

# Telemedicine: A Natural Evolution of Obstetric and Gynaecological health Care System of Bangladesh during COVID-19 Pandemic

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## Abstract:

**Background:** The word Telemedicine literally translates to 'healing at a distance'. Here remote diagnosis and treatment of patients is done by means of telecommunication technology. First published record of telemedicine is in the first half of the 20<sup>th</sup> century when ECG was transmitted over the telephone line. In Bangladesh telemedicine was not so popular as patients prefer face to face visit to a medical practitioner. But in Covid-19 Pandemic to prevent transmission and Lock down situation telemedicine becomes popular and emerges as a natural evolution of Obstetrics and Gynaecologic health care system in Bangladesh.

**The Aim of the study:** To see the outcome of patients taking telemedicine for their Obstetric and Gynaecologic problems. The reasons of seeking consultation through telemedicine are also studied.

**Materials and Methods:** This is a Cross sectional prospective study done during Lock down period in Bangladesh. Study period was 27<sup>th</sup> March to 20<sup>th</sup> May. Total 201 women got telemedicine service free of cost via sms, messenger, imo, whatsapp, email using smart phone were included in this study. The data was collected, edited and tabulated by hand tabulation. Calculation was done on scientific calculator.

**Results:** About 96.51% patients suffering from Obstetrics and Gynaecological diseases were cured by taking medicine, counselling and assurance through telemedicine. Majority of pregnant women(23.88%) sought telemedicine service for consultation about advice regarding diet, medicine, anxiety about ANC visits. 2.48% women were worried about Tetanus Toxoid vaccine. Women (.99%) suffering from Gynaecological diseases such as Fibroid uterus, Uterine Prolapse were seeking for operation. 3.48% women suffering from DUB and managed by medication. Only 3.48% patients were required to refer to Hospital for Emergency admission.

**Conclusion:** Telemedicine can't give solution to all problems, but it definitely helps in managing women suffering from Obstetric and Gynaecological diseases at a large extent especially during awkward situation like Covid 19 pandemic.

## Introduction:

World Health Organization(WHO) has defined telemedicine as, the delivery of healthcare services, where distance is a critical factor, by all healthcare professionals using information and communication technologies for the exchange of valid information for diagnosis treatment and prevention of disease and injuries, research and evaluation, and for the continuing education of healthcare providers, all in the interests of advancing the health of individuals and their communities.<sup>1</sup> The word "telemedicine"

literally translates to 'healing at a distance'.<sup>2</sup> The use of medical devices to monitor a patient's health from afar introduces a new level of convenience for both patient and provider. It can serve to supplement in-person visits, creating a more comprehensive treatment plan.

## Historical Perspective:

Earliest published record of telemedicine was in the first half of the 20<sup>th</sup> century when ECG was transmitted over telephone lines.<sup>1</sup> The first known record of real time video consultation occurred in

1995 by the Doctors at University of Nebraska used interactive telemedicine to transmit neurological examinations.<sup>3</sup> In disaster management, NASA first used telemedicine services during the 1985 Mexico City earthquake and 1988 Armenian earthquake and made a mark in history. In the year 1997 NASA established a commercial space center named MITAC (Medical information and Technology Application Consortium) at Yale University which begins the current trend of using telemedicine in private participation in public health management.<sup>4</sup>

### **Modern Telemedicine:**

Use of wireless broadband technology has become more advanced and mobile phone and internet is widely used nowadays.<sup>5</sup> Patient education with images and videos, transfer of medical images like X-rays and scans, and real-time audio and video consultations became a reality. Improvement in internet infrastructure such as bandwidth communication speeds made e-health and telemedicine stress-free and cost effective. The recent telemedicine practices reduce travel expenses, saves time, reduces medical costs, provides easier access for the common man to specialist doctors without disrupting their daily responsibilities. It also makes the life of healthcare providers easy by decreasing the load of missed appointments and cancellations, increasing revenue and patient load and improving follow up and health outcomes.<sup>6</sup> Stepping into 21<sup>st</sup> century, various national and international organizations like the American Telemedicine Association, Washington DC, have been set up –which are solely dedicated to provision of telemedicine services.<sup>7</sup> The technology involved in telemedicine allow providers and patients to be almost anywhere, this is one of the key factors in providing quality health care to the needy.

### **Telemedicine in Bangladesh:**

First telemedicine was initiated by Swinfen in 1999, which established a link between CRP in Dhaka and a senior medical consultant abroad. In 2008, sim operator company, Banglalink, launched digital health service. And in 2016 another operator company Grammephone also started the same service. Ministry of health and family welfare launched an official call center named “health center 16263” on 2016. Telemedicine is not so popular as in developed country, people prefer face to face doctor consultation but due to COVID-19 pandemic large institutions like

IEDCR, BSMMU, private hospital and individual consultant are providing telemedicine.

### **Management of Obstetric and Gynaecological Diseases during Covid 19 Pandemic**

According to ACOG(American College of Obstetrics and Gynaecology) and OGSB(Obstetrical and Gynaecological Society Bangladesh) have given a Guideline in management of Obstetric and gynaecological diseases to prevent Covid 19 transmission. They recommend reduction of Face to face ANC visits and encourage the pregnant woman to stay at home and seek for Telemedicine consultation. Pregnant women are advised to go Hospital only in Emergency situation like P/v bleeding, PROM, Labour pain, APH etc. The routine Gynaecological operations are also withheld. Medical management are preferred instead of Surgery.

### **Types of Telemedicine:**

Telemedicine can be classified into 5 basic types:

According to the timing of the information transmitted:

- Real time or synchronous telemedicine.
- Store-and-forward or asynchronous telemedicine.
- Remote monitoring type of telemedicine.

According to the interaction between the individuals involved:

- Health professional to health professional.
- Health professional to patient.

### **Materials and Methods:**

In Bangladesh, first COVID patient was detected in 8<sup>th</sup> March 2020. To prevent disease transmission Government declared lockdown from 27<sup>th</sup> March, so people were encouraged to stay home and stay safe. By using smart phone apps video conferencing, SMS, through email, a patient suffering from obstetric and gynaecological disease could consult with me through telemedicine from anywhere and anytime. OB/GYN specialists were nominated by OGSB for online free consultation during the Lockdown period.

### **Study Design:**

This was a Cross-sectional, prospective observational study done in Dhaka, Bangladesh. From 27<sup>th</sup> March to 20<sup>th</sup> May 2020 during lockdown period due to COVID-19 pandemic. Total 201 patients suffering from obstetric and gynaecological diseases are consulted through telemedicine.

**Results:**

**Table-I**  
*Pregnant Women Seeking Consultation during 1<sup>st</sup> trimester*  
*n=201*

Sl#	Cause	No. of Patients	Percentage
1.	Patient consult for treatment after urine pregnancy test +ve	16	7.96%
2.	S/S Threatened abortion	14	6.96%
3.	Termination of unplanned pregnancy (by MRM/MTP)	16	7.96%
4.	S/S Incomplete abortion	16	7.96%
5.	Changes of medicine from 1 <sup>st</sup> trimester to 2 <sup>nd</sup> trimester	12	2.98%
6.	Ectopic Pregnancy	2	0.99%

**Table-II**  
*Pregnant Women Seeking Consultation during 2<sup>nd</sup> trimester*  
*n=201*

Sl#	Cause	No. of Patients	Percentage
1.	Advice and Anxiety about ANC visit	48	23.88%
2.	Worry about T.T vaccination	10	2.48%
3.	Pregnancy with UTI	12	5.97%
4.	Pregnancy with Loose motion	1	0.49%
5.	Pregnancy with mild fever	1	0.49%
6.	Pregnancy with suspected Covid-19	1	0.49%

**Table-III**  
*Pregnant Women Seeking Consultation during 3<sup>rd</sup> trimester and PNC*  
*n=201*

Sl#	Cause	No. of Patients	Percentage
1.	Planning of place and mode of delivery	33	16.41%
2.	Pregnancy with labour pain and	1	0.49%
3.	APH	1	0.49%
4.	38 Weeks Pregnancy with less F.M	1	0.49%
5.	35 Weeks Pregnancy with False pain	1	0.49%
6.	About contraceptive during PNC	1	0.49%
7.	Secondary PPH following NVD	1	0.49%

**Table-IV**  
*Seeking Consultation of Women suffering from Gynecological diseases*  
*n=201*

Sl#	Cause	No. of Patients	Percentage
1.	AUB	8	3.98%
2.	Infertility	7	3%
3.	Known fibroid, prolapse, seeking for operation	2	0.99%
4.	Menopausal hot flush	1	0.49%
5.	Vaginal Candidiasis	1	0.49%
6.	Known case of severe Endometriosis	1	0.49%
7.	Fused labial adhesion	1	0.49%

**Table-V**  
*Outcome of Patients after getting Telemedicine*  
*n=201*

Sl#	Cause	No. of Patients	Percentage
1.	Relieved by taking medicine and assurance by consultation	194	96.50%
2.	Referred to hospital for emergency admission	7	3%

Following Patients advised to take emergency admission:

- 1.0 38 weeks pregnancy with H/O LUCS with labour pain
- 2.0 APH-1
- 3.0 Ectopic pregnancy-2
- 4.0 38 weeks pregnancy with less FM-1
- 5.0 Secondary PPH-1
- 6.0 Pregnancy with fever with suspected Covid-19-1



### Discussion:

The result of the study shows that 96.51% patients are cured by counseling, assurance and drugs by consultation through Telemedicine. Study of WR HERSH et al shows that in self-monitoring/testing telemedicine for the areas of Pediatrics, Obstetrics, and clinician-indirect home telemedicine, there is evidence that access to care can be improved when patients and families have the opportunity to receive telehealth care at home rather than in-person care in a clinic or hospital.<sup>8</sup>

Another study done by Carlo J et al among 80 women of GDM (40 getting telemedicine and 40 control) hypothesized that there was increased contact and feedback that the enhanced telemedicine system with its new functionality, ease of use, and improved access would increase rates of transmissions among women in the intervention group, leading to better maternal glucose control and fewer adverse pregnancy outcomes.<sup>9</sup>

As the Covid 19 is a recent situation and the Publications are limited, so the all variables of the study do not match with the other studies. This study shows that 7.96% women seeks for consultation for termination of unplanned pregnancy during COVID-19 pandemic. 6.96% and 7.96% women have suffered from threatened abortion and Incomplete abortion respectively. According to a report published based on the estimates of UNFPA, there could be about 7 million unintended pregnancies across the globe due to the coronavirus pandemic, which may lead to thousands of deaths from unsafe abortion and complicated births because of the lack of access to emergency services. Also, one of the main concerns that may emerge are skyrocketing cases of gender-based violence.<sup>10</sup>

Majority of pregnant women (23.88%) seek consultation due to anxiety about ANC visit, 2.48% women are worried about Tetanus Toxoid Vaccination, 16.41% women are anxious about place

and mode of delivery as their EDD are coming closer. Study by Varshney M et al shows that Overall approximately one third of respondents had significant psychological impact (IES-R score > 24).<sup>11</sup>

In case of different Gynaecological problems such as women who are known case of Fibroid Uterus and Uterine prolapse are seeking for operation (.99%). But, as there is chance of transmission of Covid 19, they are advised to wait for operation. Study by Sophie M et al shows the impact of delayed surgical intervention for women with fibroids due to the COVID 19 pandemic and the resulting adverse effects on their mental and physical health.<sup>12</sup>

### Conclusion

Telemedicine cannot be the answer to all problems but it can be very important in addressing a vast range of problems. Telemedicine can do wonders in the field of healthcare. Telemedicine has an important role in the situations like COVID19 pandemic. Due to lack of knowledge about the new technology, both by the public and the professionals many are holding it back. The need for telemedicine is imperative now more than ever.

### References:

1. Telemedicine-Opportunities and developments in member states [Internet] 2nd ed. Geneva, Switzerland: WHO press; 2010. [cited 2019 Feb 1]. Available from: [https://www.who.int/goe/publications/goe\\_telemedicine\\_2010.pdf](https://www.who.int/goe/publications/goe_telemedicine_2010.pdf). [Google Scholar]
2. Snell M.(2019 Apr 01 ) 5 ways Telehealth is taking Modern healthcare to the next level.Available from:<https://healthtechmagazine.net/article/2019/04/5-ways-telehealth-t...>
3. Marilyn J. Field, Telemedicine: A Guide to Assessing Telecommunications in Health Care. Washington, D.C.: National Academy; 1996. [PMC free article] [PubMed] [Google Scholar]
4. A Brief History of NASA's Contributions to Telemedicine [Internet]. NASA. [cited 2018 Dec 01]. Available from: <https://www.nasa.gov/content/a-brief-history-of-nasa-s-contributions-to-telemedicine/>
5. Serper M. Current and future applications of telemedicine to optimize the delivery of care in chronic liver disease. Clin Gastroenterol Hepatol. 2018;16:15761. [PMC free article] [PubMed] [Google Scholar]
6. J Family Med Prim Care.2019 Jun;8(6): 1872-1876.
7. Home-ATA Main [Internet]. Americantelemed.org. [cited 2019 Feb 01]. Available from: <http://www.americantelemed.org/home>.
8. W R Hersh, J A Wallace, P K Patterson, S E Shapiro, D F Kraemer, G M Eilers, B K Chan, M R Greenlick, and M Helfand. Telemedicine for the Medicare population: pediatric, obstetric, and clinician-indirect home interventions; Evid Rep Technol Assess (Summ). 2001 Aug; (24 SUPPL): 1–32
9. Carol J. Homko, R.N., Ph.D., C.D.E.,<sup>1,2,3</sup> Larry C. Deeb, M.D.,<sup>4,5</sup> Kimberly Rohrbacher, R.N., C.D.E.,<sup>4</sup> Wadia Mulla, M.D.,<sup>3</sup> Dimtrios Mastrogiannis, M.D.,<sup>3</sup> John Gaughan, Ph.D.,<sup>6</sup> William P. Santamore, Ph.D.,<sup>6</sup> and Alfred A. Bove, M.D., Ph.D.<sup>1</sup> Impact of a Telemedicine System with Automated Reminders on Outcomes in Women with Gestational Diabetes Mellitus; Diabetes Technol Ther. 2012 Jul; 14(7): 624–629. doi: 10.1089/dia.2012.0010
10. Angela Betsaida B. Laguipo, BSN (2020 August 2). There could be 7 million unplanned pregnancies because of COVID-19; available from: <https://www.news-medical.net/news/20200802/There-could-be-7-million-unplanned-pregnancies-because-of-COVID-19.aspx>
11. Varshney M, Parel JT, Raizada N, Sarin SK (2020) Initial psychological impact of COVID-19 and its correlates in Indian Community: An online (FEEL-COVID) survey. PLoS ONE 15(5): e0233874. <https://doi.org/10.1371/journal.pone.0233874>
12. Sophie M. Strong Zwelihle Magama, Michail Sideris, Funlayo Odejinmi (2020 August 7) Waiting for myomectomy during the COVID 19 pandemic: The vicious cycle of psychological and physical trauma associated with increased wait times; <https://doi.org/10.1002/ijgo.13340>