Availability and utilization of primary health care services
- Knowledge about availability of maternal health services and utilization of Maternal Health services

3.5.2 Independent variables:

Socio-demographic characteristic: age, sex, marital status; occupation, level of education and self-evaluation economic status.

3.6. Terms and Criteria

- **Availability:** Available means that obtaining services when it is need. In the context of Afghanistan, this means having access to basic packages of health services within two hours of travelling using whatever available means of transport and to a higher level facility within a further two hours travel time following the referral. Services are provided by appropriately trained staffs, which have sufficient equipment and supplies to deliver them. (41)
- **Utilization (of health services):** utilization provides the knowledge of whether the available services are being used (30, 51).
- **Improved drinking water sources:** In Improved drinking-water sources is defined as one that, by nature of its construction of through active intervention, is protected from outside contamination, in particular from contamination with fecal matter. Example of improved source of drinking water is piped water into dwelling, piped water to yard/plot, public tap or standpipe, tube well or borehole, protected dug well, bottle water (16, 52).

- **Improved Sanitary facilities (latrine):** 'Improved' sanitation latrine is those that reduce the chances of people coming into contact with human excreta. It includes toilets that flush waste into a piped sewer (flush toilets), septic tank, pit latrine with slab, and ventilated improve pit latrine (52).
- **Community Health worker:** The community health worker (CHW) is a trained community volunteer (female or male), which promotes healthy lifestyles in the community, encourages appropriate use of health services, and treats and refers common illnesses (22).
- **Frequency of attendance ANC and PNC:** According to Afghanistan National standard for reproductive health services (19, 53) all pregnant women should be strongly encouraged to have a minimum of four antenatal care visits. For postnatal care the general recommendation is that: a visit at least during the first twenty-four hours the second before the end of the first week would be most effective. Another visit around six weeks postpartum is also highly recommended (54).
- **Basic Package of Health Services (BPHS):** The basic package of health services is provides a comprehensive list of services to be offered at national levels with defined of each type of health facility in the primary care system; the health post, basic health center, comprehensive health center, and district hospital and the size of its catchment area (55, 56).
- **Basic Health Center (BHC):** the basic health center is a facility offering primary outpatient care; it is cover a population of about 15,000-30,000 people. Services offered include maternal health services, immunization, treatment of communicable disease and identification, referral and follow up care, the BHC supervise the activity of health post in its catchment area, the minimum staff requirements for a BHC are a nurse, a community midwife and two vaccinator (22)
- **Comprehensive Health Center (CHC):** The CHC cover a catchment area of about 30,000-60,000 people and offer a wide range of services than does the BHC. The staff of a CHC includes both male and female doctors, male and female nurses, midwives, laboratory and pharmacy technician (22).

Garden: garden is a planned space, usually outdoors, set aside for the display, cultivation, and enjoyment of plants and other forms of nature, or a piece of ground adjoining a house, used for growing flowers, fruit, or vegetables

3.7. Data Collection Tools and Pretesting

A structured and pre-tested questionnaire was used for collecting of data (Annex 1). The questionnaire was translated into the national language of Afghanistan (Pashto), and administered in native language. A three days training which covered (interviewing skill, criteria for selection of eligible person and selection of starting household) on data collection and questionnaire fulfillment was given to three nurses. The questionnaire form was pre-tested on 30 respondents outside the study area before the starting data collection. Appropriate modifications of questionnaire were done based on the experience of the pre-test.

3.8. Data Analysis

Data were coded, entered, edited and analyzed by IBM SPSS Statistic 21 Programme. Data entry and Analysis were done by the researcher. The results were shown in marginal and contingency tables. Chi-square Test, Fisher's Exact Test; p value < 0.05 was accepted for level of significance. Logistic regression was performed to identify the strength of association between independent and dependent factors. All independent variables with p value less than 0.20 at bivariate analysis assumed to be associated with dependent variables. The analysis was performed by using binary logistic regression where backward Logistic Regression method, to identify confounder and/or effect modifier. Odds ratio (OR) with corresponding 95% confidence interval (CI) was assumed to estimate the strength of association between retained independent predictor. The thresholds for statistical significance were set up at < 0.05.

4.9. Ethical Considerations

Ethical clearance for this research was obtained from the Research Committee of Nangarhar Medical Faculty (NMF) (Annex 2) and also from the regional Public Health Administration of Nangarhar Province Afghanistan. A circular were sent to the all health centers in Bihsud District. Verbal consent was obtained from the chief of the community as well as individual participated in the research.

3.10. Limitations of the Study

There were some limitations because of time and financial constraints:

1. It was not possible for researcher to conduct survey for all component of Basic Package of Health Services in the selected clusters of the Bihsud District of Nangarhar Province Afghanistan.

2. The evaluation of safe water source could not be done, since it was expensive and difficult for the researcher to identify the availability and utilization of safe drinking water sources.

3. The distance from respondent house to different types of Health Centers (District Hospital, CHC, Basic Health center) was not asked separately.

4. The availability and utilization of primary health care services in other districts of the province may be very different than the selected district. As it was mentioned before, due to security problems, going to each district of Nangarhar province was very difficult, therefore out of twenty-one districts only four were more secure than others. From these four districts, Bihsud District was selected randomly for study purposes. These four districts are quite different than others; these are much close to the central provincial city (Jalalabad). Living conditions in these districts are as much as same to the city and in each aspect (security, presence of the active health facilities, education, economic, etc.) these districts are more developed than other districts.

4. FINDINGS

In this study the availability and utilization of primary health care services among adults 20-60 aged in Bihsud District of Afghanistan were evaluated. The study respondents were 880, out of 880 respondent who participated in the study 479 (54.4%) were males and 401(45.6) were females.

4.1. Socio demographic information

Table 4.1.1. Distribution of participants by age and sex (Bihsud District, Nangarhar Afghanistan 2014)

Age groups (year)	**Male**		**Female**		**Total**	
	n	**%**	**n**	**%**	**n**	**%**
20-24	69	14.4	72	18.0	141	16.0
25-29	121	25.3	109	27.2	230	26.2
30-34	116	24.2	105	26.2	221	25.1
35-39	51	10.6	46	11.4	97	11.0
40-44	53	11.1	36	9.0	89	10.1
45-49	30	6.3	12	3.0	42	4.8
50-54	24	5.0	16	4.0	40	4.5
≥ 55	15	3.1	5	1.2	20	2.3
Total*	479	54.4	401	45.6	880	100.0

* Row percentages; others are column percentages.

Two-third of the participant (both in male and female) were aged less than 35 year, only one-fifth was aged 40 or more than 40 years.

The mean ages of the male and female respondents were 33.4 ± 9.0 and 31.6 ± 8.0 respectively, the difference between the mean age of males and females were statistically significant (p=0.002) (Table 4.1.2).

Table 4.1.2. Descriptive statistic of the participants by sex (Bihsud District, Nangarhar Afghanistan 2014)

Descriptive values	**Male (n=479)**	**Female (n=401)**	**p value**
Mean ± S D	33.4 ± 9.0	31.6 ± 8.0	**0.002**
Median	32	30	
1st quartile	26	25	
3rd quartile	40	36	
Min-Max	20-60	20-60	

Table 4.1.3. Distribution of marital status of the participants by sex (Bihsud District, Nangarhar Afghanistan 2014)

Marital status	**Male**		**Female**		**Total**	
	n	**%**	**n**	**%**	**n**	**%**
Single	55	11.5	33	8.2	88	10.0
Married	424	88.5	363	90.5	787	89.4
Widowed	-	-	5	1.3	5	0.6
Total*	479	54.4	401	45.6	880	100.0

*Row percentages; others are column percentages.

Almost 90% of the participants in both males and females were married, single were less among females

Table 4.1.4. Distribution of participants by educational status sex (Bihsud District, Nangarhar Afghanistan 2014)

Level of education	**Male**		**Female**		**Total**		
	n	**%**	**n**	**%**	**n**	**%**	**p value**
Illiterate	265	55.3	276	68.8	541	61.5	
Literate & primary school	86	18.0	51	12.7	137	15.6	**< 0.001**
Secondary high school	107	22.3	66	16.5	173	19.6	
University graduate	21	4.4	8	2.0	29	3.3	
Total*	479	54.4	401	45.6	880	100.0	

Almost two-third (61.5%) of the participants were illiterate; 19.6% of them were graduated from sec-high school and only 3.3% of them from university, level of education were differed by sex ($p < 0.001$).

Table 4.1.5. Distribution of participants by working status (Bihsud District, Nangarhar Afghanistan 2014)

Working status	**Male**		**Female**		**Total**		
	n	**%**	**n**	**%**	**n**	**%**	**p value**
Yes	197	41.1	28	7.0	225	25.6	**< 0.001**
No	282	58.9	373	93.0	655	74.4	
Total *	479	54.4	401	45.6	880	100.0	

*Row percentages; others are column percentages.

More than half of the male (58.9%) were not working at time of the study, while 93% of the females; the difference was statistically significant ($p<0.001$).

Table 4.1.6. Distribution of the participants by self-evaluated economic status (Bihsud District, Nangarhar Afghanistan 2014)

Economical status	**Male**		**Female**		**Total**	
	n	**%**	**n**	**%**	**n**	**%**
Good	49	10.2	41	10.2	90	10.2
Average	294	61.4	266	66.3	560	63.7
Bad	136	28.4	94	23.5	230	26.1
Total*	479	54.4	401	45.6	880	100.0

*Row percentages; others are column percentages.

Of the participants, only 10.2% expressed their economic status as good, however 26.1% expressed as bad. The distribution of the level of economic status among both sexes was similar.

4.2. Utilization of "Improved Water" Sources, Sanitation Condition of Houses and Related Factors

4.2.1. Utilization of Improved Water Sources:

Table 4.2.1. Distribution of participants by the source of drinking water (Bihsud District, Nangarhar Afghanistan 2014)

Source of water (n=880)		**n**	**% ***
Well	Protected	747	85.0
	Un-protected	81	9.2
Tap		56	6.4
Canal		32	3.6
Spring		25	2.8
River		20	2.3

*More than one answer, percentages calculated separately from the total number (n=880)

The greater amounts of participants (85%) were used protected well water, tap water usage was very low (6.4%). Some 4.5% had used tap water only and 1.8% used tap and well water together (Annex 3).

Table 4.2.2. Distribution of participants by the location of drinking water source (Bihsud District, Nangarhar Afghanistan 2014)

Location of water source	**n**	**%***
Inside the house	500	56.8
Outside the house	362	41.1
Both	18	2.1
Total	880	100.0

More than half (56.8%) of respondents said that their water source were located inside the home, 41.1% outside the house. 2.1% had either water sources.

Table 4.2.3. Distribution of participants who had water source only outside the home by the time to obtain water (Bihsud District, Nangarhar Afghanistan 2014)

Time to obtain water (round trip)	**n**	**%**
Less than 30 minutes	344	95.02
30 minutes or longer	18	4.98
Total	362	100.0
Mean ± S.D= 19.3 ± 4.6; Median=20; 1st quartile= 15, 3rd quartile= 20, Min-Max=10-40.		

Of the respondent 39% spent less than 29 minutes, only 2% of them spent30 or more than 30 minutes for obtain drinking water.

Almost three-fourth (72.3%) of the participants stated that they do not use chlorine in their drinking water sources, only 27.3% used chlorine in their water sources.

Table 4.2.4. Distribution of participants by the utilization of improved drinking water source (Bihsud District, Nangarhar Afghanistan 2014)

Utilization of improved* water sources	**n**	**%**
Yes	803	91.2
No	77	8.8
Total	880	100.0

* As grouped according to WHO improved drinking water criteria see Methodology chapter Terms and Criteria Section

Table 4.2.5. Distribution of participant's by some socio-demographic characteristics and utilization of improved drinking water sources (Bihsud District, Nangarhar Afghanistan 2014)

Characteristics	Utilization of improved water source						
	Yes		No		Total		
Age	**n**	**%**	**n**	**%**	**n**	**%***	**p value**
20-24	138	97.9	3	2.1	141	16.0	**0.012**
25-29	211	91.7	19	8.3	230	26.2	
30-34	195	88.2	26	11.8	221	25.1	
≥ 35	259	89.9	29	10.1	288	32.7	
Sex							
Male	429	89.6	50	10.4	479	54.4	**0.034**
Female	374	93.3	27	6.7	401	45.6	
Marital status							
Ever married	84	95.5	4	4.5	88	10.0	0.141
Never married	719	90.8	73	9.2	792	90.0	
Educational status**							
Illiterate	482	89.1	59	10.9	541	61.5	**0.004**
Literate	321	94.7	18	5.3	339	38.5	
Economical states							
Good	88	97.8	2	2.2	90	10.2	
Average	526	93.9	34	6.1	560	63.7	**< 0.001**
Poor	189	82.2	41	17.8	230	26.1	
Working status							
Yes	210	93.3	15	6.7	225	25.6	
No	593	90.5	62	9.5	655	74.4	0.200
Total	803	91.3	77	8.7	880	100.0	

*Column percentages; other are row percentages.
** Educational status grouped as illiterate and literate for Chi-square test

By the increasing age, utilization of improved water sources decreased. Of the participants at age interval 20-24, 97.9%, utilized improved water sources and at age group 35 or more, this percentage was declining to 89.9%, the difference was statistically significant (p=0.012). Of the males 89.6% and of the females 93.3% were utilized improve water sources, the difference was statistically significant (p=0.034). Marital status is not found with relation the utilization of improved water sources, (p=0. 141). Educational status is importantly related in utilization of improved water sources; by the increasing the educational status the utilization of the improved water sources is also increased, of the illiterate respondents 89.1%, and of the literate respondents 94.7% utilized improved water sources; the difference was statistically significant (p= 0.004). Economic status had also an important relation with the utilization of improved water source. While the economic status became better, the utilization of improved water sources was increased, the 97.8%, of the respondent in good economic status and 82.2% in poor economic status had utilized improved water sources; the difference was statistically significant (p< 0.001). Working status is not found in relation with the utilization of improved water sources (p= 0.200).

Table 4.2.6. Association between socio demographic characteristic of respondent in relation with the utilization of improved water sources (Bihsud District, Nangarhar Afghanistan 2014)

Factors (n = 880)		**OR (95% CI)**	**p value**
Age	≥ 35	Reference	
	30-34	0.83 (0.47-1.48)	0.532
	25-29	1.1 (0.62-2.15)	0.643
	20-24	4.1 (1.23-14.03)	0.022
Economic status	Poor	Reference	
	Average	3.1 (1.93-5.15)	< 0.001
	Good	7.8 (1.82-33.20)	0.006

Factors which were related to the utilization of improved water sources in Bihsud District identified as; young age (20-24), (OR=4.1; CI=1.23-14.03) and average (OR=3.1; CI=1.93-5.15) or good economic status (OR=7.8; CI=1.82-33.20).

Table 4.2.7. Distribution of participants by the methods for disposal of solid wastes (Bihsud District, Nangarhar Afghanistan 2014)

Methods for disposal of solid wastes (n=880)	**n**	**%***
Throwing out of home	846	94.8
Compositing	25	2.8
Public bean	24	2.7
Dumping	10	1.1

*More than one answer, percentages calculated separately from the total number (n=880)

Almost 95% of respondents stated that they did not have any method for disposal of solid wastes just threw it outside of their houses; only 2.7% disposed at public bean.

4.2.2. Utilization of sanitary latrine and related factors

The most utilized latrine type was traditional latrine, followed by pit latrine, water seal type and open filed. Thirty nine point two percent of the participants had only traditional type, 28.4% only pit latrine, and open field latrine was used by 9.7% of the participants alone or in combination with other types of latrine. About half of the respondents used water seal and pit latrine and the rest of them used other types of latrine. Almost two-third of the respondents (63.5%) said that their latrine is located inside of their houses (Garden). And 36.5% said that their latrine is located outside of their houses.

Garden is a piece of ground or other space, commonly with ornamental plants trees, etc., used as a park or other public recreation area (see Methodology chapter Terms and Criteria Section)

Table 4.2.8. Distribution of participants by types and location of latrine (Bihsud District, Nangarhar Afghanistan 2014)

Types of latrine (n=880)	Location of latrine					
	Inside		Outside		Total	
	n	%	n	%	n	%
Water seal latrine	190	33.9	10	3.1	200	22.7
Pit latrine with slab	157	28.0	93	29.0	250	28.4
Traditional (local type) latrine	213	38.1	132	41.3	345	39.2
Open field	-	-	10	3.1	10	1.2
Pit and open field	-	-	29	9.1	29	3.3
Traditional and open field	-	-	46	14.4	46	5.2
Total*	560	63.5	320	36.5	880	100.0

*Row percentages; others are column percentages.

Table 4.2.9. Distribution of Distance between source of water and latrine by types of latrine (Bihsud District, Nangarhar Afghanistan 2014)

Distance between water source and latrine (meter)	Types of latrine							
	Water seal		Pit (slab)		Traditional		Total	
	n	%	n	%	n	%	n	%*
< 15	123	50.6	73	30.0	47	19.4	243	64.0
≥ 15	52	38.0	40	29.2	45	32.8	137	36.0
Total	175	46.1	113	29.7	92	24.2	380	100.0
Mean ± S.D= 12.4 ± 4.4, Median=10, Min-Max=5-30, 1st quartile= 10, 3rd quartile= 15								

*Column percentages; other are row percentages.

Of the participants 64.0% stated that the distance between latrine and the source of drinking water is less than 15 meters. Mean distance between latrine and drinking water source were 12.4± 4.4 meter (Acceptable distance between water source and latrine is about 15 meters).

Table 4.2.10. Distribution of participants by utilization of sanitary latrine (Bihsud District, Nangarhar Afghanistan 2014)

Utilization of "sanitary latrine"	**n**	**%**
Yes	450	51.1
No	430	48.9
Total	880	100.0

* Sanitary latrine includes (pit latrine with slab and water seal type of latrine.

Of the respondents only 51.1% were using sanitary latrine.

Table 4.2.11. Distribution of the participants by the utilization of sanitary latrine and some socio-demographic characteristics (Bihsud District, Nangarhar Afghanistan 2014)

Characteristics	Utilization of sanitary latrine						
	Yes		No		Total		
Age	**n**	**%**	**n**	**%**	**n**	**%***	**p value**
20-24 year	96	68.1	45	31.9	141	16.0	**< 0.001**
25-29 year	120	52.2	110	47.8	230	26.2	
30-34 year	112	50.7	109	49.3	221	25.1	
≥ 35	122	42.4	166	57.6	288	32.7	
Sex							
Male	226	47.2	253	52.8	479	54.4	
Female	224	55.9	177	44.1	401	45.6	**0.010**
Marital status							
Never married	58	65.9	30	34.1	88	10.0	**0.003**
Ever married	392	49.5	400	50.5	792	90.0	
Educational status							
Illiterate	189	34.9	352	65.1	541	61.5	
Literate primary school	109	79.6	28	20.4	137	15.6	< **0.001**
Secondary high school	129	74.6	44	24.4	173	19.6	
University graduate	23	79.3	6	25.4	29	3.3	
Economical states							
Good	72	80.0	18	20.0	90	10.2	
Average	291	52.0	269	48.0	560	63.6	**< 0.001**
Poor	87	37.8	143	62.2	230	26.2	
Working status							
Yes	135	60.0	90	40.0	225	25.6	**0.001**
No	315	48.1	340	51.9	655	74.4	
Total	**450**	**51.1**	**430**	**48.9**	**880**	**100.0**	

*Column percentages; other are row percentages

By the increasing age, utilization of sanitary latrine decreased, of the young participants (20-24 years), 68,1% utilized sanitary latrine and at age group 35 or more, this percentage declined to 42.2%. Of the male 47.2% and of the female 55.9% utilized sanitary latrine. Of the never married 65.9% and of the ever married 49.5% utilized sanitary latrine. By the increasing educational status the utilization of sanitary latrine is increased. Of the illiterate respondents 34.9%, of the literate respondents 79.6% utilized sanitary latrine. The 80.0% of respondents in good and 38.8% in poor economic status utilized sanitary latrine. Of the respondent did working 60%, and of the respondent who did not working 48.1% utilized sanitary latrine. Differences between all the mentioned components were statistically significant.

Table 4.2.12. Association between socio demographic characteristic of respondent in relation with the utilization of sanitary latrine (Bihsud District, Nangarhar-Afghanistan, 2014)

Factors (n=880)		**OR (95% CI)**	**p value**
Age			
	≥ 35	Reference	
	30-34	1.6 (1.12-2.46)	0.011
	25-29	1.3 (0.89-1.97)	0.167
	20-24	2.3 (1.23-4.20)	0.009
Sex			
	Male	Reference	
	Female	1.8 (1.37-2.57)	< 0.001
Economical status			
	Poor	Reference	
	Average	1.5 (1.03-2.07)	0.030
	Good	3.2 (1.63-6.38)	0.001
Educational status			
	Illiterate	Reference	
	Literate- primary school	8.5 (5.33-13.71)	< 0.001
	Secondary-high school	5.0 (3.17-7.95)	< 0.001
	University graduate	6.3 (1.95-14.67)	0.001

Factors which were related for the utilization of improved sanitary latrine in Bihsud District identified as; young age (20-24) (OR=2.3; CI=1.23-4.20), female sex (OR=1.8; CI=1.37-2.57), average (OR=1.5; CI=1.03-2.07) or good (OR=3.2; CI=1.63-6.38) economical status and educational status (for literate or primary school graduated OR=8.5 CI=5.33-13.71; for secondary or high school graduated OR=5.0 CI=3.17-7.95; for university graduated OR=6.3 CI=1.95-14.67).

Table 4.2.13. Distribution of participants by the type of house lived and presence of domestic animal (Bihsud District, Nangarhar Afghanistan 2014)

Types of houses	**n**	**%**
Mud house	698	79.3
Brick house	182	20.7
Presence of domestic animal		
No	570	64.8
Yes*	310	35.2
Cow	207	66.8
Hen	169	54.5
Dog	122	39.3
Cat	64	20.6
Sheep and gouts	10	3.2
Donkey	8	2.6
Total	880	100.0

*More than one answer; percentages calculated separately from the total number of animal owners (n=310)

The 79.3% of the respondent was living in mud houses; while only 20.7% was living in brick houses. The percentage of participants who kept domestic animals was 35.2% and the three first kept animal were cow 66.8%, hen 54.5% and dog 39.3%. the detailed related to the types of domestic animal given in (Annex 4)

4.3. Availability and Utilization of Health Services and related Factors

Table 4.3.1. Distribution of participant by the place of primary health services obtained (Bihsud District, Nangarhar Afghanistan 2014)

Source of obtain health services	n	%*
Only public health centers	663	75.3
Only private health center	117	13.3
Public and private health center	100	11.4
Total	880	100

Three-fourth (75.3%) of the respondents obtained primary health care services only from public health centers (CHC, BHC and District hospitals), 13.3% only from private health centers and only 11.4% from both Public and private centers.

Table 4.3.2. Distribution of participants by the types of primary health services obtained from health centers (Bihsud District, Nangarhar Afghanistan 2014)

Types of Health Services (n=880)	Male		Female		Total	
	n	%*	n	%*	n	%*
Free drugs	268	56.0	188	46.9	456	51.8
Health educations	243	50.7	212	52.9	455	51.7
Examination	264	55.1	172	42.9	436	49.5
Maternal health services	-	-	296	73.8	296	33.6
Total**	479	54.4	401	45.6	880	100.0

*More than one answer, percentages calculated separately from the total number (n=880)
**Row percentages; others are column percentages

Of the male participants more than half of (56.0%) obtained free drugs, 50.7% health education and more than half (55.1%) obtained examination, whiling among females the most utilized types of health services was maternal health services (73.8%); examination was the least used services in female (42.9%). The detailed related to the different type of health services obtained from health centers are given in (Annex 5)

Table 4.3.3.Distribution of participant by the utilization of health center and some socio-demographic characteristics (Bihsud District, Nangarhar Afghanistan 2014)

Characteristic	Utilization of Health Centers								
	Public		**Private**		**Public/private**		**Total**		
Age	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%***	**p value**
20-24	110	78.0	24	17.0	7	5.0	141	16.0	**< 0.001**
25-29	179	77.8	29	12.6	22	9.6	230	26.2	
30-34	173	78.3	31	14.0	17	7.7	221	25.1	
≥ 35	201	69.8	33	11.5	54	18.8	288	32.7	
Sex									
Male	352	73.5	78	16.3	49	10.2	479	54.4	
Female	311	77.6	39	9.7	51	12.7	401	45.6	**0.013**
Marital status									
Never married	65	73.9	16	18.2	7	8.0	88	10.0	0.249
Ever married	598	75.5	101	12.8	93	11.7	792	90.0	
Educational status									
Illiterate	400	73.9	80	14.8	61	11.3	541	61.5	0.256
Literate	263	77.6	37	10.9	39	11.5	339	38.5	
Economical status									
Good	72	80.0	11	12.2	7	7.8	90	10.2	
Average	426	76.1	72	12.9	62	11.6	560	63.6	0.525
Poor	165	71.7	34	14.8	31	13.5	230	26.2	
Working status									
Yes	170	75.6	31	13.8	24	10.7	225	25.6	0.912
No	493	75.3	86	13.1	76	11.6	655	74.4	
Total	663	75.3	117	13.3	100	11.4	880	100.0	

*Column percentages; other are row percentages

By the increasing age of the respondents, utilization of private health centers decreased; of the respondents at age interval 20-24, 78% utilized public health center and at age group 35 or more, this percentage was declined to 67.8%, and the differences was statistically significant ($p < 0.001$). Of the male respondents 73.9%, of the female 77.6% utilized public health center, and the difference was statistically significant ($p= 0.013$).

Marital status is not found in relation with the utilization of health centers ($p=0.256$). Educational status is not found in relation with the utilization of health centers ($p = 0.525$). Economic status is also not found in relation with the utilization of health centers ($p=0.525$). Working status is also not found in relation with utilization of health center ($p =0.912$).

4.3.1. Main type of transportation, distance, travel time and related factors

Table 4.3.4.Distribution of main type of transport to go to the public health centers (Bihsud District, Nangarhar Afghanistan 2014)

Type of transportation	**n**	**%**
By walking	394	51.6
Public Transport	341	44.7
Private car	28	3.7
Total	763*	100.0

*****117 participants who were using only private health facility were excluded.

More than half of the respondents were going to health center by foot, the rest were used any motor vehicle.

Table 4.3.5. Distribution of main type of transport by sex and economic status (Bihsud District, Nangarhar Afghanistan 2014)

	Main type of transportation						
	By motor vehicle		By foot		Total		
Sex	**n**	**%**	**n**	**%**	**n**	**%**	**p value**
Male	164	40.9	237	59.1	401	52.6	**< 0.001**
Female	205	56.6	157	43.4	362	47.4	
Economical status							
Good	50	63.3	29	36.7	79	10.3	
Average	222	45.5	266	54.5	488	64.0	**0.013**
Poor	97	49.5	99	50.5	196	25.7	
Total	369	48.4	394	51.6	763*****	100.0	

*****117 participants who were using only private health facility were excluded.

Of the males 40.9% and of the female 56.5% stated that their main type of transportation to the public health center were motor vehicle, the difference was statistically significant ($p < 0.001$). Of the 63.3% of the respondent in good economic status and 49.5% in poor economic status main type of transportation to the public health center were motor vehicle, the difference was statistically significant ($p=0.013$).

Table 4.3.6. Distribution of distance from nearest health centers in general (Bihsud District, Nangarhar Afghanistan 2014)

Distance from the nearest health center (km)	**n**	**%**
≤ 4.9	372	48.8
5.0 - 9.9	368	48.2
≥ 10.0	23	3.0
Total	763*	100.0
Mean ± S.D= 4.6 ± 2.2; Median=5; 1st quartile = 3, 3rd quartile= 6; Min-Max=1-15		

*****117 participants who were using only private health facility were excluded.

About half 48.8% of participant lived less than 5 kilo meter far from a public health center, only 3% stated that they are lived 10 or more than 10 kilo meter away from a public health center.

Table 4.3.7. Distribution of participant the time spent to travel to the nearest public health centers (Bihsud District, Nangarhar Afghanistan 2014)

Time spent to travel to the nearest public health center (minutes)	**n**	**%**
≤ 30	451	59.1
> 30	312	40.9
Total	763*****	100.0
Mean ± S.D= 29.8 ± 9.9; Median=30; 1st quartile= 20, 3rd quartile= 35; Min-Max=10-60		

*****117 participants who were using only private health facility were excluded.

The distance from the nearest health facility was evaluated from the statements of the respondents. More than half 59.1% of the respondents said that they have to travel to the nearest public health center 30 or less than 30 minutes.

Table 4.3.8. Distribution of the participant by the travelling cost to health centers (Bihsud District, Nangarhar Afghanistan 2014)

Travel cost to health center*	**n**	**%**
High	54	14.6
Acceptable	149	40.4
Low	166	45.0
Total	369*	100.0

* Asked only to motor vehicle users for transportation.

Of the respondents, 14.6% stated that the travels cost to the health center is high, while 45% considered low.

4.3.2. Knowledge about prevention of some Communicable Disease and status of Obtaining Health Educations

According to the respondents own knowledge more than two-third of them said that there was no endemic disease existed in their village, only 2.8% of them said that Malaria is present in their villages endemically. The total number 100% of the respondent said that they have heard about Malaria.

Table 4.3.9 Types of prevention of malaria (Bihsud District, Nangarhar Afghanistan 2014)

Prevention methods of malaria	**n**	**%**
Protection against mosquito bites	434	54.8
chemoprophylaxis	213	26.9
Not possible	145	18.3
Total	880	100.0

More than half of participant said that malaria is preventing by protection against mosquito method, 26.9% chemoprophylaxis and 18.3 said it is not possible.

According to the study findings, only one in three participants (34.7%) knew his/her responsible CHW the remains (65.2%) did not know.

Table 4.3.10.Distribution of services obtained from community health workers (Bihsud District, Nangarhar Afghanistan 2014)

Types of services	**Male (n=181)**		**Female (n=125)**		**Total**	
obtained from CHWs (n=306)	**n**	**%***	**n**	**%***	**n**	**%***
First aid and free drugs	132	72.9	106	84.8	238	77.8
Health education message	95	52.5	87	70.60	182	59.5
Referral to health facility	115	63.5	62	49.6	177	57.8
Family planning assistance	-	-	92	73.6	92	30.1

*More than one answer, percentages calculated separately from the total number (n=306)

In the first place of the services obtained was 77.8%, first aid and free drugs, followed by 59.5% health education message and referral to health facility respectively, only 30.1% of female obtained family planning assistance.

Table 4.3.11. Distribution of participant by knowledge about the CHW and some socio-demographic characteristics (Bihsud District, Nangarhar Afghanistan 2014)

Characteristics	**Knowledge about community health worker**						
	Yes		**No**		**Total**		
Age	**n**	**%**	**n**	**%**	**n**	**%***	**p value**
20-24	56	39.7	85	60.3	141	16.0	0.256
25-29	83	36.1	147	63.9	230	26.2	
30-34	66	29.9	155	70.1	221	25.1	
≥ 35	101	35.1	187	64.9	288	32.7	
Sex							
Male	181	37.8	298	62.2	479	54.4	
Female	125	31.2	276	68.8	401	45.6	**0.040**
Marital status							
Never married	34	38.6	54	61.4	88	10.0	0.422
Ever married	272	34.3	520	65.7	792	90.0	
Educational status							
Illiterate	129	23.8	412	76.2	541	61.5	
Literate-primary school	66	48.2	71	51.8	137	15.6	**< 0.001**
Secondary high school	94	54.3	79	45.7	173	19.6	
University graduate	17	58.6	12	41.4	29	3.3	
Economical status							
Good	49	54.4	41	45.6	90	10.2	
Average	196	35.0	364	65.0	560	63.6	**< 0.001**
Poor	61	26.5	169	73.5	230	26.2	
Working status							
Yes	96	42.7	129	57.3	225	25.6	**0.004**
No	210	32.1	445	67.9	655	74.4	
Receiving Health Educations in the last 6 months							
Yes	208	74.8	70	25.2	278	31.6	
No	98	16.3	504	83.7	602	68.4	**< 0.001**
Total	306	34.8	574	65.2	880	100.0	

*Column percentages; other are row percentages.

Age groups is not found in relation with the participant knowledge about the knowing of CHW (p=0.256). Of the male 37.8%, of the female 31.2% had knowledge about their CHW; the difference was statistically significant (p = 0.040). Marital status is not found in relation with participants knowledge about the CHW (p= 0.422). Of the illiterate respondents 23.8% and of the university graduated respondent 58.6% had knowledge about their CHW; the difference was statistically significant (p < 0.001). 54.4% of the respondents in good economic status and 26.5% in poor economic had knowledge about their CHW; the difference was statistically significant (p < 0.001). 42.7% of participants, who did worked and 32.1% who did not worked had knowledge about their CHW; the difference was statistically significant (p =0.004). And of the respondents who receive/attend HEs in the last 6 months 74.8%, and who did not received/attend HEs 16.3% had knowledge about their CHW, the difference was statistically significant (p < 0.001).

Only one-third (31.6%) of the respondents said that they attendance health education session within the last six months and remain (68.4%) were not attended.

Table 4.3.12. Distribution of the places where, Health Education session held (Bihsud District, Nangarhar Afghanistan 2014)

Place of HE session (n=278)	**n**	**%***
Health facility (DH, CHC,BHC)	220	79.1
Health post	48	17.3
Community health worker	45	16.2
Private clinic	28	10.1

*More than one answer, percentages calculated separately from the total number (n=278)

More two-third 79.1% of the respondent said that they received health educations session in health facilities, 17.3% of respondent said they received at health post, only 10.1% they received/attend health education at private clinic.

Table 4.3.13. Distribution of participant's by attendance health education session in the last 6 months and some socio-demographic characteristic (Bihsud District, Nangarhar Afghanistan 2014)

	Received health education in last 6 months						
Characteristics	**Yes**		**No**		**Total**		
Age	**n**	**%**	**n**	**%**	**n**	**%***	**p value**
20-24	59	41.8	82	58.2	141	16.0	**0.036**
25-29	70	30.4	160	69.6	230	26.2	
30-34	62	28.1	159	71.9	221	25.1	
≥ 35	87	30.2	201	69.8	288	32.7	
Sex							
Male	131	27.3	348	72.7	479	54.4	**0.003**
Female	147	36.7	254	63.3	401	45.6	
Marital status							
Never married	36	40.9	52	59.1	88	10.0	**0.047**
Ever married	242	30.6	550	69.4	792	90.0	
Educational status							
Illiterate	106	19.6	435	80.4	541	61.5	**< 0.001**
Literate primary school	53	38.7	84	61.3	137	15.6	
Secondary high school	98	56.6	75	43.4	173	19.6	
University graduate	21	72.4	8	27.6	29	3.3	
Economical status							
Good	58	64.4	32	35.6	90	10.2	**< 0.001**
Average	174	31.1	386	68.9	560	63.6	
Poor	46	20.0	184	80.0	230	26.2	
Working status							
Yes	85	37.8	140	62.2	225	25.6	**0.021**
No	193	29.5	462	70.5	655	74.4	
Total	278	31.6	602	68.4	880	100.0	

*Column percentages; other are row percentages.

Age groups is not found in relation with the participants, received HE in the last 6 months (p=0.036). Of the male 27.3% of the female 36.7% were received HE session in the last 6 months; the difference was statistically significant (p = 0.003). Of the never married 40.9%, of ever married 30.6% were received HE session in the last 6 months, the difference was statistically significant (p = 0.047). Of the illiterate respondents 19.6% and of the university graduated respondents 72.4% received HE session in the last 6 months; the difference was statistically significant (p < 0.001). 64.4% of the respondent in good economic states and 20% in poor economic states received HE session in the last 6 months; the difference was statistically significant (p < 0.001). Working states in not found in relation with received HE session in the last 6 months (p= 0.021).

Table 4.3.14. Distribution of respondent's satisfaction from cost, time, distance and availability of services (Bihsud District, Nangarhar Afghanistan 2014)

Characteristic of Services	Satisfaction of participants					
	Male (n=479) Satisfied		Female (n=401) Satisfied		Total (n=880) Satisfied	
	n	%*	n	%*	n	%*
Cost	358	74.7	256	63.8	614	69.8
Distance	349	72.9	244	60.8	593	67.4
Time	270	56.4	207	51.6	477	54.2
Existed services	94	19.6	109	27.2	203	23.1

*More than one answer, percentages calculated separately from the total number (n=880)

Two-third 69.8% of the respondents said that they were satisfied from the cost and of primary health services, the same number 67.4% of them were satisfied from distance to obtain health services, more than half of them were satisfied from time spends for getting services, only 23.1% were satisfied from offering of available services. Male were more satisfied than female respondents.

4.4. Maternal Health Services use and related factors

4.4.1. Knowledge about the presence and utilization of antenatal and postnatal care services and related factors:

The questions related to the utilization of MH services were asked ever married female participants (n=368), only for evaluating knowledge about the presence of services in the residential area, 33 never married females were also questioned.

Table 4.4.1. Distribution of female participants by the knowledge about the presence of ANC services in the residential area (Bihsud District, Nangarhar Afghanistan 2014)

Knowledge about the presence of ANC services	**n**	**%**
Know	327	84.0
Do not know	74	16.0
Total	401	100.0

Majority of the female participants (84%) knew the existence of ANC service in their residential area and 16.0% did not know.

Table 4.4.2. Distribution of female participants by utilization of ANC during last pregnancy (Bihsud District, Nangarhar Afghanistan 2014)

Utilization of Antenatal care	**n**	**%**
No	134	36.4
Yes	234	63.6
Only public health center	134	36.4
Only private health center	18	4.9
Public and private Health centers	82	22.3
Total	368	100.0

Of the participants 63.6% were used ANC service during their last pregnancy and 36.4% were not used.

Table 4.4.3. Distribution of female participants by the knowledge on the presence of antenatal care services and some socio-demographic characteristics (Bihsud District, Nangarhar- Afghanistan 2014)

Characteristics	Knowledge about Presence of Antenatal care services						
	Yes		No		Total		
Age	**n**	**%**	**n**	**%**	**n**	**%***	**p value**
20-24	53	73.6	19	26.4	72	18.0	0.072
25-29	92	84.4	17	15.6	109	27.2	
30-34	92	87.6	13	12.4	105	26.2	
≥ 35	90	78.3	25	21.7	115	28.7	
Marital status							
Never married	18	54.5	15	45.5	33	8.2	**< 0.001**
Ever married	309	84.0	59	16.0	368	91.8	
Educational status							
Illiterate	215	77.9	61	22.1	276	68.8	**0.005**
Literate	112	89.6	13	10.4	125	31.2	
Economical status							
Good	33	80.5	8	19.5	41	10.2	0.914
Average	216	81.2	50	18.8	266	66.3	
Poor	78	83.0	16	17.0	78	19.5	
Working status							
Yes	22	78.6	6	21.4	28	7.0	0.674
No	305	81.8	68	18.2	373	93.0	
Receiving health educations in the last 6 months							
Yes	140	95.2	7	4.8	147	36.7	**< 0.001**
No	187	73.6	67	26.4	254	36.3	
Total	327	81.5	74	18.5	401	100.0	

*Column percentages; other are row percentages.

Age groups is not found in relation with the participant knowledge about the presence of ANC services in their residential area (p= 0.072). Of the never married respondent 54.5% and of the ever married respondent 80% had knowledge about the presence of ANC services in their residential area, the difference was statistically significant (p < 0.001). Of the literate respondent's 77.9% and of the illiterate respondent 89.6% had knowledge about the presence of ANC services in their residential area, the difference was statistically significant (p < 0.005). Economic states was not found in relation with knowledge about the presence of ANC services (p=0.914). Working status also was not found in relation with knowledge about the presence of ANC services (p = 674). Of the respondent who did received HE in the last 6 months 95.2%, and did not received HE session in the last 6 months 73.6% had knowledge about the presence of ANC services in their residential area, this difference was statistically significant (p < 0.001).

Table 4.4.4. Distribution of number of ANC visits during last pregnancy (Bihsud District, Nangarhar Afghanistan 2014)

Number of ANC visit	**n**	**%**
1	128	54.7
2	55	23.5
3	11	4.7
4	40	17.1
Total	234	100.0

More than half of the respondents (54.7%) had only one antenatal care visit during their last pregnancy, while 17.1% four visits.

Table 4.4.5. Distribution of females participants by utilizing of ANC during last pregnancy and some socio-demographic characteristic (Bihsud District, Nangarhar Afghanistan 2014)

Characteristics	Utilization of Antenatal care services						
	Yes		No		Total		
Age	**n**	**%**	**n**	**%**	**n**	**%***	**p value**
20-24	26	63.4	15	36.6	41	11.1	**0.030**
25-29	72	63.3	35	32.7	107	29.1	
30-34	75	71.4	30	28.6	105	28.5	
≥ 35	61	53.0	54	47.0	115	31.3	
Educational status							
Illiterate	154	57.5	114	42.5	268	72.8	**< 0.001**
Literate	80	80.0	20	20.0	100	27.2	
Economical status							
Good	23	88.5	3	11.5	26	7.1	
Average	162	65.3	86	34.7	248	67.4	**0.002**
Poor	49	52.1	45	47.9	94	25.5	
Working status							
Yes	17	68.0	8	32.0	25	6.80	0.635
No	217	63.3	126	36.7	343	93.2	
Receive health education in the last 6 months							
Yes	113	83.7	22	16.3	135	36.7	**< 0.001**
No	121	51.9	112	48.1	233	63.3	
Total	234	63.6	134	36.4	368	100.0	

*Column percentages; other are row percentages.

By the increasing age, utilization of ANC services decreased. Of the participant's at the age interval 20-24, 63.4% utilized ANC services and at age group ≥ 35 or more this percentage was declining to 53% , this difference was statistically significant (p =

0.030). Of the illiterate participant's 57.5% and of the literate participant's 80% utilized the ANC services, this difference was statistically significant ($p < 0.001$). Economic status had also an important relation with the utilization of ANC services, while the economic status became better; the utilization of ANC services was increased. The 88.5% of the respondents in good economic status and 52.1% in bad economic states had utilized ANC services, this difference was statistically significant ($p= 0.002$). Working status was not found in relation with the utilization of antenatal care services ($p= 0.635$). Of the respondent who had received HE session in the last 6 months 83.7% and who had not received HE session in the last 6 months 51.9% utilized ANC services, this difference was statistically significant ($p < 0.001$).

Table 4.4.6. Distribution of the reasons for not using ANC services (Bihsud District, Nangarhar Afghanistan 2014)

Reasons for not using ANC services (n=134)	**n**	**%***
Tradition/custom	68	50.7
Economic limitation	57	42.5
Poor services	41	30.6
Problem in the using health institution	40	29.8
Accessibility problem	35	26.1
Distrust of health facility personal	27	20.2

*More than one answer, percentages calculated separately from the total number (n=880)

Of the respondent about half of them stated that the major reason for not utilizing antenatal care services was Tradition/custom. Also 42.5% of them did not utilized ANC services due to the economic limitations. Even though tradition and economical problem were the first two constraints, services related reasons had a share between 20.2% and 30.6%.

Table 4.4.7. Association between socio demographic characteristic of females participants in relation with the knowledge about the presence and utilization of Antenatal care services (Bihsud District, Nangarhar Afghanistan 2014)

	Knowledge about the of presence of antenatal care services		
Factors (n=401)		**OR (95%CI)**	**p value**
Marital status	Never married	Reference	
	Ever married	10.1 (3.83-31.51)	< 0.001
Educational status	Illiterate	Reference	
	Literate	3.4 (1.32-8.78)	0.011
Received HE in the last 6 months	No	Reference	
	Yes	5.7 (2.42-13.51)	< 0.001
Factors (n=368)	**Utilization of ANC services**		
Age	≥ 35	Reference	
	30-34	2.6 (1.43-4.73)	0.002
	25-29	1.8 (1.01-3.28)	0.045
	20-24	1.4 (0.62-3.02)	0.435
Economical status	Poor	Reference	
	Average	1.6 (0.96-2.68)	0.072
	Good	3.9 (1.03-14.88)	0.044
Receiving HE in the last 6 months	No	Reference	
	Yes	4.4 (2.56-7.66)	< 0.001

Marriage (OR=10.1; CI=3.83-31.51), literacy (OR=3.4; CI=1.32-8.78) and receiving of health education (OR=5.8; CI=2.42-13.51) were the related factors for knowledge on the presence of ANC services in the area.

Good economic status (OR=3.9; CI=1.03-14.88) and receiving of health education (OR=4.4; CI=2.56-7.66) were the related factors for the utilization of ANC services in the area.

Table 4.4.8. Distribution of female participants by knowledge about the presence of PNC services in their residential area (Bihsud District, Nangarhar Afghanistan 2014)

Presence of postnatal care service in the area (n=410)	**n**	**%**
Know	297	74.0
Do not know	104	26.0
Total	401	100.0

Almost three-fourth of the respondent (74%) knew the existence of postnatal care services in their residential area.

Table 4.4.9.Distribution of female participants by utilization of PNC after last pregnancy (Bihsud District, Nangarhar Afghanistan 2014)

Utilization of postnatal care	**n**	**%**
No	188	51.1
Yes	180	48.9
Only public health center	77	20.9
Only private health center	32	8.7
Public and private Health centers	71	19.3
Total	368	100.0

Half (51.1%) of respondents had used PNC services after their last pregnancy.

Table 4.4.10. Distribution of female participants by the knowledge about the presence of PNC and some socio-demographic characteristics (Bihsud District, Nangarhar Afghanistan 2014)

Characteristics	Knowledge about the presence of PNC services						
	Yes		No		Total		
Age	**n**	**%**	**n**	**%**	**n**	**%***	**p value**
20-24	48	66.7	24	33.3	72	18.0	0.110
25-29	87	79.8	22	20.2	109	27.2	
30-34	82	78.1	23	31.9	105	26.2	
≥ 35	80	69.6	35	30.4	115	28.7	
Marital status							
Never married	17	51.5	16	48.5	33	8.2	**0.002**
Ever married	280	76.1	88	23.9	368	91.8	
Educational status							
Illiterate	192	69.6	84	30.4	276	68.8	**0.002**
Literate	105	84.0	20	16.0	125	31.2	
Economic status							
Good	31	75.6	10	24.4	41	10.2	0.889
Average	195	73.3	71	26.7	266	66.3	
Poor	71	75.5	23	24.5	78	19.5	
Working status							
Yes	20	71.4	8	28.6	28	7.0	0.741
No	277	74.3	96	25.7	373	93.0	
Receiving health education in the last 6 months							
Yes	131	89.1	16	10.9	147	36.7	**< 0.001**
No	166	65.4	88	34.6	254	36.3	
Total	297	74.1	104	25.9	401	100.0	

*Column percentages; other are row percentages.

Age groups is not found in relation with the participants knowledge about the presence of PNC services in their residential area (p = 0.110). Of the never married 51.5% of the ever married respondent 76.1% had knowledge about presence of PNC service in their residential area, the difference was statistically significant (p < 0.002). Of the literate respondent's 69.6% and of the illiterate 84% had knowledge about the presence of PNC services in their residential area, the difference was statistically significant (p < 0.002). Economic status in not found in relation with the knowledge about presence of PNC services in the participants residential area (p= 0.889). Working status is also not found in relation with the knowledge about the presence of PNC services in the participants residential area (p = 741). Of the participants who did received HE session in the last 6 months 89.1%, and who did not received HE session in the last 6 months 65.4% had knowledge about the presence of PNC services in their residential area, the difference was statistically significant (p < 0.001).

Table 4.4.11. Distribution of female participants by the number of postnatal care visits after last delivery (Bihsud District, Nangarhar Afghanistan 2014)

Number of PNC visits	**n**	**%**
1	136	75.6
2	44	24.4
Total	180	100.0

Of the respondents 75.6% stated that they had only one postnatal care visit after their last pregnancy.

Table 4.4.12. Distribution of using of PNC by some socio-demographic characteristic (Bihsud District, Nangarhar Afghanistan 2014)

Characteristics	**Utilization of Postnatal care services**						
	Yes		No		Total		
Age	**n**	**%**	**n**	**%**	**n**	**%***	**p value**
20-24	18	43.9	23	56.1	41	11.1	0.267
25-29	58	54.2	49	45.8	107	29.1	
30-34	55	52.4	50	47.6	105	28.5	
≥ 35	49	42.6	66	57.4	115	31.3	
Educational status							
Illiterate	113	42.2	155	57.8	268	72.8	**< 0.001**
Literate	67	67.0	33	33.0	100	27.2	
Economic status							
Good	22	84.6	4	15.4	26	7.1	
Average	125	50.4	123	49.6	248	67.4	**< 0.001**
Poor	33	35.1	61	64.9	94	25.5	
Working status							
Yes	16	64.0	9	36.0	25	6.80	0.118
No	164	47.8	179	52.2	343	93.2	
Receiving health education in the last 6 month							
Yes	92	68.1	43	31.9	135	36.7	**< 0.001**
No	88	37.8	145	62.2	233	63.3	
Total	180	48.9	188	51.1	368	100.0	

*Column percentages; other are row percentages.

Age groups is not found in relation with the utilization of PNC services (p = 0.267) .Of the illiterate 42.2%, of the university graduated 67% utilized PNC services; the difference was statistically significant (p < 0.001). 84.6% of the respondent in good

economic status and 35.1% in poor economic status had utilized PNC services; the difference was statistically significant ($p < 0.001$). Working status in not found in relation with utilization of PNC services ($p = 0.118$). Of the respondent who had received HE session in the last 6 months 68.1% and of the respondents who had not received HE session in the last 6 months 37.8% utilized PNC services, the difference was statistically significant ($p < 0.001$).

Table 4.4.13. Distribution of the reasons for female participant by not using PNC services (Bihsud District, Nangarhar Afghanistan 2014)

Reasons for not using PNC care services(n=188)	**n**	**%***
Economic limitation	95	50.5
Tradition/custom	84	44.7
Poor services	62	33.0
Accessibility problem	53	28.2
Distrust of health facility personal	44	23.4
Problem in the using health institution	44	23.4

*More than one answer, percentages calculated separately from the total number (n=880)

The most stated reason for not having PNC visit was economical limitation (50.5%), followed by traditional/custom (44.7%) and problem related to health services with 23.4% thru 33.0%.

Table 4.4.14. Association between socio demographic characteristic of female participants in relation with the presence of knowledge about the presence and utilization of PNC services (Bihsud District, Nangarhar Afghanistan 2014)

	Knowledge about presence of postnatal care services		
Factors (n=401)		**OR (95% CI)**	**p value**
Marital status	Never married	Reference	
	Ever married	5.4 (2.21-13.01)	< 0.001
Educational status	Illiterate	Reference	
	Literate	2.4 (1.18-4.79)	0.015
Receiving HE in last 6 months	No	Reference	
	Yes	3.46 (1.86-6.43)	< 0.001
Factors (n=368)	**Utilization of postnatal care services**		
Age	≥ 35	Reference	
	30-34	2.6 (1.42-4.93)	0.002
	25-29	1.8 (1.01-3.28)	0.045
	20-24	1.4 (0.62-3.02)	0.435
Economical status	Poor	Reference	
	Average	1.6 (0.96-2.68)	0.072
	Good	3.9 (1.03-14.88)	0.044
Receiving HE in last 6 months	No	Reference	
	Yes	4.4 (2.56-7.66)	< 0.001

Marriage (OR=5.4; CI=2.21-13.03), literacy (OR=2.4; CI=1.18-4.79) and receiving of health education (OR=3.46; CI=1.86-6.43) were the related factors for knowledge on the presence of PNC services in the area.

Good economic status (OR=3.9; CI=1.03-14.88) and receiving of health education (OR=4.4; CI=2.56-7.66) were the related factors for the utilization of PNC services in the area.

4.4.2. Place and assistance of last delivery and related factors:

Table 4.4.15. Distribution of female participant by place of last delivery (Bihsud District, Nangarhar Afghanistan 2014)

Place of the delivery last pregnancy	**n**	**%**
At home	252	68.5
At health center	116	31.5
Private clinic/hospital	90	24.4
Comprehensive health center	22	6.0
District hospital	4	1.1
Total	368	100.0

More than two-third of respondents (68.5%) delivered their last delivery at home; only 31.5% of them said that their last delivery took place at health centers.

Only one-third (31.5%) of the women were assisted by a skill birth attendant during their last pregnancy. 27.2% by TBA, 22.8% by relative/friend and 18.5% was stated that they assisted by no one during their last delivery.

Table 4.4.16. Distribution of female participant by place of last delivery and some socio-demographic characteristics (Bihsud District, Nangarhar Afghanistan 2014)

Characteristics	Place of last delivery						p value
	Health center		Home		Total		
Age	**n**	**%**	**n**	**%**	**n**	**%***	
20-24	11	26.8	30	73.2	41	11.1	0.515
25-29	32	29.9	75	70.1	107	29.1	
30-34	39	37.1	66	62.9	105	28.5	
≥ 35	34	29.6	81	70.4	115	31.3	
Educational status							
Illiterate	67	25.0	201	75.0	268	72.8	**< 0.001**
Literate	49	49.0	51	51.0	100	27.2	
Economical status							
Good	19	73.1	7	26.9	26	7.1	
Average	79	31.9	169	68.1	248	67.4	**< 0.001**
Poor	18	19.1	76	80.9	94	25.5	
Working status							
Yes	17	68.0	8	32.0	25	6.80	**< 0.001**
No	99	28.9	244	71.1	343	93.2	
Receiving health education in the last 6 months							
Yes	64	47.4	71	52.6	135	36.7	**< 0.001**
No	52	22.3	181	77.7	233	63.3	
Total	116	31.5	252	68.5	368	100.0	

*Column percentages; other are row percentages.

Age groups is not found in relation with place of last delivery (p=0.515). Of the illiterate respondents 25%, of the literate respondent 49% was delivered their last baby

in the health center, the difference was statistically significant ($p < 0.001$). 73.1% of the respondent in good economic status and 19.1% in poor economic status were delivered their last baby at health center; the difference was statistically significant ($p < 0.001$). Of the respondent who did worked 68%, did not worked 28.9% was delivered their baby at health center; the difference was statistically significant ($p < 0.001$). Of the respondent received HE session in the last 6 months 47.4%, did not received HE session in the last 6 months 22.3% was delivered their baby at health center; this difference was statistically significant ($p < 0.001$). Almost all of the deliveries (98.6%) were spontaneous vaginal delivery were normal vaginal delivery.

Table 4.4.17. Association between socio demographic characteristic of participants in relation with the place of last delivery (Bihsud District, Nangarhar Afghanistan 2014)

Factors (n=368)		**OR (95% CI)**	**p-value**
Economical status	Poor	Reference	
	Average	1.9 (1.03-3.38)	0.037
	Good	7.5 (2.67-21.36)	< 0.001
Receiving HE in the last 6 months	No	Reference	
	Yes	2.5 (1.58-4.12)	< 0.001

Good (OR=7.5; CI=2.67-21.36) or average (OR=1.9; CI=1.03-3.38) economic status and receiving of health education (OR=2.5; CI=1.58-4.12) were the relative factors for the delivery in the health center.

Table 4.4.18. Distribution of female participants by reasons did not use health facility for last delivery (Bihsud District, Nangarhar Afghanistan 2014)

Reasons for not delivering in a health facility (n=252)	**n**	**%***
Bad quality	139	55.2
Lack of privacy	112	44.4
Does not know the address	102	40.5
Too far	80	31.7
Not clean	40	15.9
No need to clinic/hospital for delivery	40	15.9

*More than one answer, percentages calculated separately from the total number (n=880)

The most frequent reasons for not delivering in a health facility are bad quality 55.2% and lack of privacy (44.4%); 40.5% of the respondents stated that they did not know the address of the facility.

4.4.3. Knowledge about the presence and utilization of family planning services and related factors:

Table 4.4.19. Distribution of participant by presence of knowledge about family planning services in the residential area (Bihsud District, Nangarhar Afghanistan 2014)

Knowledge about the presence of FP services	**Male**		**Female**		**Total**	
	n	**%**	**n**	**%**	**n**	**%**
Yes	242	50.5	293	73.0	535	60.8
No	140	29.2	44	11.0	184	20.9
Do not know	97	20.3	64	16.0	161	18.3
Total*	479	54.4	401	45.6	880	100.0

*Row percentages; others are column percentages.

Of the male respondents 50.5% knew that there exist family planning services in their residential area, while 73% of the female.

Table 4.4.20. Distribution of participant's knowledge about the presence of family planning in their residential area and some socio-demographic characteristic (Bihsud District, Nangarhar Afghanistan 2014)

Characteristics	**Knowledge about the presence of family planning services**						
	Yes		**No**		**Total**		
Age	**n**	**%**	**n**	**%**	**n**	**%***	**p value**
20-24	90	63.8	51	36.2	141	16.0	0.884
25-29	139	60.4	91	39.6	230	26.2	
30-34	133	60.2	88	39.8	221	25.1	
≥ 35	173	60.1	115	39.9	288	32.7	
Sex							
Male	242	50.5	237	49.5	479	54.4	**< 0.001**
Female	293	73.1	108	26.9	401	45.6	
Educational status							
Illiterate	308	56.9	233	43.1	541	61.5	**0.003**
Literate	227	67.0	112	33.0	339	38.5	
Total	535	60.8	345	39.2	880	100.0	

Age groups is not found in relation with the participants knowledge about the presence of family planning services in their residential area (p= 884). Of the male 50.5%, female 73.1% had knowledge about the presence of family planning services in their residential area; the difference was statistically significant ($p < 0.001$). Of the illiterate 56.9%, of the literate 67% had knowledge about the presence of family planning services in their residential area; the, difference was statistically significant (p=0.003).

Table 4.4.21. Distribution of current contraceptive methods use and some socio-demographic characteristic (Bihsud District, Nangarhar Afghanistan 2014)

Characteristics	Utilization of contraceptive methods						
	Yes		No		Total		
Age	**n**	**%**	**n**	**%**	**n**	**%***	**p value**
20-24	5	8.1	57	91.9	62	7.8	**< 0.001**
25-29	56	25.3	165	74.7	221	27.9	
30-34	83	37.6	138	62.4	221	27.9	
≥ 35	90	31.3	198	68.8	288	36.4	
Sex							
Male	100	23.6	324	76.4	424	53.5	**< 0.001**
Female	134	36.4	234	63.6	368	46.5	
Educational status							
Literate	105	39.0	164	61.0	269	34.0	**< 0.001**
Illiterate	129	24.7	394	75.3	523	66.0	
Economical status							
Good	41	64.1	23	35.9	64	8.1	
Average	146	28.7	362	71.3	508	64.1	**< 0.001**
Poor	47	21.4	173	78.6	220	27.8	
Working status							
Yes	75	36.9	128	63.1	203	25.6	**0.007**
No	159	27.0	430	73.0	589	74.4	
Receiving health educations in the last 6 months							
Yes	115	47.5	127	52.5	242	30.6	
No	119	21.6	431	78.4	550	69.4	**< 0.001**
Total	234	29.5	558	70.5	792	100.0	

*Column percentages; other are row percentages.

By the increasing participant age, utilization of contraceptive methods increased. Of the participant's at the age interval 20-24, 8.1% utilized contraceptive methods and this percentage were elevated to 31.3 %, at the age group 35 or more; the difference was statistically significant ($p < 0.001$). Of the male 23.6%, of the female 36.4% utilized contraceptive methods, the difference was statistically significant ($p < 0.001$). Of the literate 39% and of the illiterate participant's 24.7% utilized contraceptive methods, the difference was statistically significant ($p < 0.001$). 64.1% of the participants in good economic status, 21.4% in the poor economic status utilized contraceptive methods; the difference was statistically significant ($p < 0.001$). Of the respondent worked 36.9%, and of the respondent did not worked 27% utilized contraceptive methods, the difference was not statistically not significant ($p = 0.007$). Of the respondent received/attend health education session in the last 6 months 47.5% and did not attend health education in the last 6 months 21.6% utilized contraceptive methods, this difference was statistically significant ($p < 0.001$).

Table 4.4.22. Distribution of the participants by the types of contraceptive methods and sex (Bihsud District, Nangarhar Afghanistan 2014)

Types of contraceptive methods	**Male (n=424)**		**Female (n=368)**	
	n	**%**	**n**	**%**
Condom	100	23.6	-	-
Oral pill	-	-	54	14.7
IUD	-	-	42	11.4
Injection	-	-	38	10.3
Total	100	23.6	134	36.4

All of male participants who were currently using a contraceptive method stated that they use condom, 18 of them were using rhythm in combination with condom, no female respondent stated condom. Mostly used method was oral pill (14.7%), followed by IUD (11.4%) and injection (10.3%).

Table 4.4.23. Association between socio demographic characteristic of participants in relation with the utilization of contraceptive methods (Bihsud District, Nangarhar Afghanistan 2014)

Factors (n=792)		**OR (95% CI)**	**p value**
Age	20-24	Reference	
	25-29	6.2 (2.23-17.05)	< 0.001
	30-34	12.9 (4.69-35.72)	< 0.001
	≥ 35	9.1 (3.33-24.92)	< 0.001
Sex	Male	Reference	
	Female	2.6 (1.75-3.84)	< 0.001
Economical status	Poor	Reference	
	Average	1.3 (0.87-1.93)	0.202
	Good	3.7 (1.80-7.66)	< 0.001
Working status	No	Reference	
	Yes	1.61 (1.01-2.57)	0.045
Receiving HE in	No	Reference	
last 6 months	Yes	2.5 (1.72-3.60)	< 0.001

Female sex (OR=2.6; CI=1.75-3.84), working (OR=1.61; CI=1.01-2.57), good economic status (OR=3.7; CI=1.80-7.66) and receiving of health education (OR=2.5; CI=1.72-3.60) were the relative factors for the utilization of contraceptive methods.

Table 4.4.24. Distribution of the source of the contraceptive methods (Bihsud District, Nangarhar Afghanistan 2014)

Source of	**Male**		**Female**		**Total***	
contraceptive methods	**n**	**%**	**n**	**%**	**n**	**%***
Public	38	38.0	81	60.5	119	50.8
Private	53	53.0	37	27.6	90	38.5
Public + private	9	9.0	16	11.9	25	10.7
Total	100	42.7	134	57.3	234	100.0

*Column percentages; other are row percentages.

Among male contraceptive method users main source of contraceptive was private facilities (53%) only private, 9% in combination with public facilities. Among the female these condition had changed 60.5% of female obtain the method mainly from public facilities only public, 11.9% in combination with private facilities.

Table 4.4.25. Distribution of reasons for not using family planning method (Bihsud District, Nangarhar Afghanistan 2014)

Reasons for not using family planning (n=558)	**Male (n=324)**		**Female (n=234)**		**Total ***	
	n	**%**	**n**	**%**	**n**	**%**
Does not know how to use	92	28.40	118	50.4	210	37.6
Doctor does not advice	56	17.3	100	42.7	158	28.3
Not allowed in our Religion	124	38.3	20	8.6	144	25.8
Want a child	78	24.1	49	20.9	127	22.7
Side effects	14	4.3	87	37.2	101	18.1
Expensive	27	8.3	54	23.1	81	14.5
Access Problem	33	10.2	28	12.0	61	10.9
Health concern	10	3.1	30	12.8	40	7.2
Stopped children (menopause)	-	-	25	10.7	25	4.5

*More than one answer, percentages calculated separately from the total number (n=558)

Reason for not using of any contraceptive method is that, 37.6% do not know how to use contraceptive method, 23.8% said doctor does not advise it, 25.8% said using contraceptive is forbidden by religion and 22.7% said they want a child and not using any family planning method.

5. DISCUSSION

In this study availability and utilization of primary health care services was evaluated, 880 eligible persons were interviewed. Out of 880 participant, 479 (45.4%) were male and 401 (45.6%) were female.

5.1. Socio-demographic characteristics of the respondents:

The study included people from four clusters in Bihsud District of Nangarhar Province, Afghanistan. The mean age for male was 33.4 ± 9.0 and for female 31.6 ± 8.0, the difference between mean age of the male and female participants was statistically significant (p=0.002). The reason for lower mean age would be the young age structure of the population of Afghanistan, (Figure 3.2.2, and Table 4.1.1) (14, 57). In countries like Afghanistan, many people are unaware about their exact age or date of birth. This, indicate to high incidence of age misreporting.

According to the study result of the respondents, 54.4% were male and 45.6% were female; female male ratio is 1: 1.2 which is a little higher than the population ratio (1: 1.04) of Afghanistan Population Pyramid, (48), it could point that the rate of non-responders was higher in female than male, and the reason for higher non-responder in female could be cultural factors which inhibited the participation of women to such activities. Generally, the sex ratio across age groups follows a pattern in which boys outnumber girls at birth (with around 105 to 100) (14).

The majority of respondents 89.4% were currently married followed by single (10%) and widowed person (0.6%). Marital status is a key principal in the social relations in Afghan society. In Afghanistan, marriage as a universal phenomenon is indicated by the fact that less than one percent of the population of 35 and over remained unmarried, women tend to get married earlier than men and become widowed earlier (14). Data from the (15) show that marriage occurs relatively early in Afghanistan, with the vast majority (92%) of women married by the time they reach age 25. In Tajikistan more than two-thirds of Tajik women aged 15-49 67% are

currently married, just over one-quarter are single (never-married), and 5 percent are divorced, separated, or widowed (58).

It is found that about two-third of the respondents were Illiterate. Overall literacy rate was 38.5% (male 44.7% and female 31.1%) . In Afghanistan overall literacy rate is 31.4%, male literacy rate is 45.5%, and female literacy rate is 17%. (14). Male study participants had similar education level, while the female had somewhat higher. Afghanistan is one of the 10 countries with the worst Literacy Rates in the world (59), As of 2012, India has achieved 75% literacy rate, while Pakistan was at 54% (60). Bangladesh literacy rate is 60 % (61). The reason for the higher overall literacy rate in this study could be the younger of the study participants. The improvements in literacy between 2005 and 2011-12 are particularly observed in the youth literacy rate, which increased from 20 to 32% for females aged 15-24 and from 40 to 62% for male youth. (14). Also the reason for higher literacy rate in women in this study would be related to last 14 years development of women rights in Afghanistan; during the Taliban Rule girls were even prohibited from attending school. Since 2001, a nationwide reconstruction process is being implemented with large support from the international community (16). The Bihsud District in which the research was performed is located much close to the capital of Nangarhar Province Jalal Abad City, also the security situation is much better than the other parts of the province; both male and female schools are open, so these are the reasons for the higher literacy rate in this area, than other parts of the country.

In the time of interview every three respondent out of four (74.4%) stated that they were not currently working, only 225 (25.6%) of the respondent was working 87.6% of them were male and 12.4% female. The difference was statistically significant ($p < 0.001$). In Afghanistan due to security problems, low literacy rate of females and some cultural barrier women are less employed than men. Majority of the employed women works at educational or health sector. Overall the country some 6.6 million people are employed of whom 5.5 million (83%) are men and 1.1 million (17%) are women (14). The findings of the study show, that overall participation rates

in working life for women are very low, because of cultural barrier for activities outside the households as well as to high burden related to household chores and children care. In some neighbor countries the situation is similar to Afghanistan, e.g. in Bangladesh, only 11% of women are currently working (61).

In this study however more than one-fourth stated that their economical states were bad, the 63.7% of the respondent evaluated their economical states average. In Nangarhar province agriculture is the major source of income in 55%, of rural households 28% of them drives income from trade and services, livestock also account for revenue for 14% of rural households (49). Generally people tend to express their economic status as "average" when a researcher asked; this situation could be another reason for this sense.

5.2. Utilization of improved water Source and sanitary latrines

It is aimed to access the utilization of improved water sources and sanitary latrine as two indicators of primary health care services in the study population.

It is found that 84.9% of respondent were using well (protected) water, 4.5% tap water and 8.8% used others sources of water like river, canal and springs water as their source of drinking water (annex 3). Also it is found that 91.2% of respondent utilized improved drinking water sources and 8.8% of respondent not utilized improved drinking water sources. In Afghanistan Overall, 57% of the Afghan population is using an improved source of drinking water, including 82% who use an improved source in urban areas and 51% who are using an improved source in rural areas (16), also according to (49) 89.9% urban population and 56.1% rural population has access to improved drinking water sources. In this study utilization of improved water found higher more than the other national figures for rural areas, this sense could be originate from the location of study site (Bihsud District), which is located much close to the Jalal Abad City capital of Nangarhar Province. Tube wells (protected) or boreholes are the most common water sources used in Afghanistan, the second most important source of water is surface water (river, stream, dam, lake,

pond, canal or irrigation channel) considered to be unimproved (16). In some neighbor countries access to improved drinking water is higher than Afghanistan, e.g. in Bangladesh 99% (61), in Tajikistan 76% (58) in Pakistan 93% (62), and another developing countries e.g. Nigeria of the population 60% using improved water sources (63)

In this study, found that of the 58.9% of the respondent's water source were located on premises, 39% of the respondents spend less than 30 minutes and 2% spend 30 or longer than 30 minutes for getting water, Mean time for getting water was 19.3 ± 4.6 minutes. In one national survey in Afghanistan (16) of the peoples 32% water source were located on the premises, 18% spend less than 30 minutes and 6% spend 30 minutes or longer time for getting water. In this study the location of drinking water sources in premises found higher than the national survey find, this situation may be, due higher access and utilization of improved water sources. In some other neighbor and developing countries e.g. Bangladesh 71.6% of peoples water source were located on premises, 24.4% of people spend less than 30 minutes for obtaining water (round trip) and 4% of people spend more than 30 minutes for getting water (61), In Tajikistan of the 50.5% of people, water source were located on premises, 36.5% people spend less than 30 minutes for getting water and 11.7% people spend more than 30 minutes for getting water (58) In Pakistan the figure were 76.5%, 14.3% and 8.8% respectively (62). These results were similar to the result of this study. Also the WHO recommended that, maximum distance from any household to the nearest drinking water point should be 500 meters (64).

According to the study findings only 27.3% of respondent had used chlorine in their drinking water source. In Afghanistan generally 20% of household member are using different treatment for drinking water (16) which is 30% in urban area and 14% in rural areas, in this study the usage of chlorine found similar to the urban area level, even the study area was rural since it is resemble to urban area of Afghanistan.

The majority of respondents 94.8% in this study did not use any method for the disposal of solid wastes of their houses; only 2.7% of respondent disposed their solid wastes at the public bean. In cities or large town, the municipal authorities may provide refuse collection services, in this situation, it is important that all household must have suitable containers for collection refuse and to be stored (65). Unfortunately, in Afghanistan, there is not present any platform even in city for collection of solid wastes, and the situation is worst in the districts. Also worst economic condition and low literacy rate, has bad affected the environmental condition both in urban and rural areas.

According to the study result of the respondents 51, 1% was utilized improved sanitary facilities. In the other accomplished researches (16) in Afghanistan in 2011, utilization level of improved sanitary facilities was 31%, (60% in urban and 25% in rural) areas. in this study the utilization of sanitary latrine is higher than other national studies, the reason for higher utilization of improved sanitary larine, could be due to the similarity of the area to urban area, people of this District is more educated than the other District of the province and this District is located next to the Jalal Abad city. In some neighbor and developing counties similar to Afghanistan the Utilization of improved facilities (latrine) is better than Afghanistan; In Tajikistan nearly all Tajik households (94%) use improved sanitation facilities. (58), in Pakistan 59.5% utilized improve sanitation facilities 62), in Nigeria which is also a less developed country, 34% of people were utilized improve sanitation facilities (63), and in Uganda 18.7% utilized improved sanitation facilities (66) which was lower than Afghanistan.

This study found that, of the 64% participant stated that the distance between latrine and their sources of drinking water were less than 15 meter and of the 36% were 15 and more than 15 meters. Mean distance between latrine and water source were 12.4 ± 4.4 meter. According to the WHO standard, all water wells shall be located an adequate horizontal distance source of pollution and contamination. Acceptable distance between water source and latrine is about 15 meter (64), the distance between latrine and water source which is found in this sturdy is close to the WHO standard.

Many variables are involved in determining the "safe" separation distance between a well and a potential source of pollution or contamination. No set separation distance is adequate and reasonable for all conditions. Determination of the safe separation distance for individual wells requires detailed evaluation of existing and future site conditions. In Bangladesh 15m, in India 10 meters, In Ethiopia 30m safe distance between latrine and water source “must be sited at least” (67). As in Afghanistan there is not any standard, no safe distances is defined in the “National Sanitation Policy” , comparing with other countries the situation was worst for the study population.

79.3% of respondent were lived in mud type of houses and 20, 7% in brick houses, so this not comparable with other countries.

According to the study result 35.2% of respondents were kept domestic animals, Cow 66.8%, Hen 54.5% respectively in the first rank. The (14) indicate that 39% of the households in Afghanistan owned one or more cattle, chicken-holding households were 44% nationally (57 rural and 17% urban). Cows keeping people for milk products and Hen is particularly important for women, as these are usually responsible for tending poultry and also may have direct benefits from poultry products,

5.3. Factors related to utilization of improved water sources and sanitary latrines

According to study find age, sex, educational status and economic status were associated with the utilization of improved water sources, people at young age group, literate and peoples who have good economical states were more utilized water sources than the older age, illiterate and poor people, a study from Afghanistan (16) a study from Pakistan (62) was also showed the association between the utilization of improve water source and educational status and economic status, the predictor factor for the utilization of improved water sources were young, average and good economic states. Factor which were relative for the utilization of improved water source identified as young age (20-24) of the participants (OR=4, 1; CI=1.23-14.03) and average (OR=3,1; CI=1,93-5.15) or good economic status (OR=7.8;CI=1.82-33.20).

The study finding shows that Age, Sex, Marital status, Educational status, Economic status and working status are significantly associated with the utilization of sanitary facilities. It means that by increasing the literacy level and improvement of economic status, utilization of sanitary increase. The similar result was found in the other studies (16). Sex, age, economic status and educational status were related factor for utilization of sanitary latrine. Good economic status (OR= 3, 2; CI 1, 63-6.38; p=0.001), the same result was found in a study (68) in Tanzania.

Inadequate disposal of human excreta and inadequate personal hygiene are associated with a range of diseases including diarrheal diseases and polio. An improved sanitation facility is defined as one that hygienically separates human excreta from human contact. (This is also defined in methodology). Improved sanitation can reduce diarrheal disease by more than a third, and can significantly lessen the adverse health impacts of other disorders responsible for death and disease among millions of children in developing countries (16). However, the country has a long way to go in improving sanitation. Only one-fifth of households have an improved toilet facility, while four-fifths have a non-improved toilet facility and one-fifth have no toilet facility at all. Less than half of households are electrified. (15)

Access to an improved water source does not mean that the water is safe to drink. For example, protected shallow wells in urban areas are often contaminated with bacteria. Piped water supply can also be contaminated. Households without access to an improved source take water form streams and rivers, open wells and unprotected spring, all of which are also often polluted. In rural areas women and girls walk long distance to fetch water. There have been considerable improvements in access to water supply in the last several years. A countrywide (69) carried out 1997 found that an estimated 7% of the rural population and 17% of the urban population had access to improved water sources at the time even though it may be contaminated.

The proportion of the world's population with access to improved drinking water sources increased from 76% to 89% globally between 1990 and 2012,

surpassing the MDG target. While coverage is near or above 90% in all developing regions of the world, with the exception of sub-Saharan Africa and Oceania, where the coverage are 64% and 56% respectively, widespread disparities exist between countries and across regions. There are also disparities between urban and rural coverage, where an estimated 96% of the urban population globally used an improved water supply source in 2012, compared to 82% of the rural population. This is much more striking when it comes to piped water on premises, to which 80% of urban dweller has access, as opposed to merely 29% from the rural areas (70).

5.4. Availability and utilization of health services

In the context of Afghanistan "availability of health services means having access to BPHS or primary health care services within two hours of travelling using whatever available means of transport and to a higher level facility within a further two hours travel time following referral. Services are provided by appropriately trained staffs have sufficient equipment and supplies to deliver them" (41). Access to health services is a multi-dimensional concept. It is not only related to the physical distance to health facilities or travel time, but also involves the cost of travel and service (14)

According to the study result the mean time spent reach to the nearest health center was 29.8 ± 9.9 minutes, of the participant 59.1% spent less than 30 minutes and 40.9% more than 30 minutes to travel to nearest health center in their residential area. It is also found that of participant 48.8% living less than 5 km, 48.2% between 5-9.9 km, only 3% of respondents lived ten and more than ten kilo meters far from their nearest health centers, mean distance from health center was 4.6 ± 2.2 kilo meters and of the participants 85.4% of people stated that the travel to the nearest health center was low and medium cost, more than half of participant went to the health center by walking, 48.8% used public transportation. The national survey (21) shows, the large majority of the Afghan population (85%) was within one hour's distance of a public health facility by any means of transport. If it is considered with above context for all

of the study participants primary health care services were available. Also in this study in a way, the sample was selected on purpose, in which clusters considers as the responsible for offering health services for their coverage areas of basic health center and comprehensive health centers. BPHS coverage or access to primary health services (within 2 hour using any type of transportation) has continued to grow from only 9% accessibility in 2003 to 66% in 2006 (22, 41). There is evidence that the effort to expand access to health care is succeeding. So according to this study result primary health care is almost available to the people of Bihsud District of Nangarhar province.

The study finding show that 75.3% of the respondent utilized only public health centers, 13.3% only private health center and 11.4% of respondent were utilized Public and private health center for obtaining of primary health care services, this result is similar to another study result in South East Ethiopia (38) in which the utilization of Public health centers were more than private health centers, also in this study, it is found that 51.8% of respondent obtain free drugs, 51.7% obtained health educations, 49.5% of respondent obtain examinations and 33.6% obtained maternal health services.

All people of residential area stated that they had heard malaria. Only 2.8% people stated that malaria is endemically present there. More than half of participant said that malaria is preventing by protection against mosquito method, 26.9% chemoprophylaxis and 18.3 said it is not possible. According to national malaria strategic plan (71) the main method for vector control in Afghanistan is the use of insecticide-treated nets (bed nets). Also using of impregnated bed net is reducing transmission of malaria by 68-90% (71). Malaria is endemic in large area of Afghanistan below 2000 meters above sea-level and is highly prevalent in river valleys used for growing rice; local epidemics were reported from the eastern region (72). In the Bihsud District majority people engaged in agriculture works and grew rice, so this area is very suitable for malaria vector growth and there malaria is present in this area endemically. One-third (34.8%) of the participant had known their

community health worker and 31.6% of participant was received health education in the last 6 months.

According to the study finding two-third 69.8% of the respondents said that they were satisfied from the cost, 67.4% from distance to nearest health center, more than half of them were satisfied from time spends for getting services, only 23.1% were satisfied from offering of available services. Male were more satisfied than female respondents. In Afghanistan quality of health care is very low, some time there is shortage of medicine, in many health centers there is lack of appropriate equipment and qualified medical staff, also the building of some health center is in appropriate for delivery of health services, so these are the main reasons for not satisfaction of people from existed health services, it is found that the majority of people is satisfied from the cost of health services, in Afghanistan public health services is free of charge, therefore majority of people were satisfied from the cost of services. Also satisfaction of people from the distance and time were also in average level.

5.5 Factors related to the Utilization of Health Facilities and Access to Health Services

According to study results association between public services utilization and age were statistically significant ($p < 0.001$). This finding shows that the public health services were more utilized by young age people (20-24) than the people whose age was 30 and more than 30 years; it could be due to high literacy rate of young people, also female participant were utilized public health services more than the male participants, it could be also due to working status of male, because in Afghanistan very less women had employed and also economical status of women is worse than men, the private services is also had charges and women utilized it less than the men. The difference of utilization of health services between the male and female were statistically significant ($p=0.013$), the association between marital status, educational status, economic status and working status, and utilization of health service were found statistically not significant.

More than half of the participants (51, 8%), (51.7%) were obtained free drugs and health education respectively from their health center. Of the male participant 56%, and of the female 46.9% were obtained free drugs, this could be due inaccessibility of women to health center and sometime some cultural barrier, because in Afghanistan female does not like to take medicine from male physician. Of the female participants one-third (33.6%) obtained maternal health services from their health centers.

Association between main type of transportation and sex was statistically significant ($p < 0.001$), for travelling to the nearest health centers motor vehicle were more used by male participant than the female, when the distance between health center and people's houses is long it is difficult for women to travel by foot, physically male is more strong than female, males are able to travel by foot easily, so far these reason male were more travel the female by foot to the health center, also association between main type of transportation and economic status was statistically significant ($p=0.013$), show that people whose economic condition were better traveled to health center by motor vehicles than poor people. The study result show that association between receiving health education in the last 6 months was statistically significant with the participants; educational status, sex, marital status, economical status and age, literate people, male, employed, people whose economic states were good and people at young age group were more received/attend health education in the last 6 months. The reason for receiving of health education by these category people was high utilization rate of health services, majority of people (79.1%) were received health education at health facilities. Of the male participant were (63.8%), (72, 9%) satisfied and of the female participants were (63.8%), (60, 8%) satisfied from the cost and distance from obtaining health services respectively, the higher satisfaction of male participant should be due to more utilization of health services and good accessibility to health services.

5.6. Utilization of maternal health services and using of family planning methods

In this section knowledge about the presence of antenatal care services and postnatal services, utilization of antenatal care services and postnatal care services, delivery place, assistance of delivery, knowledge about the presence of family planning service and utilization of contraceptive methods were asked.

The study result show that generally knowledge about presence of antenatal care services was good, majority of the participants (84%) had knowledge about the presence of antenatal care services, 63.6% of respondent were utilized antenatal care services. of the participant stated that 54.1% had one visit and 17% had four visits during their last pregnancy. Coverage of antenatal care services (by doctor, nurse and midwife) is low in Afghanistan, 48% of women receiving antenatal care services at least once; one in six mothers received antenatal care at least four times (16). According a national survey in 2011 overall 51% of women reported at least one visit and 10% were received four visits (14). In the neighbor and some other similar developing countries e.g. in Baluchistan province of Pakistan 39% of women received at least one visit (73), 11.2% at least four visits, in Tajikistan 79% one visit, over half (52%) four or more (58), in Pakistan more than 7 in 10 (73%) one visit 37% four or more (62) in Nigeria 61% had one antenatal care visit, 51% had received at least four antenatal care visits during the pregnancy (63).

According to the study result, the major reason for not utilizing antenatal care services were 50.7% Tradition/custom barriers, 42.5% economic limitation, and 26.1% due to accessibility did not utilized Antenatal care services. The similar result was obtained from (15). In a study in Indonesia (74) distance to health facilities (in accessibly) was a major problem for not utilizing ANC services ,In Afghanistan some cultural badly affected women life e.g. women do not can to go out home without male, also women do not can go to health center alone, also in some family they must take permission from husband and mother in law for going to doctor or health center, majority of women is illiterate and jobless and faced with a lot of economic problems,

also some of them do not know the importance of antenatal care services, so because of these problem they can not to utilize the antenatal care services.

According to the study result 74% of female participants had knowledge about the presence of postnatal care services, about half of the (48.9%) were utilized postnatal care services, (75.6% had received one visit, and 24.4% had received 2 visits). The postpartum period is particularly important for women, because during this period they may develop serious, life-threatening complications, especially in the interval immediately after delivery. There is evidence that a large proportion of maternal and neonatal deaths occur during the first 48 hours after delivery. In Afghanistan exact number of postnatal care visit is unknown, infant mortality is high. It is assumed that the utilization of postnatal care services is low, but in the neighbor countries the utilization rate of postnatal care services is higher than Afghanistan. In Tajikistan the vast majority of women (80%) receive postnatal care from a skilled provider within two days after delivery. (58) In Pakistan 60% of women received postnatal care for their last birth within the first two days following delivery (62).

In this study, it is found that the most stated reason for not having postnatal care visit was economical limitation (50.5%), followed by traditional/custom (44.7%) and problems related quality of care, accessibility of services was 33.0%, 23.4% respectively. These result was similar to the result of (15) survey, in which also the major reason for not utilized postnatal care services was lack of money; traditional/custom problem and distance to facilities pose serious problems in accessing of postnatal care services. In the other survey (16), women were asked whether or not to use postnatal care services, while 40% cited managing transportation, 37% mentioned distance from a health facility as a problem, while 30% cited getting money for advice or treatment.

According to the study result of the participant 31.5% stated that their delivery was assisted by skilled birth attendance, 27.2% by traditional birth attendance, 22.8% by relative/friends, and 18.5% of delivery was assisted by no one. In Afghanistan 39%

delivery is assisted by skilled personal (16). in Afghanistan the proportion of births assisted by a health professional 39 % (16), which is lower than in Tajikistan (87%), (58) Azerbaijan (89 %), (75) similar to Nigeria 38% (63) and not comparable to Ukraine 99% (76). It is found that 68.5% of female was delivered at home, only 31.5% was delivered at Health facility. Almost 33% of births in Afghanistan are delivered in a health facility, and (65%) occur at home (16), in eastern Afghanistan 32.2% of women delivered at home (16). In neighbor and developing countries e.g. in Tajikistan more than three-quarter (76.5%) of births take place in a health facility (58), in Pakistan 48% (62) and in Rwanda 69% of delivery took place at health centers (77). It is also found that more than half 55% of women did not delivered at health facility due to Bad quality, 44% of due to no privacy, 40.5% said that they do not know address of health facility and accessibility problem, in Afghanistan majority of delivery took place at public hospital, there is not enough personal and services in public hospitals because of this in public hospital delivery care service is not satisfactory for people.

The study result shows that 60.8% of participants had knowledge about the presence of family planning services, overall 29.5% of participant's utilized contraceptive methods (male 23.6%, female 36.4%), the most common method was oral pills, IUD and injections, which was similar to a study (78) in Ethiopia. In Afghanistan prevalence of contraceptive methods is 21% (16). Knowledge of contraception is universal in Pakistan; more than one-third of currently married women 35.4% of reproductive age are using a method of contraception, contraceptive (62) In Nigeria 85% of women had knowledge about the presence of contraception Contraceptive prevalence is 15% (63). The most common reasons of not using contraceptive methods were 37.6% did not know how to use, 25.8% due to religion concern, 23.8%, 22.7% wanted child. In the similar countries to Afghanistan e.g. in Pakistan, the most common reason for discontinuing a method is desire to become pregnant 34 %, followed by side effects or health concerns 22 % and becoming pregnant while using 16 % (62).

5.7. Factors related to the utilization maternal health services and using of family planning methods

This study also found that marital status and knowledge about presence of antenatal care services are significantly associated ($p < 0.001$), of the never married participant 54.5% and of the ever married participant 85% had knowledge about the presence of antenatal care services, also educational status and knowledge about the presence of antenatal care services is statistically significant (P=0.005), illiterate participants 77.9% and literate participant was 89.6% had knowledge about the presence of antenatal care services, and association between receiving of health education and knowledge about the presence of antenatal care services was also statistically significant and association between age, economic status and working status was not statistically significant. Marriage (OR=10.1; CI=3.83-31.51), literacy (OR=3.4; CI=1.32-8.78) and receiving of health education (OR=5.8; CI=2.42-13.51) were the predictive factors for knowledge on the presence of ANC services in the area.

Association between utilization of antenatal care service and age, educational status, economic states and receiving of health education was statistically significant. In the other national survey (16) Education was significantly associated with skilled antenatal care, and especially the difference between women with no education and primary education. Women with higher education approach universal coverage. Age of mother was also clearly associated with the use of skilled ANC services. Good economic status (OR=3.9; CI=1.03-14.88) and receiving of health education (OR=4.4; CI=2.56-7.66) were the predictive factors for the utilization of ANC services in the area, which was also similar (79) study results, also (80) study show that the utilization of ANC is higher in richest female than the poor.

According to the study result association between knowledge about the presence of postnatal care services and marital status, educational status were statistically significant ($p= 0.002$), also the association between knowledge about

presence of postnatal car service and receiving of health education in the last 6 months was statistically significant ($p < 0.001$). A postnatal care visit offers an ideal time to educate a new mother on how to care for herself and her newborn. Safe motherhood programs emphasize the importance of postnatal care, recommending that all women receive at least two postnatal checkups and iron supplementation for 45 days following a delivery (15). Marriage (OR=5.4; CI=2.21-13.03), literacy (OR=2.4; CI=1.18-4.79) and receiving of health education (OR=3.46; CI=1.86-6.43) were the relative factors for knowledge on the presence of PNC services in the area.

The study result shows that the association between utilization of postnatal care services and educational status, marital status and receiving of health education was statistically significant ($p < 0.001$). Good economic status (OR=3.9; CI=1.03-14.88) and receiving of health education (OR=4.4; CI=2.56-7.66) were the related factors for the utilization of PNC services in the area.

The study result show that educational status, economic status, working status and receiving of health education in the last 6 months had statistically significant ($p <0.001$) associated with place of last deliver. The same result was obtain from some other national survey (15.16), women whose economic status is good, literate women and the women who had job are more likely to have delivered at health center. Good (OR=7.5; CI=2.67-21.36) or average (OR=1.9; CI=1.03-3.38) economic status and receiving of health education (OR=2.5; CI=1.58-4.12) were the related factors for the delivery in the health center. Richest and educated woman is, the more likely to have delivered with the assistance of a skilled attendant (16, 81). Increasing the proportion of births that are delivered in health facilities is an important factor in reducing the health risks to both the mother and the baby. Proper medical attention and hygienic conditions during delivery can reduce the risks of complications and infection that can cause morbidity and mortality to either the mother or the baby.

The study result show that the association between educational states and knowledge about presence of family planning was statistically significant ($p <0.003$) sex

was statistically significant ($p < 0.001$) with knowledge about presence of family planning. There association between age, sex, educational status, economical status, receiving health education and utilization of contraceptive methods was statistically significant ($p < 0.001$), working status was also associated with utilization of contraceptive methods ($p=0.007$). Female sex (OR=2.6; CI=1.75-3.84), working (OR=1.61; CI=1.01-2.57), good economic status (OR=3.7; CI=1.80-7.66) and receiving of health education (OR=2.5; CI=1.72-3.60) and Age groups 25-29 (OR= 6.2; 2.23-17.05) were the relative factors for the utilization of contraceptive methods, which is similar to the (82) study. The most common reason for not utilizing contraceptive method was lack of knowledge of using of contraceptive method, which was also found in (83) study in India.

In Afghanistan current use of any method of contraception was reported by 21% of women currently married. The most popular method is the injectable form of contraception. Contraceptive prevalence is highest in the Central region at 35%. The highest prevalence of contraception use is observed among married women aged 35-44 (about 30%), compared to 7% of married women aged 15-19 years. Most women who reported using contraception are using modern methods (92%) as opposed to traditional methods. Women education level is strongly associated with contraceptive prevalence (16). There are substantial differences in the use of contraceptive methods among subgroups of currently married women. Urban women are twice as likely to use a method of family planning as are rural women, probably reflecting wider availability and easier access to methods in urban areas than in rural areas, so Bihsud district is much closed to capital of Nangarhar province, family planning services is available at every part of the district, because of these reasons the prevalence of contraceptive methods is higher than other part of the country.

6. CONCLUSION

The main objective of this study was to evaluate the availability and utilization of primary health care services of the people of Bihsud District, of Nangarhar Province Afghanistan.

Based on the finding of the study, the following conclusions are reached:

1. Majority of participants were aged less than 35, males were more than females participated in the study, overall literacy rate of the people was low, especially women's; Also majority of people were not working, and they stated their economical states not good.
2. The study result indicates that the majority people of Bihsud District utilized improved drinking water sources, and about half of people improved sanitation facilities (latrines), utilization rate was high in literate and richest people.
3. Primary health care services were already available in the Bihsud District of Nangarhar Province. In this study it is also found that the mean distance for the nearest health center was 4.6 ± 2.2 km and the people spend 29.8 ± 9.9 minutes for traveling to the nearest health center, which shows; that the primary health care services is available in area.
4. Utilization of public health services was high, but still some of (13.3%) people were utilized only private health centers for obtaining health services, about half of people were obtained free drugs and health education from public health centers; one third were received health education in the last 6 months.
5. Satisfaction of people from existed health services was very low (23.1%), more than half of the people (54.2%) were satisfied from time spent for obtaining health services. Almost three-fourth from the cost of services.
6. Finding related to the Utilization of maternal health services showed a little improvement, of the women 84% were had knowledge about the presence of antenatal care services in the residential area, 63.6% of mother utilized antenatal care services during the last pregnancy, 74% women had knowledge about the presence

of post natal care services, while 48.9% had utilized these services, 31.5% of deliveries were conducted in health facilities. The prevalence of contraceptive was 23%.

7. According to the study results, major reasons for not utilizing maternal health services were poor economic status, lack of knowledge about using of maternal health services, traditional barriers, and accessibility problem.

RECOMMENDATIONS

1. Government should support people in providing improved drinking water sources and sanitation condition of their houses.
2. The government should increase the number of schools (especially for women) and establish workplace and increase source of income to reduce poverty and increase the educational level of people.
3. The achievement of the community health workers (CHWs) activities were very useful, for the people to receive health education, and almost all indicators were higher among the people who received health educations (in other word met CHW health worker) in the last six months. The Department of Public Health should increase the number of community health workers, particularly female CHWs in the residential area.
4. Mass media should give health messages to the people for encouraging them to utilize the primary health care services.
5. The Ministry of Public Health should constitute maternity hospitals, and increase the number of female staff in the health centers to increase utilization of maternal health services.
6. Further studies should be perform in all age groups for the determination of availability and utilization of primary health care services to increased utilization the utilization of health services and improve the health status of people.
7. Medical universities (department of public health) should work together with provincial health management team to constitute plans for improving the health status of the people.

7. REFERENCE

1. The Universal Declaration of Human Right, *60th Anniversary Special Edition* 1948-2008. Access Date: 1-07-2014. Available at: **http://www.ohchr.org/EN/UDHR/Documents/60UDHR/bookleten.pdf**
2. Health for All beyond 2000: the demise of the Alma-Ata Declaration and primary health care in developing countries. Hall J.J and Tylor R. *Medical Journal of Australia (MJA)* 2003. Vol. 178 P. 17-20.
3. Singh PL, Sharma A, Kumar M, Shinwari S: Public health care in Afghanistan: An investigation in suboptimal utilization of facilities. Vol. 4, No 10, 794-801 (2012).
4. WHO: Background Paper for the Technical Consultation on Effective Coverage of Health Systems: 27–29 August 2001; Rio de Janeiro, Brazil. Geneva,Switzerland: WHO; 2001.
5. Balabanova D, McKee M, Pomerleau J, Rose R, Haerpfer C.Health service utilization in the former soviet union: evidencefrom eight countries. Health Serv Res. 2004;39(6 Pt 2):1927–50.
6. Al-Tair A, Clark A, Longenecker CJ, Whitty J.M.C. Physical accessibility and Utilization of health services in Yemen. International Journal of Health Geographics. Al- Taiar et al. *International Journal of Health Geographics* 2010, 9:38.
7. Tanahashi T. Health service coverage and its evaluation. *Bulletin of the World Health Organization,* 1978;56(2):295-303. Available at: **http:// whqlibdoc.who.int/bulletin/1978/Vol56-No2/bulletin_1978_56(2)_295-303.pdf**
8. Bashshur RL, Shannon GW, Metzner CA: Some ecological differentials in The use of medical services. Health Serv Res 1971, 6:61-75.
9. Feikin DR, Nguyen LM, Adazu K, Ombok M, Audi A, Slutsker L, Lindblade KA:The impact of distance of residence from a peripheral health facility on Pediatric health utilisation in rural western Kenya. *Trop Med Int Health* 2009, 14(1):54–61.

10. Babar TS, Juanita H. Health seeking behaviour and health service utilization in Pakistan: challenging the policy makers Public Health. 2005;27(1):49–54.
11. Saad AA. Factors influencing the utilization of public and private primary health care services in Riyadh city. JKAU: Econ & Adm. 2004;19(1):3–27.
12. Acerra JR, Iskyal K, Qureshi ZA, Sharma RK: Rebuilding the health care system in Afghanistan.: an overview of primary care and emergency services. *Int J Emerg Med* 2009, 2:77–82.
13. World Health Organization. Country cooperation strategy for WHO and Afghanistan, 2009-2013. Available at :**http://www.who.int/countryfocus/cooperation_strategy/ccs_afg_en.pdf.** Access Date 10-07-2014.
14. Central Statistics Organization (2014), National Risk and Vulnerability Assessment 2011-12. Afghanistan Living Condition Survey. Kabul, CSO.
15. Afghan Public Health Institute, Ministry of Public Health (APHI/MoPH) [Afghanistan], Central Statistics Organization (CSO) [Afghanistan], ICF Macro et al. Afghanistan Mortality Survey 2010. Calverton, Maryland, USA: APHI/MoPH, CSO, ICF Macro, IIHMR and WHO/EMRO, 2011.
16. Afghanistan Multiple indicator Cluster Survey (AMICS) 2010-2011. Central Statistic Organization (CSO) and UNICEF Final Repot Kabul Afghanistan.
17. Ministry of Public Health, Afghanistan Health Survey 2006. Estimates of Priority Health indicators for rural Afghanistan. Johns Hopkins University Bloomberg School of Public Health/ Indian Instituite of Health Mangment Research Kabul Afghanistan.
18. World Health Organization: World Health Statistics; 2014. Available at: **http://apps.who.int/iris/bitstream/10665/112738/1/9789240692671_eng.pdf** Access Date 25-07-2014.
19. Save the Children: Nutrition in the first 1 000 days. *State of the World's Mothers' Report;* 2012. Available at: **http://www.savethechildren.es/docs/Ficheros/517/Mothers_2012_Asia_lr.pdf** . Access Date 20-07-2014.

20. Rahmanzai JA, Hiltebitel S, Leatherman S, Burhani HN, Amiri M, Rahimzai M. Afghanistan's national strategy for impriving quality in health care. *International jurnal for quality in Health care Advances.* Aceess March 12, 2013 pp 1-7.
21. ICON Institute. National Risk and Vulnerability Assessment 2007/8: a profile of Afghanistan. Kabul, 2009.
22. Islamic Republic of Afghanistan, Ministry of Public Health. A Basic Package of Health Services for Afghanistan 2010 Kabul Afghanistan. Available at: **http://saluteinternazionale.info/wpcontent/uploads/2011/01/Basic_Pack_Afghan_2010.pdf** Access Date: 20-07-2014
23. The Public Health system in Afghanistan: Current issue. Ronald Waldman and Homaira Hanif May-June 2002. The Afghanistan Research and Evaluation Unit (AREU)
24. Islamic Republic of Afghanistan. Afghanistan Millennium Development Goal Report October 2010 Kabul. Access Date: 25-07-2014. Available at: http://planipolis.iiep.unesco.org/upload/Afghanistan/Afghanistan_MDG_2010.pdf
25. Rehman UM, Khan N, Abbas M : Availability and Utilization of Primary Health Care Services in the Rural Areas of District Peshawar-A Case study, *sarhad j. Agric vo*l. 23, No. 4, 2007.
26. Rakesh S, Bhavsar BS, Sunil N, Mihir G: Availability of services and facilities at primary health centers in Ahmad Abad Distric Gujrat. *National journal of community Medicine* 2010, Vol.1, Issue 1.
27. Cueto. M. PhD. The Origins of Primary Health Care and Selective Primary Health Care. *American Journal of Public Health* Nov 2004, vol 94, No.11. P 1864-1874.
28. WHO: Primary Health Care: Report of the international conference on primary health care: 6–12 September 1978; Alma-Ata, USSR. Geneva, Switzerland: WHO; 1978.
29. Tarlier, DS., Johnson, JL. and Whyte, NB. (2003). Voices from the wilderness: an interpretive study describing the role and practice of outpost nurses. *Canadian Journal of Public Health*, 94(3), 180-184,

30. Park. *K. Park's Textbook of Preventive and Social Medicine*, 18th Edition 2007-2008. 21 Chapter Health care of the Community P. No.685-686.ISBN 81-901282-8-0.
31. Lancet and London International Development Centre Commission. The Millennium Development Goals: a cross-sectoral analysis and principles for goal setting after 2015. September 13, 2010 DOI: 10.1016/S0140-6736(10)61196-8
32. Sumner A, Tiwari M. After 2015: international development policy at the crossroads. Basingstoke: Palgrave Macmillan, 2009.
33. Walley J, Lawn JE, Tinker A, de Francisco A, Chopra M, Rudan I, et al:Primary health care: making Alma-Ata a reality. *Lancet* 2008,372(9642):1001–1007.
34. Beasley WJ, Starfield B, Well VC, Rosser WW, Haq LC, *Global Health and Primary Care Research JABFM* November- December 2007 vol. 20 No.6. (J Am Board Fam Med 2007;20:518 –526.)
35. Gwatkin DR, Bhuiya A, Victora CG: Making health systems more equitable.*Lancet* 2004, 364(9441):1273–1280.
36. Peters DH, Garg A, Bloom G, Walker DG, Brieger WR, Rahman MH: Poverty and access to health care in developing countries. *Ann N Y Acad Sci* 2008, 1136:161-171.
37. Macinko J, Starfield B, Shi L: The contribution of primary care systems to health outcomes within Organization for Economic Cooperation and Development *(OECD) countries*, 1970–1998. Health Serv Res 2003, 38(3):831–865.
38. Girma F, Jira C, Girma B. Health services utilization and associated factors in jimma zone, South west ethiopia. *Ethiop J Health Sci*. 2011;21 Suppl 1:85–94.
39. Kiadaliri AA, Najafi B, Haghparast-Bidgoli H. Geographic distribution of need and access to health care in rural population: an ecological study in Iran. *Int J Equity Health*. 2011; 10(1):39.
40. The role of contractual arrangement in improving health sector performance. Experience from the countries of the Eastern Mediterranean Region. WHO regional office for the eastern Mediterranean. Available at:**http://gis.emro.who.int/HealthSystemObservatory/PDF/Contracting/Complete%20Study.pdf** . Access Date: 20-07-2014

41. National Strategy For Improving Quality in Health care 2011-2015. Improving Quality in Health care Unit, General Directorate of Curative Medicine Ministry of Public Health.. Available at:**http://www.gfmer.ch/country-coordinators/pdf/National-Strategy-Improving-Quality-Health-Care-2011Afghanistan.pdf** Access Date 20-07-2014
42. Islamic Republic of Afghanistan 2011. Afghanistan National Health Workforce Plan 2012-2016. National HRH Consultative Forum. Ministry of Public Health and WHO. Available at:**http://www.who.int/workforcealliance/countries/Afghanistan_HRHplan_2012_draft.pdf** Access Date 20-07-2014.
43. Sharp TW, Burkle FM Jr, Vaughn AF, Chotani R and Brennan RJ (2002) Challenges and opportunities for humanitarian relief in Afghanistan. Clin Infect Dis 34:S215–S228
44. Islamic Republic of Afghanistan. Afghanistan National Development Strategy (2008/09 -2012/2013), Feb 2008. A Strategy for Security, Governance, Rule of Law, Human Rights, Social-Economic Growth and Poverty Reduction, Kabul Afghanistan.
45. War zone hospitals in Afghanistan: a symbol of willful neglect. Senlis Afghanistan The international council on security and Development. Feb 2007. Available at: **http://www.icosgroup.net/static/reports/Hospital_Report.pdf** Access date: 15-08-2014.
46. Richards T (2003) Afghanistan struggles to build post-conflict health care. *BMJ* 326 (7394): 837
47. Islamic Republic of Afghanistan (IRA). Essential Package of Hospital Services (EPHS) 2013 Ministry of Public Health Kabul Afghanistan.
48. Afghanistan, Central statistic organization (CSO), Area and administrative population, *statistical year book 2012-2013*. Available at:**http://cso.gov.af/Content/files/Area%20and%20Administrative%20and%20Population.pdf** Access Date 01-08-2014

49. Ministry of Rural Rehabilitation and Development (MRRD)-Afghanistan, National Area Based Development Program, Nangarhar Provincial Profile. Available at: **http://mrrd.gov.af/en/page/69/430**. Accessed at 01-08- 2014.
50. Afghanistan provincial Health Profile Ministry of Public Health HMIS Department, Nangarhar Province Profile, available at: **.http://moph.gov.af/Content/Media/Documents/AfghanistanProvincialHealthProfile27520131031212275533325325.pdf** Access Date 15-08-2014.
51. Starfield B. Basic concepts in population health and health care. *Journal of Epidemiology and Community Health* 2001; 55:452-454.doi:10.1136/jech.55.7.452.
52. WHO/UNICEF joint Monitoring Programme (JMP) for Water Supply and Sanitation. Available at: **http://www.wssinfo.org/definitions-methods/** Access 20-08-2015
53. National Standards for Reproductive Health Services in Afghanistan. Antenatal Care Services, General Directorate for Health Care and Promotion Women's and Reproductive Health. October 2003. *TIA*: Ministry of health
54. National Standard for Reproductive Health Services in Afghanistan: Postpartum Care Services, December 2003. *TIA*: Ministry of Health
55. Newbrander W, Ickx P, Feroz F, Stanekzai H: Afghanistan's Basic Package of Health Services: its development and effect on rebuilding the health system. Global Public Health, 2014 Vol. 9, No. S1, S6–S28, **http://dx.doi.org/10.1080/17441692.2014.916735**
56. Islamic Republic of Afghanistan, Ministry of Public Health. A Basic Package of Health Services for Afghanistan 2003 Kabul Afghanistan. **http://unpan1.un.org/intradoc/groups/public/documents/apcity/unpan018852.pdf** Access Date: 30-08-2014
57. United Nations, Department of Economic and Social Affairs, Population Division (2013). World Population Prospects: The 2012 Revision, Highlights and Advance Tables Working

58. Tajikistan Demographic and Health Survey 2012 Statistical Agency under the President of the Republic of Tajikistan Dushanbe, November 2013 Available at: **http://dhsprogram.com/pubs/pdf/FR279/FR279.pdf** Access Date 15-08-2014
59. Chew K, 10 Countries with the worst Literacy Rates in the world September 8, 2013.. Available at:**http://www.care2.com/causes/10-countries-with-the-worst-literacy-rates-in-the-world.html** Access date 30-08-2104.
60. Haq R, History of literacy in Pakistan 1974-2014. Wednesday, March 19, 2014. Available at: **http://www.riazhaq.com/2014/03/history-of-literacy-in-pakistan-1947.html Access date 30-08-2104.**
61. Bangladesh Demographic and Health survey 2012. National Institute of Population Research and Training Dhaka, Bangladesh January 2013 Available at: **http://dhsprogram.com/pubs/pdf/FR265/FR265.pdf** Access date :15-08-2014
62. Pakistan Demographic and Health survey 2012-2013. National Institute of Population Studies Islamabad, Pakistan. December 2013 Available at: **http://www.nips.org.pk/abstract_files/PDHS%20Final%20Report%20as%20of%20Jan%2022-2014.pdf** Access date 15-08-2104
63. Nigeria Demographic and Health Survey 2013. National Population Commission Federal Republic of Nigeria Abuja, Nigeria June 2014 Available at: **https://dhsprogram.com/pubs/pdf/FR293/FR293.pdf** Access date 15-09-2014
64. Minimum Standards in Water Supply Sanitation and Hygiene Promotion, World Health organization. Available at:**http://www.redr.org.uk/objects_store/the_sphere_handbook_water_sanitation_and_hygiene_promotion.pdf** Access date 15-08-2014.
65. World Health Organization. Fact sheets on environmental sanitation. Robens Institute, University of Surry, U k. WHO 1996. Available at: **http://www.pssurvival.com/ps/Medical/WHO-Fact-Sheets_2006.pdf** Access date: 15-08-2014.
66. Uganda Demographic and Health Survey, Uganda Bureau of Statistics Kampala, Uganda August 2012. Available at:**http://www.ubos.org/onlinefiles/uploads/ubos/UDHS/UDHS2011.pdf** Access date: 15-08-2014.

67. National regulations on the safe distance between latrine and water point. *DEW Point Enquiry No. A0304*. December 2009.
68. Kema K, Semali I, Mkuwa S, Kagonji I, Temu F, Ilako F, Mkuye M: Factors affecting the utilization of improved ventilated latrines among communities in Mtwara Rural District, Tanzania. *Pan Afr Med J*. 2012; 13(Supp 1):4
69. Afghanistan: Multiple Indicator Cluster Survey 1997. Project reports PR-AF-afgmics 97. Available at: **http://www.ciet.org/en/project/afghanistan-health-literacy-sanitation-nutrition-and-educati/** Access date: 01-09-2014
70. World Health Organization and UNICEF. Progress on drinking water and sanitation 2014 Available at: **http://www.who.int/gho/mdg/environmental_sustainability/water_text/en/** Access date: 15-08-2014
71. National Malaria Strategic Plan 2008-2103. Islamic Republic of Afghanistan Ministry of Public Health. Kabul Afghanistan Available at: **http://www.nationalplanningcycles.org/sites/default/files/country_docs/Afghanistan/draftnationalmalariastrategicplan2008-2013299201220556335533253_5.pdf** Access date 5-09-2014
72. Kolaczinski J, Graham K, Fahim A, Brooker S, Rowland M. Malaria control in Afghanistan: progress and challenges, *Lancet* 2005; 365: 1506–12
73. Balochistan (province of Pakistan) Multiple Indicator Cluster Survey 2010, Government of Balochistan. United Nation Children's Found Available at**:http://www.unicef.org/pakistan/Approved_MICS_Balochistan_Final_Report_23_November_2011(2).pdf** Access date 15-08-2014.
74. 97- Titaley R C, Dibley J M, Roberts L C. Factors associated with underutilization of antenatal care services in Indonesia: results of Indonesia Demographic and Health Survey 2002/2003 and 2007. *BMC Public Health* 2010 10:485. doi:10.1186/1471-2458-10-485.
75. Azerbijan Demographic and Health Survey 2006 State Statistical Committee of the Republic of Azerbaijan Baku, Republic of Azerbaijan May 2008. Available at:

http://www.who.int/fctc/reporting/party_reports/azerbaijan_annex1_dhs_2006.pdf Access date 15-08-2014.

76. Ukraine Demographic and Health Survey 2007.Ukrainian Center for Social Reforms Kyiv, Ukraine Available at : h**ttp://dhsprogram.com/pubs/pdf/FR210/FR210.pdf** Access date 15-09-2014.
77. Rwanda Demographic and Health Survey 2010 National Institute of Statistics of Rwanda Ministry of Finance and Economic Planning Kigali, Rwanda, Ministry of Health. Available at: **http://www.statistics.gov.rw/sites/default/files/user_uploads/files/books/DHS%202010%20Rwanda%20version%202.pdf** Access date 15-08-2014.
78. Tilahun T, Coene G, Luchters S, Kassahun W, Leye E, et al. (2013) Family Planning Knowledge, Attitude and Practice among Married Couples in Jimma Zone, Ethiopia. *PLoS ONE* 8(4): e61335. doi:10.1371/journal.pone.0061335.
79. Long Q, Zhang T, Xu L, Tang S, Hemminki E: Utilisation of maternal health care in western rural China under a new rural health insurance system (New Co-operative Medical System). *Trop Med Int Health* 2010, 15(10):1210–1217.
80. Schillaci MA, Waitzkin H, Carson EA, Romain SJ (2010) Prenatal Care Utilization for Mothers from Low-Income Areas of New Mexico, 1989–1999. *PLoS ONE* 5(9): e12809. doi:10.1371/journal.pone.0012809.
81. Pathak PK, Singh A, Subramanian SV (2010) Economic Inequalities in Maternal Health Care: Prenatal Care and Skilled Birth Attendance in India, 1992– 2006. *PLoS ONE* 5(10): e13593. doi:10.1371/journal.pone.0013593.
82. Alemayehu M, Belachew T and Tilahun T. Factors associated with utilization of long acting and permanent contraceptive methods among married women of reproductive age in Mekelle town, Tigray region, north Ethiopia. *BMC Pregnancy and Childbirth* 2012 12:6. doi:10.1186/1471-2393-12-6.
83. Rakhi J, Sumathi M. Contraceptive Methods: Needs, Options and Utilization. *The Journal of Obstetrics and Gynecology of India* (November–December 2011) 61(6):626–634 DOI 10.1007/s13224-011-0107-7.

8. ANNEX

Annex 1. Questionnaire Form

Availability and Utilization of Some Primary Health Care Services in Adults Aged (20-60) in Bihsud District of Nangarhar Province, Afghanistan

Form No: _____ **Date: / / 2014**

Cluster No: _____ **Village name: _____**

Dear participants!

This study is designed to evaluate the health status of people living in Bihsud District by determining the availability and utilization of Primary Health Care services such as: safe water and sanitation condition of houses, maternal health services, essential drugs & access to health services, control of endemic diseases and Health educations.

Kindly requesting you to answer these questions honestly and correctly, the information obtained will be used for research purpose only, not for personal gains. Taking part into this survey will remain anonymous.

Thank you for your participation. Dr. M.Haroon (Rahemi)

Household member's 20-60 Aged Record form

	Name	Age (years)	(male, female)	Eligible person (Interviewee)
1				
2				
3				
4				
5				

A. Socio-demographic Characteristics:

1.sex

1.Male 2. Female

2. How old are you? ……years

3. What is your marital status?

1.Single 2. Married 3. Divorced 4.Widow/widower

5. Others (specify) ……

4. What is your level of education?

1.illiterate 2.literate 3.Primary school graduate

4.sec- school graduate 5.high school graduate 6.universtity graduate

8. Others……..

5. What is your main occupation?

Specify……

6. How would you describe your economic state?

1.excellent 2.good 3.average 4.bad

5.very bad

B. Utilization of Improved drinking water sources and Sanitation condition of Houses.

1. What is your source of drinking water? (could be more than one choice)

1.Tape water 2.Well water (protected) 3.Well water (not protected)

4.Spring/public fountain 4.River 5.Tank

Others (specify). …….

2. Where is your source of drinking water located?

1.Outside the house 2. Inside the house (skip to question 4.) 3. Both of them

3. How long does it take, to get water (round trip)?

Minutes……

4. Do you use chlorine in your water source?

1.Yes 2. No

5. What is your type of latrine?

1.connected to the sewerage system 2. Water seal type latrine

3.pit latrine (with slab) 4.Open field 5. Others……

6. Is the latrine outside or inside the house?

1.Outside the house 2.Inside the house

7. If the latrine & source of water, both inside the house; what is the distance between them?

Specify…….

8. What is your type of house?

1.Huts 2.Mud house 3.Brick house 4.Stone house

5. Others (specify)…..……

9. Do you keep any domestic Animal in your house?

1. Yes (specify)…… 2.No

10. How do you dispose the solid wastes of your house? (could be more than one choice)

1.Public bean 2.Dumping 3.Incineration 4.Composating

5. Others (specify)…….

C. Availability & utilization of Primary Health Care Services and prevention of locally endemic disease.

1. From where did you obtain health services? (could be more than one choice)
   1.District Hospital 2. Comprehensive Health Center
   3.Basic Health Center 4.Mobile Health Team 5.Health Post
   6.Health Sub Center 7.Private clinic (skip to D part)

2. What Health services do you obtain? (could be more than one choice)
   1.Maternal Health Services 2.Free drugs 3.Health Educations
   4.Examination 5.Admission at hospital (at least one day)
   6. Others (specify)……..

3. What is your main type of transportation to go to the health facility?
   1.Public transportation 2.Private car 3.Motor cycle or bicycle
   4.on foot 5. By ridding an Animal

4. How far do you live from health center?
   ……km

5. How much time does it take to travel to health center?
   1 Minutes……. 2. Hours……

6. According to your economic states traveling to health center is?
   1.High cost 2.Intermediate cost 3.Low cost

8. Did you know any disease which is endemically present in your village?
   1.Yes 2.No 3. I do not know

9. Did you heard about Malaria?
   1.Yes 2.No

10. How can you prevent Malaria?
   1.Not Possible 2.Clearing long clothes 3.Water drainage
   4.Sleeping under mosquito nets 4.chemoprophylaxis 6. Others……..……

11. Do you know your community health worker?
   1.Yes 2. No (skip to Q. 15)

12. What serviced do you receive form your community health worker? (could be more than one choice)
   1.Health education message 2.Referal to health facility 3.First aid & free drugs
   4.Family planning assistance 5. Others (specify)……

13. Did you received/attend any health education session in the last 6 months?
   1.Yes 2. No (skip to Q. 15)

14. Where did you receive it?
   1.Health facility 2.Health post 3.Form community health workers
   4. Others (specify)……

15. Are you satisfied with the cost of the services?

1.Yes 2.No

16. Are you satisfied with the time that you spent for getting the services?

1.Yes 2.No

16. Are you satisfied from existed services?

1.Yes 2.No

17. Are you satisfied with the distance that those services are available?

1.Yes 2.No

D. Utilization of Maternal Health services and using of family planning methods): (This part is related to females)

1. Are there present Antenatal care services in your nearest Health facilities?

1.Yes 2. No I do not know

2. Are you using Antenatal care services?

1.Yes 2.No (skip to Q.5)

3. Which health facility did you go to for ANC services?(could be more than one choice)

1.District hospital 2. comprehensive health center

3.Basic health center 4. Mobile health team

5.Health sub center 6.Private clinic/hospital

4. How many time, did you receive antenatal care services during your last pregnancy?

……..

5. What was the reason for you not using ANC services during your last pregnancy? (could be more than one choice)

1 Accessibility problem 2. Distrust of health facility personal

3.Problem in the using health institution 4. Poor services

5.Tradation/custom 6.Economic limitations

7. Others (specify)……

6. Are there present postnatal care services in your nearest health facility?

1.Yes 2.No 3.I do not know

7. Are you using postnatal care services?

1.Yes 2.No (skip to Q.10)

8. Which health facility did you go to for PNC services?(could be more than one choice)

1.District hospital 2.comprehensive health center

3.Basic health center 4.Mobile health team

5.Health sub center 6.Private clinic/hospital

9. How many time, did you receive PNC services during your last pregnancy period?

…….

10. What was the reason for you not using PNC services during your last pregnancy? (could be more than one choice)

1 Accessibility problem 2. Distrust of health facility personal
3.Problem in the using health institution 4. Poor services
5.Tradation/custom 6.Economic limitations
7. Others (specify)……..

11. Where did your last delivery take place?

1.at home 2.at BHC 3.at CHC
4.at District hospital 5. Private clinic/hospital
5. Other (specify)……..

12. What was the type of your last delivery?

1.Normal delivery 2. Cesarean section 3. Others……..

13. What was the reason that you did not use the health facility for your last delivery?

1.Too far 2.Not clean 3.Bad quality
4.No privacy 5.Does not know address
6. Others (specify)……

14. Who did assist your last delivery?

1.No one 2.Traditional birth attendance 3.Nurse
4.Doctor 5. Other (specify)……

15. Are there present family planning services in your health facilities?

1.Yes 2. No 3.I do not know

16. Are you currently using any contraceptive method?

1.Yes 2. No (skip to Q.19)

17. Which method are you using?

1.Condom 2.Male sterilization 3.Oral pill
4.IUD 5.Injection 6.Rhythm
7.Locational Amenorrhea 8. Other (specify)……..

18. From where did you obtain it? (could be more than one choice)

1.Distric hospital 2.Comprehsensive health center
3.Basic Health Center 4.Mobile health team
5.Health sub center 6.Health post 7.privat clinic
8. Other (specify)……

19. What was the reason that you did not using any contraceptive methods? (could be more than one choice)

1.Doctor does not advice 2.Access problem 3.Expensive
4.Do not know how to use 5.Health concern 6.Side effect
7.Not allowed in our religion 8.want a child 9. Others……...

THANK YOU FOR YOUR PARTICIPATION




Annex 2. Ethical Permission of the Research Project

Islamic Republic of Afghanistan
Ministry of Higher Education
Nangarhar University
Medical Faculty

Meeting No: 01
Decision No: 7

Date: 26/ 03/ 2014

To: The Health Science Institute, Hacettepe University; Ankara
From: Research Committee of NMF (Nangarhar Medical Faculty)
Subject: Research Project Evaluation Report

Dears!

The thesis proposal of Mohammad Haroon Rahemi, under the supervision of Prof Dr. Bahar Guçiz DOĞAN, with a topic of "**AVAILABILITY AND UTILIZATION OF PRIMARY HEALTH CARE SERVICES IN ADULTS AGED 20-60 IN BIHSUD DISTRICT OF NANGARHAR PROVINCE, AFGHANISTAN**" is studied in meeting No -01--. Its objectives, approach and methodology is evaluated, it was ethically appropriate and therefore approved by the Research Committee of NMF.

Dr Khalid Yar
Dean of Nangarhar Medical Faculty

FACULTY OF MEDICINE

Annex 3. Source of Drinking Water

Table 8.1. Distribution of participant's source of drinking water (Bihsud District Nangarhar Afghanistan 2104)

Source of water	**n**	**%**
Well water (protected)	747	84.5
Tape water	40	4.6
Well and canal water	32	3.7
Well and river water	20	2
Tape and well water	16	1.8
Well and spring water	13	1.5
Spring water	12	1.4
Total	**880**	**100**

Majority of the participant's (84.5%) used one source (well water) 4.6% used Tape water, 3.7% used well and tape water and other were used other sources of water.

Annex 4. Types of domestic animals

Table 8.2. Distribution of participant by presence of keep of domestic animal in the houses (Bihsud District, Nangarhar Afghanistan 2012)

Types of domestic animals	**n**	**%**
Cow	86	27.7
Cow and Hen	48	15.5
Cat and Hen	33	10.6
Cow, Dog, Cat and Hen	23	7.4
Dog, Cat and Hen	19	6.1
Cow and Dog	18	5.8
Cow, Dog and Hen	17	5.5
Cow, Cat & Hen	15	4.9
Hen	14	4.5
Dog	12	3.9
Sheep and goat	10	3.2
Donkey	8	2.6
Cat	7	2.3
Total	**880**	**100.0**

Of the respondent kept 27.7% only cow, 15.5% cow and hen, and 10.6% cat and hen respectively in their house, the rest of the participants kept other types of animals in their houses, which is given in the above table.

Annex 5. Types of health services

Table 8.4. Distribution of participants by the types of primary health services obtained from health centers (Bihsud District, Nangarhar Afghanistan 2014)

Types of Health Services	**n**	**%**
Health Educations (HEs)	140	15.9
Free Drugs	102	11.6
FDs, HEs and Examinations	97	11.0
Free Drugs and Examinations	90	10.2
Examination (E)	79	9.0
MHS, FDs, HEs and Examinations	57	6.5
Maternal Health services	52	5.9
Examination and Health Educations	47	5.3
MHS and Health Educations	41	4.6
MHS, FDs and Examination	34	3.9
Maternal Health services from Private clinic	33	3.8
Free Drugs and HEs	29	3.3
MHS, FDs and Health Educations	27	3.1
MHS,HEs and Examinations	17	1.9
MHS and Free drugs	20	2.3
MHS and Examination	9	1.0
Examination and MHS at Private clinic	6	0.7
Total	**880**	**100.0**