PERCEPTION OF THE PATIENTS AND PROVIDERS REGARDING TELEHEALTH SERVICE OF DISABLED PEOPLE'S ORGANIZATION (DPO) THROUGH CENTRE FOR THE REHABILITATION OF THE PARALYSED (CRP)

By

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SUPERVISOR'S STATEMENT

We the undersigned certify that we have carefully read and recommended to the Faculty of Medicine, University of Dhaka, for acceptance of this thesis entitled,

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- This work has not previously been accepted in substance for any degree and is not concurrently submitted in candidature for any degree.
- This dissertation is being submitted in partial fulfillment of the requirements for the degree of MSc in Rehabilitation Science.
- This dissertation is the result of my own independent work/investigation, except where otherwise stated. Other sources are acknowledged by giving explicit references.

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List of abbreviation

a2i	:	Access to Information
BCS	:	Bangladesh Civil Service
BTA	:	Bangladesh Telemedicine Association
BPKS	:	Bangladesh Protibondhi Kollyan Somiti
BUET	:	Bangladesh University of Engineering & Technology
CBR	:	Community Based Rehabilitation
CDD	:	Centre for Disability in Development
CDISB	:	Community Digital Information and Service Booth"
CRP	:	Centre for the Rehabilitation of the Paralysed
DAB	:	Diabetic Association of Bangladesh
DPO	:	Disabled People's Organization
eHeath	:	Electronic Health
EU	:	European Union
GP	:	General Practitioner's
GTC	:	Grameen Telecom
ICT	:	Information & Communication Technology
PWD	:	People with Disability/ties
SDNP	:	Sustainable Development Network Program
SIF	:	Service Innovation Fund
SPSS	:	Statistically Package for Social Science (SPSS
TMH	:	Telemental Health
TRCL	:	Telemedicine Reference Center Ltd
UDPDC	:	Upazila Disabled People Development Centre
UN	:	United Nations
WHO	:	World Health Organization

Abstract

Telemedicine is a growing concern in Bangladesh nowadays. About 80% of Bangladeshi resides in countryside with unequal distribution of physicians and healthcare facilities and most of them are from poor household. Thus the health outcomes for people living in rural locations are generally worse than urban areas. In these circumstances telemedicine could be the best way as it can provide better health care by using maximum utilization of limited resources. To extend medical services including physiotherapy and occupational therapy among the people with disabilities of the rural remote areas of Bangladesh, CRP has been operating telehealth service since 2014 with the collaboration of local DPO's situated in different districts, villages and remote areas of Bangladesh with a multidisciplinary team. The aim of the study was to explore the patients and providers perception regarding telehealth service provided from local DPO's by CRP. Identification of barriers, limitations, benefits and improvement suggestions of the respective service were the main objectives of this study.

It was a descriptive cross- sectional study. A total of 72 patients and 20 providers took part in the study. Self administrative semi structured questionnaire were filled up by the providers from CRP while other data was collected either by face to face or cell phone interview. The finding from the patients indicates that, they are moderately satisfied by the telemedicine service. Effective advice, economic saving and reduced travel time were identified as the most frequent benefits of telemedicine services from the patient's side whereas computer/electricity and network disturbance were highlighted as problems during session. Face to face consultancy was in the priority zone and publicity enhancement was one of the major concerns observed among the patients' opinion. Besides, patients emphasized on therapy and medicine facility within the DPO's as well. On the other hand, Providers both from CRP and DPO's reported problem during service encounter; particularly network disturbance. The providers (DPO's) perspectives for service improvement focused particularly on improvement of financial budget, installation & increase of modern equipments, enhance publicity and salary and improvement of internet facilities. Alternatively, the CRP providers especially pointed on improvement of internet facility, awareness program and increase of training programs for all providers. Finally it can be said that, telemedicine could be a promising revolutionize of current healthcare system to reach the underserved remote rural patients but need to address both the patient's and provider's requirements to flourish the service.

CHAPTER I

1.1. INTRODUCTION:

Telehealth refers to the use of information technology in health care. Telehealth consists of multiple types of electronically-based software, hardware, health service providers as well as health care services and characterized by the transmission of health-related information through communication technologies such as telephone or mobile phone, internet related services such as video conference, Skype interview, high frequency broadband connection, health software (Brodie,n.d). Furthermore, nowadays health promotion all over the world through cell phone applications has increased dramatically (Bert, Giacometti & Silly 2014). However, in case of preventive and curative aspects of health services it has numerous impacts as well. Telehealth program designed to improve the services of and communication not only between healthcare providers but also enhanced communication between healthcare providers and patients living in the rural and remote areas of a country who cannot afford to come to the city for treatment for various reasons including poverty, communication problem, cultural barrier, lack of transportation and so on by e-prescribing, distance education and electronic medical records. It is an umbrella term for several applications of medical care, treatment and medical education carried out from a distance, poses a possible solution to these challenges (Mengual, 2012).

Telemedicine has a variety of applications including critical care monitoring, telemedicine procedures/surgery, robotics, disease surveillance and program tracking, disaster management and continuing medical education and public awareness (Acharya & Rai, 2017).Telemedicine has perceived usefulness in terms of follow up examinations where it could be conducted without the need for the patient to travel, thereby increasing patient comfort and lowering expenditures (Natelie, 2015). Besides

of inconvenient and disruptive, travelling to access healthcare involves costs for time off work, transport and accommodation and most importantly, the need to travel for healthcare may result in delays for diagnosis and treatment, which can negatively affect health outcomes (Natelie, 2015; Perez, 2012). Telemedicine technologies have been proven to work, and are considered to be a viable option in future healthcare delivery, allowing healthcare organizations to provide care in a more economic and comprehensive way (Zanaboni & Wootton, 2012).

Bangladesh is a country with thousands of villages and towns. About 80% of Bangladeshi population lives in rural areas where the unequal distribution of physicians and healthcare providers is a common picture. In addition, the number of formally qualified registered Health Care Providers is 7.7 per 10,000 populations (Rahman & Hossain, 2016). Unsurprisingly, health outcomes for people living in rural locations of Bangladesh are generally worse than urban areas. According to Bangladesh bureau of statistic (2015), the crude death rate in rural area of Bangladesh is 5.6 whereas in urban area the rate is only 4.1. This is largely because people living in such locations do not have the same level of access to healthcare. Moreover, most of the doctors are city based. After being selected as a cadre of Bangladesh Civil Service (BCS) usually gets employment in remote health centre of Bangladesh but due to poor infrastructure of rural health centre and poor infrastructure of villages most of them leave the rural areas within 1-2 years and shift to city area. In this situation rural people rarely get any specialist doctor's advice when they go to health centers in Thana or Upazila level (Nessa et al, 2009). In these circumstances telemedicine could be the best way as it can provide better health care by using maximum utilization of limited resources.

On the other hand, People with disabilities are considered the most deprived patients of Bangladesh. According to World Bank estimate, about 15% of the total populations of Bangladesh are persons with disability and the proportion is increasing day by day (Rahman & Hossain, 2016). A report by UNICEF (2014) elaborate that, Bangladesh is one of the world's most disaster-prone countries, with 97.1 per cent of its area and 97.7 per cent of its population at risk of multiple hazards and each year about 13,134 children acquire permanent impairments due to injuries which ultimately lead cause of death of the children within the age group 1-4 years and suicide of the adolescent aged 15-17 years. In this situation telehealth could be an outstanding solution to reach these isolated and unprivileged people with disabilities. Telehealth can offer alternative options for receiving healthcare services in rural locations, improving access and reducing costs associated with traveling, accommodation (Natalie, Bradford & Anthony 2015). To meet the needs of contemporary populations, health systems have had to adapt to provide models of care that are more comprehensive, sustainable and efficient than those that have been used in the past or present. The use of telemedicine has been recognized as having the potential to help develop such models (Hiratsuka et al, 2013). Technology can improve the accessibility, quality and breadth of patient data and more information about patients in an effectively tailored and comprehensive way (Snyder et al, 2011). Telemedicine can also improve the sustainability of health systems by reducing strain on primary care services. Remote monitoring of patients can help prevent unnecessary use of time and resource as well as encourage preventative health activities (Lemon, 2016).

There are several organizations that provide services for people with disabilities in Bangladesh but yet it is insufficient. Centre for the Rehabilitation of the Paralyzed (CRP), Handicap International, Center for Disability in Development (CDD), BRAC,

Action Aid Bangladesh, Bangladesh Protibondhi Kollyan Somity (BPKS), ADD International; are some organizations that are working delicately for the welfare of the people with disabilities along with the Disable People's Organization (DPO). According to BPKS, DPO can be define as " Fundamental organization of disable people, fully governed and led by themselves, that ensures safeguard of their ownership, effective representation, non-influenced decision and recognition of disable people's organization". Here the disable persons themselves are the core member of DPO's. In DPO's people with disabilities enjoy such environment where they can express different views, opinions, suggestions and choices and utilize their abilities. It aims to achieve the real right and acceptable development as well as met their needs and aspirations (Schulze, 2009).

To extend medical services including physiotherapy and occupational therapy among the people with disabilities of the rural remote areas of Bangladesh, CRP has been operating the telehealth service from 2014 (www.crp-bangladesh.org) with the collaboration of local DPO's situated in different districts, villages and remote areas of Bangladesh though the very first and foremost telemedicine project of Bangladesh was established between CRP (Dhaka) and Royel Nevy Hospital, UK in 1999 (Nessa et al, 2014). CRP doesn't have its own centers in all upazillas but each district has one "**Disabled Peoples' Organization"**. CRP along with this organization came up with their extension facility services (Results Management Team. ND). `It is a part of Community Based Rehabilitation (CBR) program of CRP and CBR activities of CRP involves working closely with disabled people and their families to overcome physical and sociological barriers within their communities through a holistic approach to the person and their environment in the areas of health, education,

livelihood, social inclusion, skill development and empowerment (www.crp-bangladesh.org).

A multidisciplinary team consists of Neurosurgeon, General Physician, Physiotherapist, Occupational Therapist, Speech & Language Therapist, Counselor and Nurse attempts to provide treatment to the people with disabilities through telehealth services and every month about 20-30 patients with different disabilities get benefited. The treatment session is done by video conference; Skype software and service is provided twice a week (Monday & Wednesday). Initially patients' were treated free of cost but now service charge has set as taka 150 (Mohsina, Personal communication, 5th March, 2018).

Though the telemedicine service was mainly established to serve the patients with spinal cord injury of distinct part of countryside and for follow up purpose only but later on CRP began to serve all kind of disability including musculoskeletal, neurological, Speech difficulties etc (Mohsina, Personal communication, 5th March, 2018). As patients may influence the way telehealth services are delivered, it is imperative to understand patient awareness and perceptions of telehealth in order to develop the existence services as well as to know about the acceptability and adoptability of telehealth services to the community. On top of that, providers' perceptions play an important role in successful provision and implementation of the service as well.

DPO, UDPDC and CBR:

Centre for the Rehabilitation of the Paralyzed (CRP) provides treatment to 68000 patients annually coming from different districts that are mainly patients with "spinal cord injury" and "cerebral palsy" and require follow up after completion of initial

phase of rehabilitation program (Imam & Hasan, 2018). Bearing the situation in mind, CRP authority came up with extension facility to provide basic treatments in UDPDC (Upazila Disabled People Development Centre) in eight 'Disabled Peoples' Organization (DPO)'. There are 72 UDPDC in whole Bangladesh, among these centers; seven centers have been set up as a pilot booth for providing basic facilities to CRP Follow up patients. The vision behind the program was – "The initiative met the requirement of specialized services of persons with disability and other vulnerable groups on equity, justice and access to information by bringing the services at their doorstep" (Results Management Team. ND).

UDPDC is a part of "DPO" and some self motivated volunteers work with some other workers in these centres, whereas "DPO's" has long history of its own. According to "A Brief History of Disabled People's Self-Organisation" (November,2013), a booklet produced by the Greater Manchester Coalition of Disabled People, first recorded organization of disabled people formed in 1890 (British Deaf Association), The United Nations International Year of Disabled People in 1981 gave the opportunity for disabled people to find the funding to set up groups and organizations of disabled people and from then the disabled people began to band together in groups and coalitions. These groups not only campaigned on the streets for disabled people to have the rights all non-disabled people have (to housing, transport, education, work, and much more), but also provided advocacy, training and other support to disabled people, and a chance for disabled people to share experiences at conferences. Therefore the slogan "Nothing about us without us" was pointing out by the organizations of disable people since 1981. Disabled people's organizations promote the "Nothing about us without us" slogan – they are organizations "by", "for" and "of" people with disabilities. Therefore they are organizations that are controlled by a

majority of people with disabilities at the board and membership levels (Enns, June 2010). Disabled people's organizations are mostly advocacy organizations which work at the regional, national and/or international levels to change policies and ensure equal rights and equal opportunities for people with disabilities. They are formally registered and structured, and usually function like any other organization or establishment (WHO, 2010). The philosophy of these organizations is one of "self-representation" and a "rights" orientation. They also believe that all disabilities united into one organization provide a stronger voice for change than each disability group speaking out separately (Enns, June 2010). Some basic roles of these organizations are mentioned at “The Role of Organizations of Disabled People:A Disabled Peoples' International Discussion Paper” by Henry Enns (2010) are as follows:

1. Self-representation - "A voice of our own: Disabled people's organizations believe that people with disabilities are their own best spokespersons and best know the needs and aspirations of disabled people.

2. Identifying grassroots needs: Organizations of disabled people arise in response to a group of people's perception that there are barriers to participation for disabled people in society that need to be addressed. These organizations are based on the needs and aspirations developed by the disabled grassroots community.

3. Representations to government service providers, and U.N. bodies: Organizations of disabled people fulfill the role of a vehicle to represent the needs of disabled people to decision-makers and service-providers at the local, national and international levels. Their representatives make presentations to decision-makers.

Community-based rehabilitation (CBR) was initiated by WHO following the Declaration of Alma-Ata in 1978. CBR is a multi-sectoral approach and implemented

through the combined efforts of people with disabilities, their families and communities, and relevant government and non-government health, education, vocational, social and other services (WHO, n.d)

Historically Community Based Rehabilitation (CBR) programmes and disabled people's organizations (DPO) have not worked closely together as most CBR programmes were based on a medical model of disability and were run by nondisabled people and professionals, without the active participation of people with disabilities. Despite of differences, CBR and DPO's do share some sort of common goals, for instance "ensuring equal opportunities and social inclusion of disabled people" (Khasnabis et al, 2010). In "Disabled People's Organization- Community Based Rehabilitation- CBR Guidelines" (2010) by WHO states the goal, role and outcome of CBR and DPO's partnership which are as follows:

Goal: CBR programmes and disabled people's organizations work together to ensure the implementation of the Convention on the Rights of Persons with Disabilities and community-based inclusive development.

Role of CBR: The role of CBR is to work in partnership with disabled people's organizations where they exist, and where they do not exist, to provide assistance when requested to support their formation.

Desirable outcome:

- CBR programmes and disabled people's organizations work together to plan, implement and monitor new or existing CBR programmes.
- Disabled people's organizations support CBR programmes to become more representative and inclusive of people with disabilities.

- Disabled people's organizations are motivated to develop and implement CBR programmes in communities where they do not exist.

This study is based on the telemedicine service that is provided by CBR department of CRP in association with the DPO's and UDPDC located at different remote areas of Bangladesh. It was partially funded by the Prime Minister's Office's Access to Information (a2i) Program. A2I initiative of the Service Innovation Fund (SIF) launched "Community Digital Information and Service Booth" (CDISB) under Upazilla Disabled People Development Council (UDPDC). The project "E-specialized services for people with disabilities" has been initiated to provide advanced digital patient follow up system for those under privileged people and developed 08 Upazila level CDISB under Upazilla Disabled People Development Councils (UDPDC) with advanced specialized services (Innovation Lab-A2i. n.d).

1.2. JUSTIFICATION:

In Bangladesh, majority of the populations reside in village areas and are from poor households. Telemedicine is a unique and relatively new facet in Bangladesh to reach these deprived and unprivileged citizens. In Bangladesh telemedicine service officially emerged in the year 1999 but its journey was not quite smooth as expected till now. From the beginning, telehealth services provided by CRP has an important role in rural and remote areas with limited access to and availability of healthcare and community-based services and has been persistently trying to provide the patients with more accessible advanced facilities. This study may help to evaluate the current service pattern as well as the future needs. Besides, patient and providers perception are considered as an important step in the evaluation of telemedicine services, as their acceptability and satisfaction are relevant to any potential roll out of these services and commonly used indicators for measuring quality in health care. In addition, success of any system depends on user acceptance. Thus the finding of study could help to determine the acceptance level of telemedicine services. Moreover, worldwide several studies have conducted focused mainly on the perspectives of health care providers and policymakers as well as perceptions of health care consumers but in Bangladesh comparatively fewer studies were conducted regarding this concern more specifically on patients with multidisciplinary needs. Though telehealth shows significant promise as an intervention to improve healthcare and health care outcomes but as a fairly new concept of healthcare, more research is needed on the efficacy of telehealth, providers and patient's perceptions. All the patients and providers of DPO's of this study are socially discriminated and physically impaired. Therefore, every task is challenging for them. Hence, the overall purpose of this study is to assess the needs and desires of the patients and providers of telehealth services and

help the authority and policymakers to be convinced of its benefits and impacts. Thus it might bring benefits not only by providing health care services to remote people but also generating new source of employment and will ensure their development in a sustainable manner. Telemedicine can benefit both the practitioner as well as the patient, but less is known in relation to financial benefit for both the provider and the patient. This study will explore the limitations and barriers of the existence telehealth service perceived by the consumers which will ultimately help to develop this service and implement successfully by overcoming the issues all over the country. The feedback from this survey would be helpful to improve existing telemedicine care and bridge the gap wherever required.

1.3. RESEARCH QUESTION:

What is the Patients and Providers perception regarding Telehealth Services of Disabled people's organization (DPO) through Centre for Rehabilitation for Paralyzed (CRP) ?

1.4. OBJECTIVES OF THE STUDY:

1.4.1. General Objective: To explore the patients and providers perception regarding telehealth service provided from local DPO's by CRP.

1.4.2. Specific objectives:

- To assess the benefits of telehealth technology related to the practical life of the patients.
- To identify the barriers to access to the telehealth services in the specific area.
- To determine the limitations related to service execution faced by the patients and providers.
- To find out the opinions of the patients and providers regarding telemedicine service improvements.

1.5. OPERATIONAL DEFINITION:

Perception: The way in which something is regarded, understood, or interpreted. It a belief or opinion held by individual and based on how things seem.

Patient: A person under health care. The person may be waiting for this care or may be receiving it or may have already received it.

Provider: Any individual, institution, or agency that provides health services to health care consumers

People with Disability: Any person who has a physical or mental impairment that substantially limits one or more major life activities; has a record of such impairment; or is regarded as having such impairment.

Telehealth/ **Telemedicine**: Use of electronic information and telecommunications technologies to support and promote long-distance clinical health care, patient and professional health-related education, public health and health administration. Technologies include videoconferencing, the internet, store-and-forward imaging, streaming media, and terrestrial and wireless communications.

Disabled people's organization: Disabled People's Organizations are those controlled by a majority of people with disability (51%) at the board and membership levels**.** The role of these organizations includes providing a voice of their own, identifying needs, expressing views on priorities, evaluating services and advocating change and public awareness.

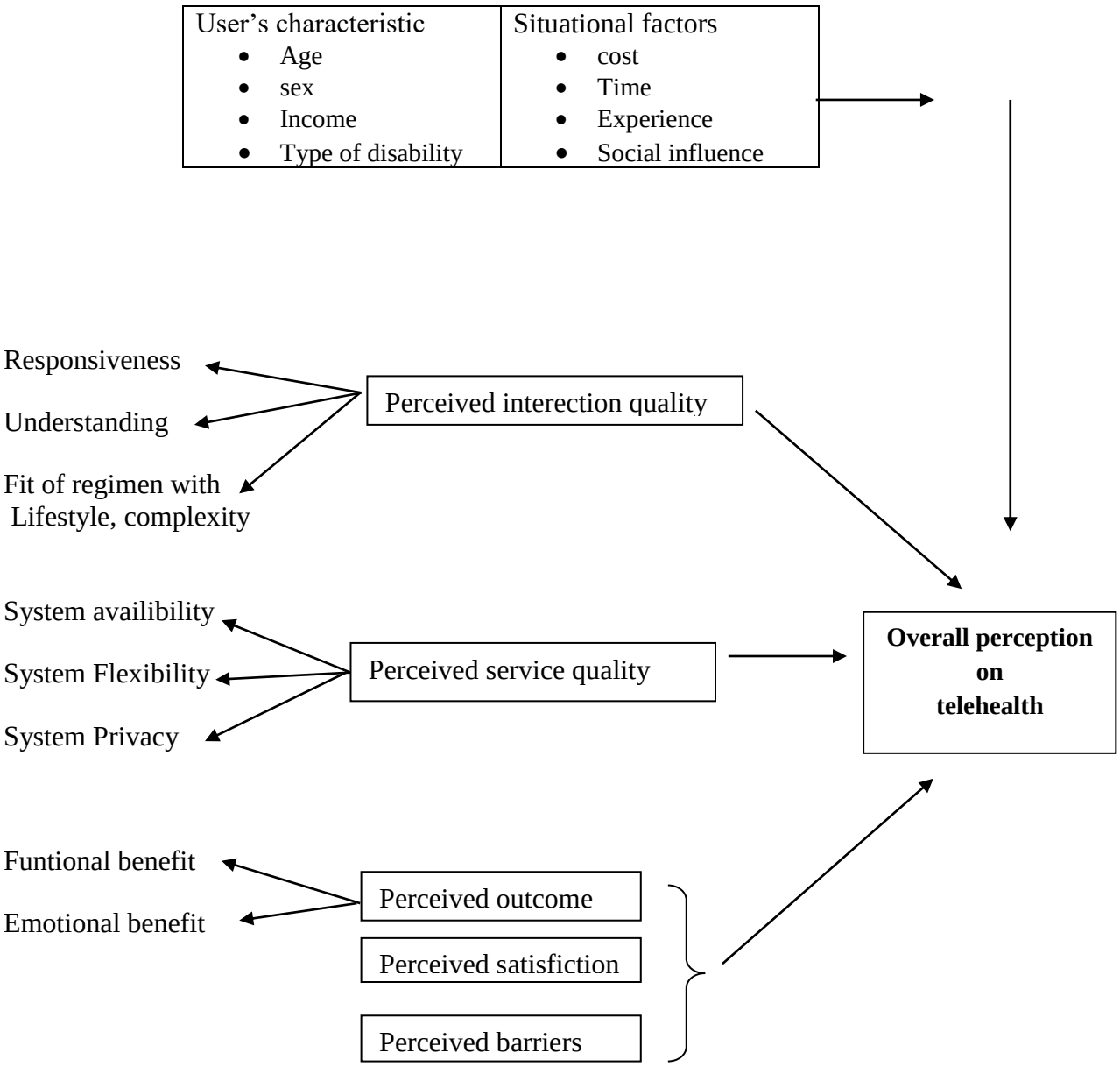
Acceptance: Positive welcome and belonging; favor and endorsement of something

Communication: The imparting or exchanging of information by speaking, writing, or using some other medium.

Collaboration : The act of working together with other people or organizations to create or achieve something

Multidisciplinary team : Professionals from a range of disciplines with different but complementary skills, knowledge and experience work together to deliver comprehensive healthcare aimed at providing the best possible outcome for the physical and psychosocial needs of a patient.

1.6. CONCEPTUAL FRAMEWORK:



CHAPTER II

2. LITERATURE REVIEW:

Several studies were conducted worldwide to find out the patients and providers perception regarding telehealth or telemedicine. Most of studies revealed that patients' perception showed a high level of acceptability of telemedicine services though literature with mixed finding are also remarkable (Polinski et al, 2015; Becevic et al, 2015). According to a study by Claudia et al (2016) patient perception is an important step in the evaluation of telemedicine services, as patient acceptability and satisfaction are relevant to any potential roll out of these services and commonly used indicators for measuring quality in health care . A recent study by Acharya & Rai (2017) showed that telemedicine in healthcare could prove to be useful to patients in distant regions and to rural doctors in India. In addition it states that, a significant proportion of patients in these remote locations could be productively managed with some advice and guidance from specialists and super specialists in the cities and towns with the help of telemedicine. Another review of patients and providers satisfaction with telemedicine done by Robert Gracia and Olayela Adelakun (2017) states that, stakeholders satisfaction is the main factor regarding telemedicine acceptance and adaptation. However satisfaction does tend to remain high for both patients and providers but there are slight differences in the average satisfaction rates. On the other hand, patients satisfaction is associated with telemedicine modality, for instance video conferencing is more acceptable to the patients rather than other type of telehealth modality (Kruse et al, 2017). Furthermore, Factors such as appointment scheduling, travel period and patient involvement in physical examinations have been identified as influencing patient satisfaction (Gustke et al. 2000, as cited in Gracia & Adelakun., 2017; Whitten & Love, 2005). Besides, organizational action such as

managerial planning, staff training, patient information management and building management for instance; provision of adequate privacy and lighting, room décor etc plays an important role of successful telemedicine encounter (Lerouge, Garfield, & Hevner, 2014). Rahman & Hossain (2016) revealed that age, gender, educational qualification, trust, privacy and confidentiality, awareness, service quality, existing equipment status, proper coordination, treatment cost and IT infrastructure have significant influence on the perception of telemedicine. Some providers indicated their clear preferences for the technical requirements of successful telemedicine program, such as high-quality audio and video and inclusion of an electronic stethoscope (Driessen et al, 2016).

A study conducted by Daria and other researchers (2016) stated that, telemedicine is seen as a potential integrated care solution to the problem of an ageing population affected by chronic disease and social care needs. In this study, it has been shown that patients affected with different chronic illness accepted telemedicine services and patients with the range of conditions studied gave a positive evaluation of the service. Moreover, the online information of the patients with choric diseases helps the clinicians in respect of time saving and making clinical decision more efficiently as well (Dixon & Rao, 2014; Palen et al,2014). However, telemedicine services were not perceived as a total replacement for face-to-face consultations (Dario, 2016) but rather as an additional means of reaching populations with limited access to community-based programs (Susan et al, 20112). A focus group participants in the King et al. (2010) study also emphasized that telehealth should be offered as a supplement to existing services rather than as a replacement for face-to-face interactions whereas another study by Perez et al, (2012) stats that, providers perceived telehealth service as a useful addition to traditional therapy, especially the current generation who are

proficient in the use of computer technologies, telehealth services could be an valuable addition to them. Whereas, Dario et al. (2016) stated that, the patients perceived telemedicine service as a "Substitute".

In 2013, one study by Hiratsuka and her team accentuated on the patient-provider relationship and agreed on the potential usefulness of telemedicine in chronic disease management as well as improve patient care in remote indigenous population. On the other hand, According to a qualitative study by Sanders et al (2012) revealed that many patients have reservations about telehealth monitoring because they perceive it as a threat to their autonomy and ability to care for themselves (as cited in Brodie, n.d). De Simone et al. (2015) summarized that, telemedicine has also been shown to improve engagement with evidence-based treatments in post traumatic stress disorder patients and reduced emergency hospital admission in patients with chronic obstructive pulmonary disease (as sited in Lemon, 2016). Telemedicine may enhance the ability for these benefits to be achieved through improvements to overall quality of care and communication (Christopher, 2016). Furthermore, research studies indicate that, in-home telephone or video-based interventions do improve health-related outcomes for newly injured spinal cord injury patients (Philips et al, 2001). Same study revealed that, in-home telehealth interventions are promising ways to continue education and promote preventive self-care once a person with spinal cord injury returns to the community. It provides educational initiatives to promote rehabilitation following discharge required by people with spinal cord. Besides, some studies revealed some misconception and trusts regarding telemedicine for instance some participants of a study stated they would want to see a doctor they were already familiar with, and whom they trusted for telehealth (Bradford et al, 2015). The same study explored that, community perceptions and awareness of telehealth is a driver for

change across the health system. In 2013 Nancy and co researchers suggest that, although mhealth and ehealth program hold promise for closing the health care access and information gap, there is limited technology use among those who may be able to benefit the most from such programs. Moreover, they emphasized on better understanding of technology usage among older adults that may help direct future interventions aimed at improving the health and quality of life of this rapidly growing segment of the population. In the same year another study was conducted to identify the different perception on telehealth among public and private health service users. According to the study, both public healthcare user and private healthcare user are high score in satisfaction. However, private healthcare user responded positively to satisfaction than public healthcare user and both users had high behavioral intension to use telehealth services (Jung, Rho, & Choi 2013). Another study by Jaebeom & Mi Jung (2013) argued that, all respondents both users and non users of telehealth technology had a positive perception of this service benefits**.** The finding of the study also added that; there is significant difference between the users and non users' perception regarding intimacy and communication. These results showed that users felt that telehealth created relationships between patients as service providers that were sympathetic, confident, and respectful and they could communicate with service providers, hospital staff, clinical institutions, and other users whereas the non users had less positive perceptions. Beside this, an extensive search of telemedicine literature claimed that different parties in telemedicine are likely to have very different perspectives, which may influence their decisions about adoption of this technology and before health professionals will seriously consider the use of telemedicine, there must be some personal advantage to the user, in addition to the general advantages to society. (Zanaboni & Wootton, 2012). A randomized trial of

telemedicine among the seniors where experimental group received telemedicine and the control group usual care by Grant L and his co-researchers (2015) finds equal level of satisfaction among the both subjects during baseline but significant indifferent satisfaction while follow-up. The experimental group reported higher level of satisfaction whereas subjects with assisted living facilities reported comparatively lower level of satisfaction with telemedicine services. Most of the research on satisfaction describes a situation where patients and providers express pleasure with health care delivered through telemedicine, however, much of the satisfaction that literature reports come from studies that are not experimental in nature (White & Love, 2005). In addition, Nancy et al (2014) conducted a study to discover the pattern of technology used by the older adults with and without disabilities. According to the study, in USA, prevalence of technology use differed by the type of disability and activity-limiting impairments. After adjustment for socio-demographic and health characteristics, technology use decreased significantly with greater limitations in physical capacity and greater disability. Vision impairment and memory limitations were also associated with lower likelihood of technology use. Telemedicine has noteworthy acceptance not only among the seniors but also popular among the parents of children with acute illness in Rochester, NY (McIntosh et al, 2014) and was also well accepted by a substantial, diverse group of parents of children with childhood illness despite unfamiliarity with this approach to care (McConnochie et al, 2010**).** Similarly in other study stakeholders believed that teletherapy was a good fit for children as it built on children's natural interest on technology Stakeholders valued the opportunity provided by tele-theray for children to have the unique experience of communicating with someone at a distance over the

Internet, and they believed that this promoted the program's acceptability to children (Lincoln et al, 2014).

Multiple studies on patient perceptions have shown that telehealth monitoring helps patients feel more knowledgeable and empowered in managing their health conditions (King et al, 2010; Minatodani et al, 2013). Many studies have also examined patient perspectives on the specific characteristics of telehealth programs that may contribute to their overall success. According to Varshney and Vetter (2001) "the current and emerging wireless technologies could improve the overall quality of service for users in both cities and rural areas, reduce the stress and strain on healthcare providers while enhancing their productivity, retention, and quality of life, and reduce the overall cost of healthcare services in the long-term" (as sited in Akter et al, 2010). Furthermore, other healthcare professionals such physicians and managers perceived telehealth as a powerful tool to improve healthcare services for populations living in remote areas. They have reported that telehealth could be helpful to transmit information before transferring a patient to an urban centre, thus facilitating case management (Gagnon et al, 2006) and can reduce the existing service gaps (Driessen et al, 2016), however, providers' engagement in continuing education on telehealth enhance their comfort level with telehealth care delivery (Fairchild et al, 2017). A study finding by touchcare, 2015 expressed that, 79% of physicians believed patients would be more satisfied with their practice if they provided video consults and 68% of physicians indicated that replacing phone calls with online video visits would allow them to boost care quality. Another qualitative study conducted by Robert Harrison (2005) stated that, in terms of customer care, presence of specialists, reducing cost and increased punctuality; the users or patients are highly satisfied but there were also clear grounds for dissatisfaction, particularly with clinical care delivered by this

mode. Some patients would have preferred their physical examination to be conducted by the specialist directly rather than the general practitioner's (GP) under the guidance of the specialist. Although the potential for telemedicine to benefit health systems has been recognized, there remains no clear consensus on whether it facilitates mainly benefits or costs. There are a number of explanations for this, including problems with uptake and study design and a limited understanding of the importance of the users' experience of telemedicine systems is a prime among them (Cludia et al, 2016). Moreover, Communication; both verbal and nonverbal is key to successful telehealth care delivery, as it underscores and drives cultural and behavioral health understanding in professional care delivery settings as stated in Fairchild et al. (2016). Nesa et al. (2014) emphasized on the structured laws and regulations about physician provided service, patients' issues, licensing of physician and telemedicine providers. They argued to have clear rules about reimbursement issues. Since in telemedicine system local doctor or paramedic treats a patient and they consult with specialist who is far away, someone has to be responsible in this issues related difficulties. Moreover they point out that media can play a significant role to make telemedicine popular to user by broadcasting the successful case history considering the efficacy and cost effectiveness of telemedicine in association with providers' proper training. On the other hand, the participation of clinicians in decision-making, the availability of dedicated human and material resources, and a planned diffusion strategy are some conditions for successful implementation of telehealth. Interviews with physicians and managers also highlighted the importance of considering telehealth within the broader organization of health care services in remote and rural regions (Gagnon et al, 2006).

In parallel of telemedicine, telemental health (TMH) has gained researchers attraction as well. Study by McCary et al. (2015) and Morgan et al. (2008); revealed that,

provision of direct psychiatric and behavioral services are possible through telepsychiatry. In addition of psychiatric treatment it could be a best way to train and supervise therapists remotely and it was popular to the remote areas patient as much as face to face consultation. Whereas, in concern of children "telepsychiatry" service acquired higher level of satisfaction with school-aged children's care and lower satisfaction with adolescents care (Myers et al, 2008). However, "telepsychiatry" service satisfaction was higher in rural patient and primary care physician than that of suburban counterparts (Helty et al, 2007). On the other hand, in case of teleneurology; delivered in the rural & remote areas of United States, showed significant acceptance among the patients of neurology care with high level of satisfaction in terms of teleneurology quality, saving time and money (Davis et al, 2014). Moreover, In terms of "teledermatology" it was also widely accepted by the majority of patients receiving care at rural clinics. Patient satisfaction with care received through teledermatology was equivalent to that with face-to-face dermatology (Hushe et al, 2012). Teletherapy as well gained popularity of stakeholders like patients, providers, guardians and teachers. Accordance to the study by Lincoln et al. (2014), therapy facilitators in particular play a critical role in promoting the feasibility of teletherapy programs within schools but stakeholders suggested that implementation of teletherapy within rural school settings must incorporate processes that support the development of partnerships at a distance, including attention to lines of communication. Therefore, undoubtedly, telemedicine is proving to be saving lives, offsetting shortages of general practitioners and medical specialists, providing medical consultation to heath care professionals, providing: Telepsychiatry consultations for rural nursing home residents, Pediatric critical care tele-consultations to emergency departments of distant community hospitals, Tele-palliative care consultations for critically or

terminally ill patients who want to receive terminal care in their own community, Tele-dialysis oversight for patients receiving dialysis at remote dialysis centers (Ebad, November 2013).

Center for the Rehabilitation of the Paralyzed "CRP" situated at Savar has been working for disable people of Bangladesh from 1990 (www.crp-bangladesh.org). Mainly Patients and victim of spinal cord injuries from different districts visit CRP, located at Savar for their primary and core treatment as those districts do not have any rehabilitation center to treat their conditions (Imam & Hasan, 2018). Although, follow up is an important part of treatment procedure of these kind of patients but most of them are unable to do so as the frequent visits require a certain amount of money and physical ability and therefore ultimately those patients lose their interest for follow-up and further treatment (Results Management Team. ND). To make this follow up visits more convenient for persons with disabilities, CRP started their extension facilities, for instance; telemedicine services through video conference system. With the aim to bring service at patients' doorsteps CRP has developed: **(1)** Digital patient follow-up system in Community Digital Information and Service Booth (CDISB) under Upazila Disabled People Development Council (UDPDC) in 8 upazilas, **(2)** Income generating opportunities for persons with disabilities through CDISB **(3)** Provision of specialized services including rehabilitation, referral, assistive devices, vocational training, community reintegration of persons with disabilities and **(4)** Access to justice and rights of persons with disabilities through advocacy, consultancy, awareness and active communal participation (Results Management Team. ND).

Telehealth service is a core part of this CBR program and Community Digital Information and Service Booth (CDISB) has been set up at offices of eight (8) Upazila Disabled People Development Council (UDPDC) situated at Mohonpur,

kaliakour, Singair, Barishal, Gajipur, Khulna, Cumillah and Isyorganj and it has been operated by respective UDPDC members (Iman & Mahmudul,2018). This was partially funded by the Prime Minister's Office's Access to Information (a2i) Program. A2I initiative of the Service Innovation Fund (SIF) has made it possible for an automated patient follow-up system to be launched, named "Community Digital Information and Service Booth" under Upazilla Disabled People Development Council (UDPDC). This initiative was capable of providing upgraded healthcare support for physically challenged people in remote and out-of-reach places through neat integration of easily available technology; telemedicine, video conferencing, regular follow up through mobile, etc. The project "E-specialized services for people with disabilities" has been initiated to provide advanced digital patient follow up system for those under privileged people. Within 6 months of operation the project developed 08 Upazila level CDISB under Upazilla Disabled People Development Councils (UDPDC) with advanced specialized services. This project has been developed for the purpose of social and economic of disable people in the rural areas of Bangladesh, as well as access to information with Community Digital Information and Service Booth (CDISB) (Innovation Lab-A2i. ND).

In Bangladesh, physicians were practicing telemedicine informally from long ago but officially it emerged on 1999. According to Nessa et al. (2014), the timeline of telemedicine in Bangladesh is as; **1999**: In Bangladesh first telemedicine link was established by a charitable trust named Swifn Charitable. It established the link between the Centre for the Rehabilitation of the Paralysed (CRP) in Dhaka and Royal Navy Hospital, Haslar, UK. **July 1999:** Telemedicine Reference Center Ltd (TRCL) Dhaka, Bangladesh a private company launched his journey with an ambitious project to set up telemedicine project to help doctor identify diseases in early stage. **Mid -**

2000: Grameen Communications took rural tele-health initiatives using wireless technology. **2001**: TRCL demonstrated telemedicine system in the US Trade Show 2001 in Dhaka using Icare software and normal Internet connection & started test run of the system between US and Bangladeshi physicians. **April 2001:** The Bangladesh Telemedicine Association (BTA) is formed. **2003:** Sustainable Development Network Program (SDNP) Bangladesh began. In the same year, Bangladesh University of Engineering & Technology (BUET) and Comfort Nursing Home had started a Telemedicine project with the financial collaboration from European Union (EU) via Email. **May 2004:** Bangladesh. DNS diagnoses Centre, Gulshan-1 and Comfort Diagnoses &Nursing Home's started a Telemedicine centre. **2005:** In August 16, 2005 Grameen Telecom (GTC) in cooperation with the Diabetic Association of Bangladesh (DAB) launched telemedicine services. **2006 November:** Telemedicine Reference centre Ltd. And Grameen phone has started a unique telemedicine Service named "HealthLine Dial 789". **2007 September:** The project 'ICT in rural Bangladesh' is working for the development of health care facilities in rural Bangladesh through ICT for the period September 2007–December 2009.

Pradhan et al. (2017), in a systematic review stated the above timelines as well the models that the telemedicine service of Bangladesh adopted time to time. In their study, they highlighted on the telemedicine services started by BRAC, a leading Non Government Organization in Bangladesh for slum people in 2007. To improve the health status of the slum population, particularly women and children BRAC stated their mobile maternal, newborn, and child health (MNCH) and telemedicine services. Besides, "Aponjon mHealth" service was started in Bangladesh by USAID in 2011 with a view to contribute to reduction in maternal and neonatal mortality. On the other hand, Medinova hospital is operating telemedicine service from 2006 to till now. In

association with Apollo Hospital Indi, this hospital is offering telemedicine services to the people of Bangladesh. Doctors from different categories of Medinova Hospitals are engaged with the Apollo hospitals for Telemedicine service. Grameenphone limited launched a 24 hours health line service to all of its subscribers called "HealthLine Dial 789". Subscribers can make a voice and video call to the licensed physician at the time of their emergency and non-emergency time. Ministry of Health, Bangladesh implemented mobile phone based health services for the general people of Bangladesh in 2009. One mobile phone was given to all Upazilla and District level hospital doctors for the use of mhealth service. It was open twenty four hours and seven days (24/7). Citizens can make a phone call to the doctors of Upaziila and District hospitals and get the medical advice from them. Grameen Phone in corporation with the Ministry of ICT, Bangladesh has started the Telemedicine services at Jessore District in 2013. Peoples of Jessore are getting the health services with the payment of only BDT 200 or 300 from the expert doctors. Government of Bangladesh has implemented Telemedicine services with the help of Ministry of Health and Family Welfare. Initially the service was limited to 8 Government specialized hospitals only. At present 78 hospitals are operating this project. Government of Bangladesh will expand this project phase wise at the upazilla level.

Several studies were conducted regarding telehealth initiations and implementation in Bangladesh. According to the study by Hossain et al, (2017) consumer's demographic and socioeconomic factors such as age, sex, occupation, purchasing power, level of education and access to cell phone have strong influence on their acceptance of telehealth services or portable health clinics. This study also reveals that, 30.3% consumers used portable health clinic or telehealth service because of financial benefit and 29.7% for time saving purposes and the overall acceptance rate

of telehealth service among the rural inhabitants was 32%. In 2010, Debashish Das in his paper named "Development of e-health application for rural community of Bangladesh" tried to find out the most appropriate way to engineer suitable software applications for rural communities of Bangladesh and developed a methodological framework from existing methodologies for creating software applications for rural community. He wanted to approach a rural community and use the framework he developed to build, refine and test an application built in a bottom up manner to solve a problem for the target community. On the other hand, Basher & Roy (2011) proposed a "personal digital assistance" card for the patients of developing countries especially for Bangladeshi. By using ICT technologies they aimed to secure the healthcare system of Bangladesh. Ferdous (2017), identified some limitations of ICT sector, Bangladesh like poor infrastructure (e.g. transportation, electricity supply), inadequate funding, slow internet connectivity, and lack of skilled or trained work force. In the same study existence of weak socio-technical network due to lack of internal network, low security, unawareness among citizens, medical practitioners' non-cooperation or lack of confidence to use new technology were indicated as barriers of telehealth implementation in Bangladesh. To tackle the barriers that study identified several scopes, for instance, biometric identification system, electronic health record , hospital information system, laboratory information system, radiology information system, picture archiving and communication systems , e-prescription, computer-based physician order entry system and automated pharmacy etc.

According to the study by Nessa et al (2014), many factors influence the dissemination of telemedicine as well as other new technology. Thus the factors should be assessed before considering telemedicine implementation in a specific health care and the factors would be; medical need, Organization and Structure of

Health care and location of the health centre. First of all need to decide type of medical facilities that need to provide in the specific health care centre. For instance, establishing a high-end telemedicine cell in sub-town level would not be significant because of the structure of health care. According to structure of health care, telemedicine support can be different and if the location of the health centre is in same city of the super or large hospital then people would prefer face to face consultancy rather than tele-consultancy. Ahmed et al (2014) added some factors that could be obstacles for effective sharing telehealth related projects. According to the study, there are extremely few individuals with eHealth training in Bangladesh and there is a strong demand for capacity building and experience sharing, especially for implementation and policy making. Lack of research evidence on how to design interventions to meet the needs of the population and on potential benefits was another major issue to develop telehealth services in Bangladesh.

CHAPTER III

3. RESEARCH METHODOLOGY

3.1. Study Design:

This was a descriptive cross-sectional study.

3.2. Study site/ area:

Study Area included: Tangail (Deldour), Manikganj (Singair), Khulna, Rajshahi (Mohonpur) and Barishal (Bakergong).

3.3. Study period:

November 2017 to March 2018. Work schedule is annexed.

3.4. Study population:

Study was conducted among the patients who visited the UDPDC/DPO's to receive telehealth services as well as the providers working both in DPO's and CRP associated with telehealth service delivery.

3.5. Sample size: 105

It was not determined by the applicable formula as the prevalence rate was not known.

Finally 72 patients and 20 providers were enrolled in the study due to constraint of time.

3.6. Sampling technique:

Purposive sampling technique was adopted to identify the respondents from the five DPO centers. Initially respondents were identified from the list of participants and documentation from telehealth service providers or CBR office of CRP.

3.7. Inclusion Criteria:

- Patients who had received telehealth service.
- Active telehealth service providers.
- Irrespective of age and gender.
- Willing to take part in the study.

3.8. Exclusion criteria:

- Patient and provider who did not give consent.
- Patient/ Provider who did not response to phone call.
- Provider who was absent/ off duty during data collection.

3.9. Duration of data collection: Three months.

3.10. Data collection technique:

Data was collected by telephone and face to face interviews. Before data collection the respondents were briefed the purpose of the study. After taking verbal consent of the respondents, data was collected ensuring the privacy and confidentiality.

3.11. Research instrument:

A semi structured questionnaire in "Bangla" was used to collect information on socio demographic and social and family related variables such as age, gender, educational status, working status, family type, family members, offspring, earning status, type of health problem, social relationship, social attribution and the limitation and barrier of telehealth service utilizations as well as the possible solution according to the users perspectives.

3.12. Data analysis:

Data analysis was done by statistically package for social science (SPSS) version 17.0 and MS excel.

3.13: Data management:

The data was categorized based on the participants' open answers. Under those categories, coding in all the information was provided. The coding was different from each participant and after finishing the coding; some important codes that reflected the themes of the study findings were detected**.** The code**s** detected from the questionnaire were imputed into the computer system and analyzed using data analysis and statistical software. Data were analyzed in terms of frequency percentages and parametric statistics like a mean and standard deviation. Qualitative data obtained from the respondents during the interview were utilized to get the complete picture of telemedicine services. Afterwards**,** all interviewed questionnaire was checked for its completeness accuracy and consistency to exclude missing or inconsistent data. The open answers were categorized and data was checked properly before analysis.

3.14. Expected Results/ findings:

As a descriptive qualitative cross sectional study, this study aimed to explore the experience and perception of the patients and providers of telehealth services without any hypothesis in mind rather this study allowed the themes to be arising from the collected data with no fixed idea about the result.

3.15. Implication of finding :

The study was designed to explore the perception of the patients and providers of telehealth services. The finding of the study in terms of strength and weakness of existing telemedicine services may help the policy planners to take steps in improving the telehealth services.

3.16. Ethical Issue:

The study was done through data from the respondents through interview. There was no physical or mental assault to the respondents. However, prior to interviewing the respondents, they were clearly explained about the aim of the data collection which is absolutely confidential. They had complete freedom to be involved in the study because they were asked to give their opinions to or not to response to the inter viewers inquiry. So, there was seemingly and ethical implications. However ethical clearance was taken from ethical board of CRP by submitting the protocol of the present study.

CHAPTER IV

4. RESULTS

This chapter presents the finding of this study obtained from analysis and interpretation of the data. This qualitative cross sectional study was conducted to explore the patients and providers perception regarding telehealth service. Purposive sampling technique was adopted for this study and preliminary patients' information was collected from The CBR department of CRP. Afterwards based upon the information interview session was conducted accordingly. Data was collected from a total of 72 patients and 20 providers. Findings were analyzed by SPSS version 17 and MS excel. The overall results of this study have presented in tabular, graphical and narrative forms thereby interpreting the results to describe the various aspects of the respondent's perception of telemedicine and socio-demographic status.

FINDING FROM PATIENTS

Figure 01: Distribution of patients by DPO locations (n=72)

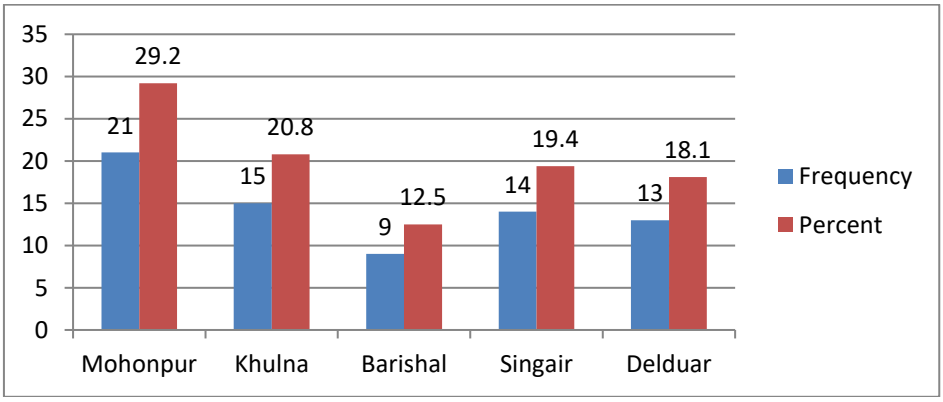


Figure 01 shows the distributions of the patients by DPO locations. According to the figure maximum (29.2%) patients were from Mohonpur whereas minimal (12.5%) patients were identified from Barisal

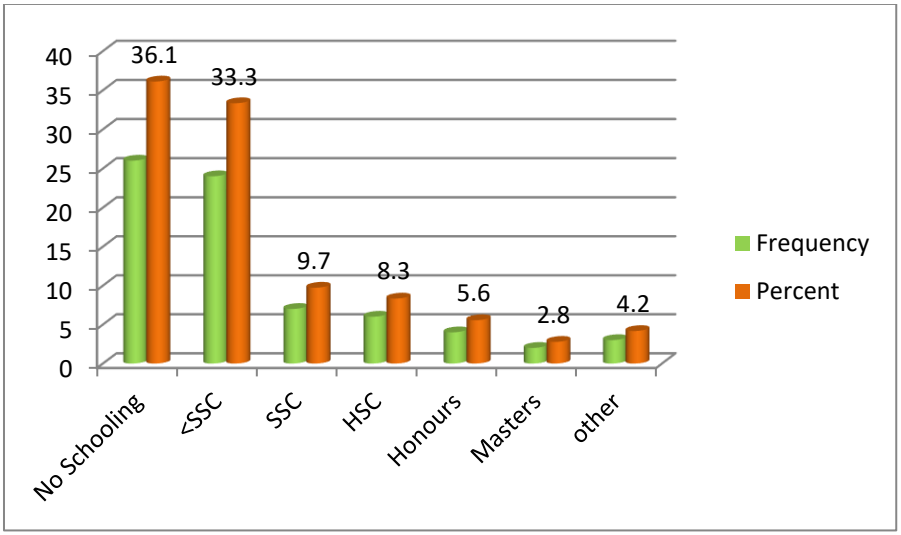
Table 01: Distribution of patients by gender & age (n=72)

		Age group of the patients (In years)				
Gender	Frequency (%)	<1	1-20	21-40	41-60	>60
Male	31(43.1)	0 (0)	11 (68.8)	6 (22.2)	10 (52.6)	4 (57.1)
Female	41(56.9)	3 (100)	5 (31.3)	21 (77.8)	9 (47.4)	3 (42.9)
Total	72 (100)	3 (100)	16 (100)	27 (100)	19 (100)	7 (100)

*****Figures in parenthesis indicate percentage

Table 01 illustrates the gender & age distribution of the patients. According to the table, majorities (56.9%) of the patients were female and 43.1 % of patients were male. Patients from the age group of 21-40 were maximum (27, 37.5%) whereas patients from the age group of <1 was minimal (3, 4.17%).

Figure 02: Distribution of patients by education (n=72)



*Others= BA, Madrasa

According to the figure above, majority (36.1% and 33.3%) of the patients, did not attend school at all and had below SSC level of education. However, patients held Masters Level of education were identified as minor (2.8%).

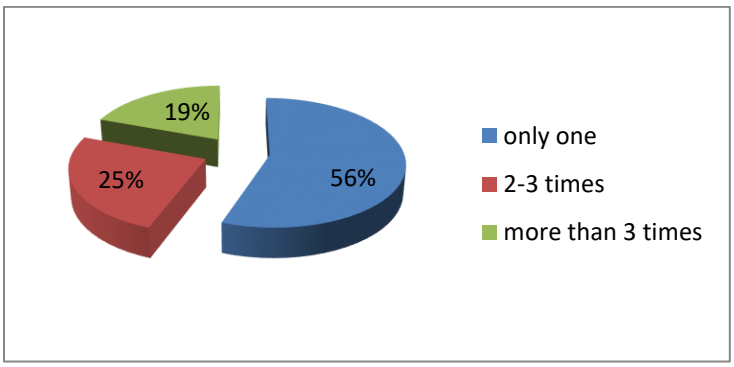
Table 02: Monthly income & profession of the patients (n=72)

Income (In thousands)	Frequency (%)	Profession of Patients						
		Unemployed (%)	Farmer (%)	Business (%)	Housewife (%)	Student (%)	Job holder (%)	Others (%)
<10	53 (73.6)	13	2	2	20	11	1	4
		(72.2)	(66.7)	(66.7)	(76.9)	(73.3)	(50)	(80)
10-15	14 (19.4)	3	1	1	5	4	0	0
		(16.7)	(33.3)	(33.3)	(19.2)	(26.7)	(0)	(0)
16-20	5 (6.9)	2	0	0	1	0	1	1
		(11.1)	(0)	(0)	(3.8)	(0)	(50)	(20)
Total	72 (100)	18	3	3	26	15	2	5
		(100)	(100)	(100)	(100)	(100)	(100)	(100)

*Others = Van driver, day labor, beggar, auto driver

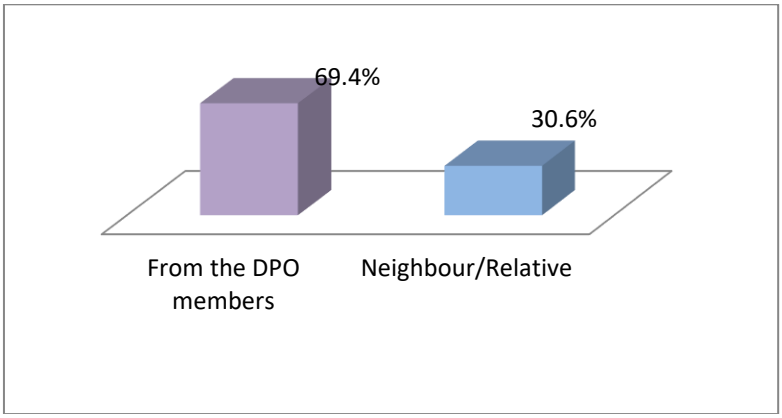
Table 02 shows that, highest (73.6%) number of patients reported as having monthly income less than 10 thousands and they were mostly housewives (20%), unemployed (13) and students (11) by professions. On the other hand patients belonged to the monthly income group of 16-20 thousand were reported as lowest (6.9% only)

Figure 03: Distribution of Patients by Frequency of centre visit (n=72)



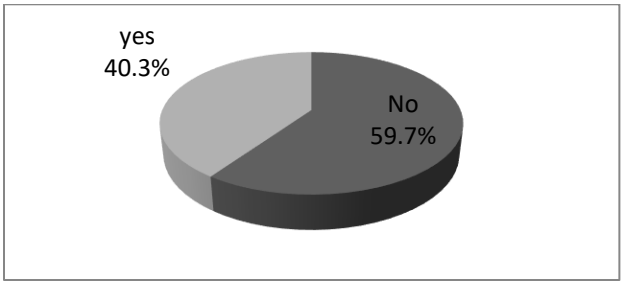
According to the pie chart most of the patients (56%) visited the DPO's for only one time whereas only 19% patients visited more than three times.

Figure 04: Distribution of Patients knowing information about the centre (n=72)



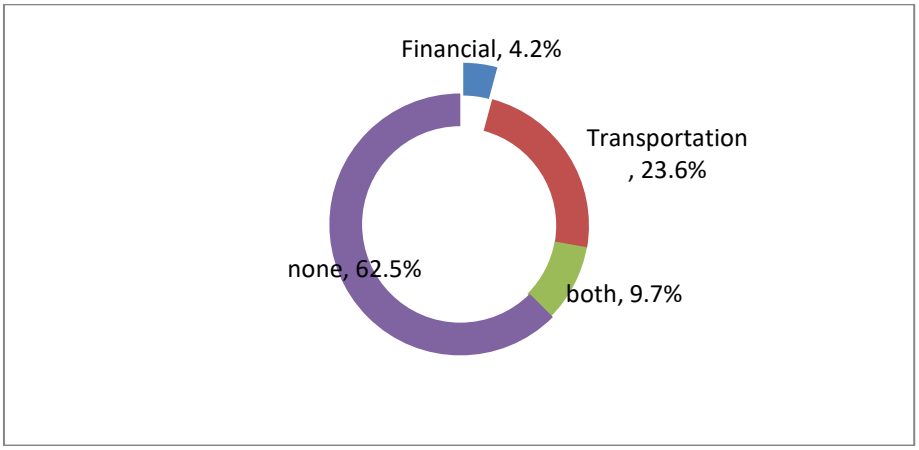
According to the bar chart, majority of the patients (69.4%) got to know about the centre from the DPO members whereas; the rest 30.6% of the patients got to know from neighbor or relatives.

Figure 05: Distribution of Patients by problem face while coming to the centre (n=72)



According to the pie chart, maximum (59.7%) patients did not face any problem while coming to the centre however 40.3% did.

Figure 06: Distribution of Patients by type of problem face. (n=72)



According to the figure above, about 23.6 % of patients faced transportation, 4.2% faced financial and 9.7% of patients faced both transportation and financial problem while coming to the DPO's.

Table 03: Distribution of Patients by problem face during treatment session (n=72)

Problems	Frequency (%)
Network disturbance	28 (38.9)
Computer /Electricity disturbance	19 (26.4)
Language barrier	18 (25.0)
Non cooperative	1(1.38)
No problem	30 (41.7)

Table 03 describes about the problems that the patients faced during the treatment session. According to the table, majority (41.7) didn't face any problem whereas 38.9% and 26.4 % of the patients reported network disturbance & computer /electricity disturbance as well as language barrier (25%) as a problem during treatment session.

Table 04 : Barriers of taking the telemedicine service (n=72)

Barriers	**Frequency (%)**
Communication	12 (16.7)
Financial	11 (15.3)
Language	2 (2.8)
Non co-operation	1(1.4)
No Barriers	53 (73.6)

According to the table above, most of the patients considered communication (16.7%) and financial problems (15.3%) as barrier of taking telemedicine services whereas 73.6% of patients reported as having no barriers.

Table 05: Patients Preference regarding options of receiving service from DPO's (n=72)

Preference	Frequency (%)
Direct consultation	61 (84.7)
Telemedicine	6 (8.3)
Both	5 (6.9)
Total	72 (100)

According to the table above, majority (84.7%) of patients preferred direct consultation compare to telemedicine service.

Table 06: patients opinion regarding subsequent visit to the centre (n=72)

Opinion	Frequency (%)
Yes	59 (81.9)
No	13 (18.1)
Total	72 (100)

The table illustrates that, most of the patients (81.9%) want to visit the centre again for treatment whereas 18.1 % do not want to visit.

Table 07: Patients opinion regarding Doctors advise (n=72)

Opinion	Frequency (%)
Very useful	15 (20.8)
Satisfactory	37 (51.4)
Not at all	20 (27.8)
Total	72

According to the table above, maximum number of patients (51.4%) indentified the doctor's advice as satisfactory however, as per 27.8% of patients' doctor's advice was not satisfactory at all.

Table 08: Patient's opinion regarding improvement of telemedicine service based on open answers (n=72)

Opinions	**Frequency (%)**
Provision of direct consultancy	19 (26.4)
Enhance publicity	10 (13.9)
Therapy facility	11 (15)
Medicine facility	8 (11.1)
Increase nearby DPO centre	8 (11.1)
Installation of more computers	5 (6.9)
Increase frequency of consultancy	4 (5.6)
Training facility	3 (4.2)
All type of doctor	3 (4.2)
Lab facility	2 (2.8)
Large screen Monitor	1 (1.38)
Need to be more active	1 (1.38)
Separate room for privacy concern	1 (1.38)
Increase advantages	1 (1.38)
Place need to be clean	1 (1.38)

According to the table, opinion regarding provision of direct consultancy was reported as highest (26.4%) by the patients. Moreover, publicity (13.9%), therapy and medicine facility (15% & 11.1% accordingly), increase DPO's (11.1%) and installation of large serene monitor (6.9%) were frequent opinions to improve the telemedicine service reported by the patients.

Table 09: Distribution of Patients by rating the telemedicine service (n=72)

Rating	Frequency (%)
Very good	6 (8.3)
Good	50 (69.4)
Average	15(20.8)
Bad	1(1.4)
Total	72(100)

The table shows that, majority of the patients (69.4%) rated the telemedicine service as good whereas only 1.4% rated the service as bad.

Table 10: Patients opinion regarding how the service help the patients based on open answers (n=72)

Opinion	**Frequency (%)**
By no means	29 (40.3)
Effective advice	26 (36.11)
Economic saving	23 (31.9)
Reduce travel period	23 (31.9)
Shorter waiting times	2 (2.78)
Having improvement	1(1.38)
Not much	1(1.38)

According to the table, 40.3% of the patients which is the majority said that, the service helped them by no means while 36.11% reported that they received effective advice for their complains. Economic saving and reduce travel period were another most frequent benefits of telemedicine service, reported by the patients as well.

FINDING FROM PROVIDERS

Table 11: Distribution of Providers by location (n=20)

Location	Frequency (%)
Singair (DPO)	2 (10.0)
Delduar (DPO)	2 (10.0)
Khulna (DPO)	2 (10.0)
Bakerganj (DPO)	2 (10.0)
Mohonpur (DPO)	1 (05.0)
Choddogar (DPO)	2 (10.0)
Issorgonj (DPO)	1 (05.0)
Savar (CRP)	8 (40.0)
Total	20 (100)

Table 01 illustrate that, majority (40%) of the providers are from Savar (CRP), whereas the rest providers from different DPOs are mostly equal in numbers (10%) except providers from Choddogor & Issorgonj (5%).

Table 12: Distribution of Providers by Designation (n=20)

Designation	Frequency (%)
President	5 (25.0)
President cum Operator	2(10.0)
In charge	3 (15.0)
Operator	2 (10.0)
Others	8 (40.0)
Total	20 (100)

*Others= Physiotherapist, Occupational therapist, Speech therapist, Rehabilitation officer, Project officers, Counselor, In charge of Social welfare department and Field officer from CRP

Table 02 shows that, majority of the providers are others (40%) which consists of physiotherapist, occupational therapist, speech therapist, rehabilitation officer, project officers, counselor, in charge of social welfare department and field officer from CRP. On the other hand, the providers assigned for the post against president, in charge and operators are 25%, 15% and 10 % respectively.

Table 13: Age & Gender distribution of providers (n=20)

Age Group (In years)	Frequency (%)	Gender	
		Male	Female
<35	10 (50)	5 (33.3)	5 (100)
35-45	4 (20)	4 (26.7)	0(0.00)
>45	6 (30)	6 (40)	0(0.00)
Total	20 (100)	15 (100)	5(100)

*****Figures in parenthesis indicate percentage

Table 03 indicates the age & gender distribution of the providers. According to the table, providers from the age group of <35 years are highest in percentages (50%) and male providers were higher in percentage (15, 75%) than female provider (5, 15%).

Table 14: Education level & Salary per month of the providers (n=20)

Education Level	Frequency (%)	Salary (In Taka)				
		No salary	500-700	1000	10000-20000	>20000
<SSC	2 (10)	2 (33.3)	0 (0.00)	0 (0.00)	0 (0.00)	0 (0.00)
SSC	4 (20)	2 (26.7)	1 (25.0)	1 (50.0)	0 (0.00)	0 (0.00)
HSC	4 (20)	0 (0.00)	2 (50.0)	1 (50.0)	0 (0.00)	1 (16.7)
BSC	6 (30)	2 (33.3)	0 (0.00)	0 (0.00)	2 (100)	2 (33.3)
Masters	4 (20)	0 (0.00)	1 (25.0)	0 (0.00)	0 (0.00)	3 (50.0)
Total	20 (100)	6 (100)	4 (100)	2 (100)	2 (100)	6 (100)

*****Figures in parenthesis indicate percentage

Table 04 shows that, majority of the providers hold BSc degree (30%) whereas a minimal (10%) hold below SSC level of education. On the other hand, similar number that is 30 % of the providers had no salary and salary above of 20,000 taka.

Table 15: Opinion of the providers regarding equipment capacity of the centres (n=20)

Opinion	Frequency (%)
Sufficient	8 (40)
Moderately Sufficient	6 (30)
Not Sufficient	6 (30)
Total	20 (100)

According to the table above, majority (40%) of the providers reported the equipment capacity of the centers as sufficient whereas among the rest, similar number of providers (30%) reported it as moderately sufficient and not sufficient.

Table 16: Distribution of providers by problem face during session (n=20)

Problem face	Frequency (%)	Problems	Frequency (%)
Yes	20 (100)	Electricity disturbance	7 (35)
		Network disturbance	19 (95)
		Computer disturbance	3 (15)

The table above describes that, all of the providers (100%) face problem while the consulting session going on. Among all of them, majority (95%) had problem with network disturbance and only few (15%) experienced computer disturbance.

Table 17: Pre-training and knowledge on rules & regulation about telemedicine service among the providers (n=20)

Opinion	Training	Rule & Regulation
Yes	13 (65)	18 (90)
No	7 (35)	2 (10)
Total	20 (100)	20 (100)

*****Figures in parenthesis indicate percentage.

The table above illustrates that, 65% of the providers got training on telemedicine service and among them 90% informed that they know all rules and regulation regarding the service

Table 18: Providers (DPO) method of patient collection (n=12)

Patient Collection	Frequency (%)
Incidental face to face counseling	9 (75)
Planned Advocacy	7 (58.3)
Refer by other patient	1 (8.3)
Counseling over Phone	2 (16.7)

According to the table 08, majority (75%) of the providers collects patients by incidental face to face counseling and by advocacy (58.3%) whereas only 8.3% of patients were refereed by other patients.

Table 19: Providers (DPO) opinions regarding barriers of telemedicine service on the basis of open answers (n=12)

Opinion	Frequency (%)
Inadequate financial budget	7 (58.3)
Network/ Computer disturbance	6 (50.0)
Older version of equipments	5 (41.7)
Nearby hospitals	5 (41.7)
Inadequate staffs	3 (25.0)
Inadequate number of equipments	3 (25.0)
Inadequate publicity	2 (16.7)
Inadequate consulting hours	2 (16.7)
No lab facility	1 (8.33)

According to the table above, maximum number of providers from DPO's (58.3%) reported inadequate financial budget as the main barrier of telemedicine service. Network/Computer disturbances (50%), older version of equipments (41.7%) and nearby hospitals (41.7%) were frequent barriers of telemedicine services reported by the providers as well.

Table 20: Providers (DPO) opinion regarding improvement of service on the basis of open answers (n=12)

Opinion	Frequency (%)
Improvement of financial budget	9 (75.0)
Installation & increase of modern equipments	8 (66.7)
Increase of salary	5 (41.7)
Enhance publicity	5 (41.7)
Improvement of internet facilities	4 (33.3)
Awareness program	3 (25.0)
Reduction of fee/ No fee	3 (25.0)
Improvement of computer Services	2 (16.7)
Increase of staffs	1 (8.33)
Implementation of lab facility	2 (16.7)

Table 10 shows the opinions of the providers from DPO's regarding improvement of telemedicine service. Improvement of financial budget (75%), installation & increase of modern equipments (66.7%), enhance publicity (41.7%), increase of salary (41.7%) and Improvement of Internet facilities (33.3%) were the most frequent opinions given by the providers.

Table 21: Providers (CRP) opinions regarding barriers of telemedicine service on the basis of open answers (n=08)

Barriers	Frequency (%)
Lack of awareness	4 (50.0)
Network disturbance	3 (37.5)
Communication gap with DPO members	2 (25.0)
Electricity disturbance	1 (12.5)
Inadequate permanent staff	1 (12.5)
Inadequate consultancy time	2 (25.0)
Insufficient equipment	1 (12.5)

According to the table above, maximum number of providers from CRP (50.0%) reported lack of awareness regarding telemedicine as the main barrier of telemedicine service. Network disturbance (37.5%), communication gap with DPO members

(25.0%) and inadequate consultancy time (25.0%) were frequent barriers of telemedicine services reported by the providers as well.

Table 22: Providers (CRP) opinion regarding improvement of service on the basis of open answers (n=08)

Opinion	Frequency (%)
Improvement of internet facility	4 (50.0)
Inclusion of senior consultants	2 (25.0)
Increase awareness Programs	3 (37.5)
Increase of training programs for DPO members	2 (25.0)
Increase of training programs for all providers	3 (37.5)
Recruitment of permanent staffs	1 (12.5)
Enhance Publicity	1 (12.5)
Increase number of DPO's	1 (12.5)
Modernize prescription system	2 (25.0)
Increase follow up	2 (25.0)
Implementation of lab facility	1 (12.5)

Table 12 shows the opinions of the providers from CRP regarding improvement of telemedicine service. Improvement of internet facility (50%) , awareness program (37.5%), Increase of Training programs for all providers (37.5%) were the most frequent opinions given by the providers from CRP.

CHAPTER V

5.1 DISCUSSION

In CRP, ten specialists practice telehealth service under the department of CBR whereas, in every DPO's two people are assigned for the service. In this study a total of twenty providers (eight from CRP & twelve from six DPO's) took part and their profile has summarized in the result section. A total of seventy two patients took part in the questionnaire survey. Patients from diverse illness experienced telehealth services, for instance; low back pain, neck pain, shoulder joint pain, stroke, hemiplegia, cerebral palsy, congenital disorder/deformity, fracture, amputation, spinal cord injury, disc prolapsed, osteoarthritis, club foot, short leg and speech problems. Self administrative questionnaire were filled up by the providers from CRP while other data was collected either by face to face or cell phone interview. The mean age of the patients was 34.80±18.979 and for providers it was 38±12.861. Majority of the patients were female (56.9%) however, in case of providers preponderance were male (75%).

The result from the patients indicates that, they are moderately satisfied by the telehealth service as consumers reported effective advice (36.11%) , economic saving (36.11%) as well as reduced travel time (31.9%) as a benefit of the telehealth services. Besides, some patients added shorter waiting time and improvement of the condition that they experienced from the service. In accordance to Hill; 1992, high patient satisfaction may include: easier access to specialists reduced travel period, shorter waiting times for appointments, improved effectiveness, economic savings, and increased interaction with a specialist, accurate diagnoses, and personalized care (As cited in Acharya & Rai, 2014). In this study though 40.3% of the consumers

stated that they were benefited by no means with this service but 51.4% consumers were satisfied by the doctor's advice and 69.4% agreed that the service of telehealth is good which consequently specify moderate level of satisfaction among the patients received the services. The feedbacks regarding primary benefit of telemedicine from patients of different studies identified generally were; reduced healthcare cost and travel period; same as the finding of this study. Rural patients consistently appreciate reduced cost in teams of traveling, housing, orientation to unfamiliar environment and not having to travel such distances for certain consultations (Hiratsuka et al., 2013, Bradford et al, 2015). Study finding in USA states that, telemedicine decreased travel distance by 170 km on average and saved an average of 130 minutes (Whitten & Love, 2013). A study conducted in African nations explore that, people are willing to pay for a service like telehealth as it cuts down on travel time and costs (Ebad, November 2013). On the other hand, a study done by Hossain et al, 2017, in Bangladesh prospectus also reveals that, among their respondents, 30.3% consumers used portable health clinic or telehealth service because of financial benefit and 29.7% for time saving purposes and the overall acceptance rate of telehealth service among the rural inhabitants was 32%.

During consultation period majority (38.9%) of the patients complained about network disturbance. Driessen et al. (2016), in her study considered sufficient network capacity to support telemedicine technology that requires high-quality audio and video as a non trivial issue more specifically when the receiving center is located at remote and rural areas. Study finding by Acharya & Rai (2014), in India also showed that most of the respondents face network speed and clarity problems throughout the session. In this study, in addition to network disturbance, computer disturbance and

language barriers were identified by the respondents in execution and continuance of telehealth services. Similarly another study done by Ghia et al. (2013), in India reveled that, bandwidth inadequacy, electricity and equipment problems are major barriers of telemedicine continuance in the rural areas. In the same study, the researchers pointed out some barriers of effective implementation of telemedicine in rural areas, for instance; inclusion of heavy investments in equipment, technical difficulties, concerns regarding patient confidentiality, negative attitude of patients, lack of user-friendly software, lack of staff educated in information technology, illiteracy, diversity in languages, and concern about legal responsibility which resemble this study finding as well. Another study done by Ferdous (2017), also identified some factors such as; poor infrastructure in terms of transportation and electricity supply, slow internet connectivity, weak socio-technical network due to lack of internal network and low security as limitations of ICT sector and telehealth service in Bangladesh similar to this study finding.

About 84.7% of patients in this study tended to be more comfortable with face to face or direct consultation rather than telehealth. In contrary, in most of the studies, respondents showed equivalent positive satisfaction scores between telehealth and traditional care (Hushe et al, 2012; McCary et al, 2015; Morgan et al, 2008; Whitten & Love, 2005).The reasons behind this dissimilarity may include; older version of equipments, electricity and network disturbance, unfamiliarity with technology and lack of awareness among the rural citizens of Bangladesh. Moreover, Nessa et al (2014) stated that, situation of large or super hospital in the same city could influence patient's perception regarding telehealth service and in that case people would prefer face to face consultancy rather than tele-consultancy. In this study, the providers form DPO centres indicated nearby hospitals (41.7%) as a barrier of successful

implementation of telehealth service in their respected areas which could influence the respondent's preference as well. Most of the patients (56%) in this study took the service only once which could be another explanation of this distinction. However, finding of the study by Dario et al. (2016), highlighted that, in spite of safer feeling, the patients considered face to face consultation as more suitable solution of their health related problems.

Although patients perceived certain benefits of telehealth but still they had some extent of difficulties to receive the service as well. About 40% of patients faced transformational and financial problems while coming as they had to travel a long distance to reach the centre. Based on that problem, some patients suggest for increasing the DPO's in nearby villages. Patients' opinion highlighted on the provision of direct consultancy (26.4%) in the DPO's instead of teleconsultation since majority considered physical checkup done by any physician more comfortable and satisfactory. The study finding indicates, nearly every patient got to know about the service from the DPO members itself (69.4%), therefore publicity enhancement was one of the major concerns observed among the patients' opinion. Besides, patients emphasized on therapy and medicine facility within the DPO's as sometimes they had to visit district or division level hospitals to meet the advices given by telemedicine services which ultimately require long distance traveling and increase expenses. Provision of therapy facility along free medicine would enhance the popularity; as per the patients' suggestion. Moreover, there is only one computer in every DPO which seems insufficient to the patients and they wish to have more computers in the centres. Despite of several obstacles, it was noteworthy that majority of the patients (81.9%) were positive regarding recurrent visits.

In the previous sections, it has been informed that the DPO's are controlled and operated by the people's with disabilities themselves. Thus the providers from DPO's in this study have had different types of physical challenges with nominal education and half of them (50%) had no salary. Despite of these, they were determined to serve the respective villagers which worth appreciations. In contrast, the providers from CRP had professional's degree and their honorary was agreeable. These differences also reflected in their perceptions regarding barriers and improvement of telehealth service.

Majority of the providers from DPO's reported insufficient financial budget (58%), network/computer disturbance (50%), older version of equipments (41.7%) and existence of other nearby hospitals (41.7%) as main barriers to telemedicine. On the other hand, providers from CRP indicated mostly towards the lack of awareness (50%) of telemedicine among the people living in countryside network disturbance (37.5%), communication gap with DPO members (25.0%) and inadequate consultancy time (25.0%). Network disturbance was common between two providers. All the providers faced difficulties while tele-consultation executions and apprehensively network disturbance (95%) scored highest again. Fairchild et al; 2017, divulged from different recent studies that, technical difficulties in telehealth care delivery can result from inadequate bandwidth for the internet connection which ultimately support the finding of this study as well.

The providers (DPO's) perspectives for service improvement focused particularly on improvement of financial budget (75%), installation & increase of modern equipments (66.7%), enhance publicity and salary (41.7%) and improvement of internet facilities (33.3%). Alternatively, the CRP providers especially pointed on improvement of internet facility (50%), awareness program and increase of training

programs (37.5%) for all providers. Ferdous (2017) also indicated inadequate funding, slow internet connectivity, and lack of skilled or trained work force as limitations of telehealth services in his study as well.

These two groups of providers tend to maintain different motivations for their views. One of the aims of telemedicine services was to income generation of people's with disabilities. In consequence, the funding authority organized some income generation training programs for the DPO providers but till now they are unable to cope up that which eventually results their economic insolvency. The providers from DPO's amicably convince and gather patients; particularly patients with disabilities from poor households. Providers frequently do incidental face to face counseling (75%) and planned advocacy (58.3%) with limited budget. Therefore, to mitigate the problems associated with honorary, publicity and technology, the providers from DPO's demanded for budget enhancement (75%). However, the opinions of providers from CRP were mainly telemedicine service concentrated as their vital role was consultancy only.

5.2. CONCLUSION:

Results of this study indicate that, majority telehealth receivers are interested in subsequent visit but need assurance of service betterment. The tangible views of the patients provide new insights into the factors underlying their satisfaction and offered a range of solutions as well. Besides, the provider's requirements need to be addressed to flourish the service encounter. Expansion of technology related issues such as network and equipments were noted as common foundation for astute telehealth practice accordance to both the patient's and provider's view. Publicity enhancement, budget improvement, awareness spreading out, equipments replacement were also some frequent features that needs to be met to attain the most desirable destination of this telemedicine service. To sum up it can be said that, telehealth service could bring a significant access to quality healthcare for underserved communities but would take time to reach its expected position.

5.3. LIMITATIONS:

- Short Duration of study period.
- Less number of samples for a cross sectional study.
- Self developed questionnaire.
- Purposive sampling.

5.4. RECOMMENDATIONS:

- Adaptations of new technologies and replacements of equipments.
- Ensure high quality network setting.
- Enhance publicity as well as awareness programs.
- Necessary steps to be taken to address the DPO providers' requirements.
- Increase and intensify telehealth related training for both providers.
- This was a cross –sectional study and cover only few DPO's, thus further large scale study is recommended.

CHAPTER VI

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ANNEXURE I

VERBAL CONSENT GUIDELINES

Introduction:

Hello. My name is Rehana Parvin. I am carrying out interviews on Telehealth services from Bangladesh Health Professionals Institute for thesis purpose. I was told by the Community based rehabilitation office of CRP that you had access to this service and would like to take the time to talk with you about the service.

Study procedures:

I will ask you to fill out a questionnaire about yourself, including your age, employment, education and your access to telehealth. I will then ask a few questions about the service, about how it is provided by the organizer and lastly your perceptions about the service. The interview should take around 20-40 minutes and I will ask you to let me record the interview with an audiotape.

Are there any risks to doing this study?

There is a chance that you might feel uncomfortable talking about your own opinions about the service provided, in the circumstance that you do, please feel free to skip any questions or stop at any time. In my report, I will not use any names of the people I interview, as identification numbers will replace these. This means that people will not be able to identify you or what you have said.

Are there any benefits in doing this study?

I want to understand what can be done to better develop of telehealth services for CBR in Bangladesh. I would like to understand how it works, the challenges and way to make the service better.

Voluntary participation:

Please understand that you can choose to participate in this study, if you decide to stop at any time or would like to skip a question there will be no problems. If you have any questions about this study or want more information you can call me. My number is +88017…

Consent:

Please let me know if you have any more questions? If you chose to agree to provide your verbal consent, I will record your approval, and then I will begin the interview.

- if) Yes)–□start recording and start study
- if) No)–□thank the participant for their t

ANNEXURE II

QUESTIONNAIRE FOR PATIENTS

ID Number ……

City/District……

Demographic Data Questionnaire

1. Gender : Male ☐ Female ☐
2. Age :
3. Highest level of education :
4. Occupation :
5. Monthly income (Thousands) : □ <10 □ 10-15 □ 16-20 □ 21-25

   □ >25
6. Number of family members :
7. Type of Physical problem :

Telehealth related questionnaire:

1. How many times you have taken this telehealth service?

   □ Only once □ 2-3 □ above □

2. How did you get to know about this service?

   □ From the DPO member's □ advertisement □ relatives/ neighbor

3. Have you faced any problem while coming to the centre?

   □ No □ Yes ……. Specify ……

4. What difficulties you have experienced during service execution?

   ☐ Equipment/ Electicity problems ☐ Network problem ☐Language barrier

   ☐ Non cooperation ☐ Nothing ☐ Others ...Please specify ... .

5. What are the main potential barriers in effectively receiving this service?

☐ Nothing ☐ Communication ☐ Financial ☐Uncomfortable

☐ Language barrier ☐ Others: Please specify: ……

6. In which way the service have benefited you?

7. Where do you feel more comfortable?

☐ Direct consultancy ☐ Telemedicine

8. How to improve this service?

9. Are you satisfied by the management/ work of the providers of this centre?

☐ No ☐ Yes

10. How much effective was the prescription by the doctors to you?

☐ Very effective ☐ Satisfactory ☐ Poor ☐ Not at all

11. Would you continue to use this service?

No ☐ Yes ☐

12. How would you rate the overall quality of the telemedicine services?

☐ Excellent ☐ Good ☐ Fair ☐ Poor

Thank you for your time to take part in this interview!

QUESTIONNAIRE FOR PROVIDERS

ID Number ……

City/District……

Demographic Data Questionnaire

1. Gender : Male ☐ Female ☐
2. Age :
3. Experience :
4. Level of education :
5. Salary : :
6. Type of Physical problem :

Telehealth related questionnaire

1. Do you think this organization has sufficient equipments to execute the service?

☐ No ☐ Yes ☐ Moderately

2. Do you face any difficulty/ies during service execution?

☐No ☐Yes ☐Electricity problems ☐Computer problem ☐Network problem ☐Others

3. Do you know all rules and regulation related to this service?

☐ No ☐ Yes ☐

4. Did you get any training regarding this service?

☐ No ☐ Yes ☐

5. In your opinion, which factors are obstacles to maintain the quality of this service?

6. In your opinion, how the service could be more fruitful?

7. How do you collect the patients?

Thank you for your time to take part in this interview!!

১। পদবী ঃ পুরুষ /মহিলা

২। বয়স ঃ

৩। অভিজ্ঞতা ঃ

৪। শিক্ষাগত যোগ্যতা ঃ

৫। সম্মানী ঃ (হাজারে) ☐ < ২০ ☐ ২০-৩০ ☐ > ৩০

<u>টেলিসেবা সঙ্কান্ত প্রশ্নাবলীঃ</u>

১। আপনার মতে প্রতিষ্ঠান টিতে এই সেবা দেবার জন্য যথেষ্ট প্রয়োজনীয় বাবস্থা আছে কি না ?

উঃ ☐ হ্যাঁ ☐ না , বিশেষভাবে উল্লেখ

.....

২। সেবা চলাকালীন সময়ে কোন যান্ত্রিক সমস্যার সম্মুখীন হন কিনা ?

উঃ ☐ না ☐ হ্যাঁ ☐ বিদ্যুৎ বিভ্রান্ত ☐ কম্পিউটার ☐ নেটওয়ার্ক /নেট লাইন ☐ অন্যান্য

৩। সেবা জনিত সকল বিষয় ও নিয়ম নীতি আপনার জানা আছে কিনা ?

উঃ ☐ হ্যাঁ ☐ না

৪। আপনি এ বিষয়ে কোন প্রশিক্ষণ পেয়েছেন কিনা ?

উঃ ☐ না ☐ হ্যাঁ , কত দিনের .....

৫। কোন বিষয়গুলো এই সেবার গুণগত মান রক্ষায় বাধা দেয় বলে আপনার ধারণা?

উঃ

৬। কিভাবে সেবাটি আরও ফলপ্রসূ করা যায় বলে আপনার ধারণা?

উঃ

৭। কিভাবে রোগী সম্মনয় করেন ?

উঃ

পরিচয় নম্বর :
জেলা/
উপজেলা:

জনতাত্তিক বিষয়ক প্রশ্নাবলী ঃ

১। লিঙ্গ ঃ পুরুষ/ মহিলা

২।বয়স ঃ

৩। শিক্ষাগত যোগ্যতা ঃ

৪। পেশা ঃ

৫। মাসিক আয় (হাজারে) ঃ □<১০ □ ১০-১৫ □ ১৬-২০ □ > ২০

৬। পরিবারে সদস্য সংখ্যা ঃ

৭। শারীরিক সমস্যার ধরন ঃ

দৃষ্টিভঙ্গি বিষয়ক প্রশ্নাবলীঃ

১। আপনি কতবার এই সেবাটি নিয়েছেন?

□এক বার □২-৩ বার □তিন এর অধিক

২। আপনি কিভাবে এই সেবা সম্পর্কে জেনেছেন ?

□ডপিও মেম্বার □প্রচারণা □প্রতিবেশী/ আত্মীয়

৩। কেন্দ্রে আসার সময় কোন সমস্যার সম্মুখিন হন কি?

□হ্যাঁ □না □ বিশেষ ভাবে উল্লেখ

৪। সেবা চলাকালীন সময়ে কি সমস্যার সম্মুখিন হন?

□কম্পিউটার/ বিদ্যুৎ □ট লাইন ভ□া বোঝতে বুঝতে অস□যাগিতা □ অন্যান্য □কিছুই না

৫। সেবা গ্রহনের প্রধান বাধা সমুহ কি কি ?

৬। এই সেবা কিভাবে আপনাকে উপকৃত করেছে ?

৭। আপনি কোন সেবাতে বেশী স্বাচ্ছন্দ্য বোধ করেন?

□সরাসরি □টেলি সেবা

৮। কিভাবে এই সেবা কে আরও কার্যকর করা যায়?

৯। কেন্দ্রের সেবা দাতাদের ব্যাবহার / কাজে আপনি সন্তুষ্ট কিনা?

□হ্যাঁ □ না

১০। ডাক্তার দের বাবস্থাপত্র আপনার জন্য কতখানি উপকারি ?

□বেশ উপকারি □সন্তোষজনক □ একদমি না

১১। আপনি এই সেবা নেয়া অব্যাহত রাখবেন কি ?

□হ্যাঁ □ না

১২। এই সেবার সামগ্রিক মানকে আপনি কিভাবে বিচার করবেন ?

□খুব ভাল □ভাল □মোটামুটি □খারাপ

ধন্যবাদ