



Cellphone Based Remote Consultation in Reproductive Endocrinology and Infertility: A Covid-19 Pandemic Experience

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Abstract

Background: There was a difficult time of COVID-19 pandemic and lockdown. People around the country were forced to stay home. Hospitals were deeply concerned about managing the exposure to COVID-19 virus. **Aim of the study:** To evaluate the cellphone based remote consultation in reproductive endocrinology and infertility. **Material & Methods:** The observational cross sectional study was carried out in the Department of Reproductive Endocrinology & Infertility for about 6 months from July 2020 to December 2020. Following approval of Institutional Review Board of Bangabandhu Sheikh Mujib Medical University, we decided to call the patients who had attended our consultation from 1st January 2020. The Department of Reproductive Endocrinology & Infertility attends every working day approximately 50-60 new patients of infertility and related problems of reproductive endocrinology in outdoor. The COVID-19 pandemic halted the interaction of the patients with us for indefinite period. Remote consultation with cell phone was applied to maintain the continuity of care of the patients. Statistical Package of Social Sciences (SPSS) version 22 was used for quantitative analysis. **Results:** A total of 965 calls were made, of which 222 were answered. Almost half (55.4%) of the patients were non-compliant with the drugs prescribed to them before the pandemic. The common reasons for non-compliance were pregnancy, lockdown or indecision of the patients whether to continue. Presenting complaints like abdominal pain, abnormal uterine bleeding and others were present in 10.8% women. Pregnancy was reported in 14.41% women, mostly following ovulation induction and optimization. Among the patients 83.33% had no problem with comprehensibility, 89.94% was satisfied absolutely with remote consultation and 77.48% was willing to pay for remote consultation. Experience of cell phone based consultation regarding adequate communication, patients' involvement and respect for patients' values were assessed on Likert scale 1-3: most were satisfied. The consultants' experience regarding whether the remote consultation was helpful to counsel about health issues, dealt things which mattered most and allowed shared decision making as to what to do next was assessed on Likert scale 1-5: the experience was mostly satisfactory. **Conclusion:** In conclusion, cell phone based remote consultation of patients with reproductive problems is largely satisfactory for the patients as well as the consultants.



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INTRODUCTION

There was a difficult time of COVID-19 pandemic and lockdown. People around the country were forced to stay home. Hospitals were deeply concerned about managing the exposure to COVID-19 virus. People were worried, they did not know what to do and where to go if they had health problems. The infertile couples who had our regular service no longer could avail the usual consultation, procedures or surgeries. We were not comfortable with many patients crowding our department. We had the cell phone numbers of the patients recorded along with the diagnosis at the time of consultations. So we could call them at the numbers, ask about their current status regarding infertility management, their concern about corona virus pandemics, consult according to their needs and also receive their calls during fixed hours in the morning. We could then evaluate the experience. Telemedicine means remote clinical services provided by healthcare professionals through real time or asynchronous both way communications by electronic audiovisual means. Ranging from simple telephone to video calls, it includes electronic transfer of documents and images as well.^[1] Telemedicine has widely been used in radiology, pathology and dermatology, also for educational purpose such as teleconferencing and tele-proctoring.^[2] Cell phone based remote consultation, either as an adjunct or an alternative to standard care can improve outcomes in gynecological care. For the women with polycystic ovary syndrome who need support for behavioral change, the

women with endometriosis who need long term management of recurrent symptoms, or the women from remote areas who seek fertility treatment from the centers with expertise, telemedicine based on cell phone can be a blessing. Telemedicine can reach people over a wide geographical area who are not accessible otherwise. When talking about very personal and painful experiences, telephone conversations appear to be more effective and preferable. There are few studies on application of telemedicine in reproductive medicine, none from Bangladesh. The objective of the study was to explore the experiences of both patients and consultants with cell phone based remote consultation for infertile patients during COVID-19 pandemic.

MATERIALS AND METHODS

The observational cross sectional study was carried out in the Department of Reproductive Endocrinology & Infertility for about 6 months from July 2020 to December 2020. Following approval of Institutional Review Board of Bangabandhu Sheikh Mujib Medical University, we decided to call the patients who had attended our consultation from 1st January 2020. The Department of Reproductive Endocrinology & Infertility attends every working day approximately 50-60 new patients of infertility and related problems of reproductive endocrinology in outdoor. The faculty, assisted by trainee consultants, everyday consult around 15-20 infertile couples or adolescents with



reproductive problems who already have basic investigations and diagnosis. During these consultations their cell phone numbers are recorded along with their diagnosis. The couples have to visit us repeatedly to go through different steps of treatment and procedures until they achieve pregnancy. The COVID-19 pandemic halted the interaction of the patients with us for indefinite period. Remote consultation with cell phone was applied to maintain the continuity of care of the patients. Four consultants called the patients and received calls for fixed hours (10 am to 12 am) in the morning. They inquired about their concerns about corona pandemic and infertility problems. The consultants were practicing gynecologists, postgraduate FCPS (Fellow of the College of Physicians and Surgeons of Bangladesh) in Obstetrics and Gynecology, having sub-specialty training in Reproductive Endocrinology and Infertility. They assessed the patients for Covid-19 infection or other health problems related to Reproductive Endocrinology and Infertility on the basis of symptoms. They were provided with a set of instructions for cell phone based consultations including small talk to establish rapport, use active listening with supportive vocalization, picking up on cues, offer opportunities to ask questions, summarize and repeat back etc. Drugs could be prescribed through small message service if needed. They inquired them about compliance with the treatment given, counseled them about their problems and made a shared decision for the future course of action. Semi-structured interview of the patients were conducted over cell phone. The call duration was noted. Follow up calls to those outside Dhaka city were made after the lockdown was withdrawn. This time four separate consultants made the calls. Satisfaction surveys of the patients and the consulting gynecologists were made using

Likert scale 1-3 for patients and Likert scale 1-5 for the consultants. The questions were modified from Mourad SM et al^[3] and Elwyn G et al.^[4] Statistical Package of Social Sciences (SPSS) version 22 was used for quantitative analysis. We interviewed the consultants for qualitative analysis of their experiences.

RESULTS

A total of 965 patients were called from our centre by the cell phone numbers they provided during previous consultations. Two hundred and twenty two patients were reachable. Many women provided the number of their husbands or relatives, some of them left Dhaka and started living in their home districts. Of the persons reachable, three refused to talk. They were the husbands of women who disdained the call of a male gynecologist. A total of 222 women were included in the preliminary analysis. When enquired about the known Covid-19 cases among them, Covid positive cases or Covid like symptoms, either in themselves or their friends or relatives, were reported by four women. Women who were compliant with drugs previously prescribed at the time we called comprised 55.4% (n=123). The causes of non-compliance as specified by the patients are listed in table II. Twenty four women (10.4%) had physical complaints during the call. The types of presenting problems are enumerated in table III. Mean duration of call was 2.58 ± 0.87 minutes. Pregnancy was found in 32 (14.41%) women. One got pregnant with treatment outside our center. Four pregnancies ended in abortion, one was ectopic pregnancy. The treatments leading to pregnancy are listed in table IV. The problem in understanding cell phone based consultation by the patients, their satisfaction with cell phone based consultation and their attitude towards

payment for cell phone based consultation was assessed with Likert scale. The interpretation is graphically presented by pie charts in figures (I-III). The experience of the patients from distant areas and the experience of the consultants about the cell phone based remote consultation are graphically represented as stacked bar-charts in figures (IV-V). The consultants were asked about any difference in the cell phone based remote consultation from face to face consultation. Many women were not reachable. Many provided cell phone number of the husbands and relatives for record, so could not be reached directly for talk. Husbands received phone calls in many cases; sometimes they were reluctant to talk because they were otherwise busy. Some declined to talk, because they were frustrated with treatment results. Many sought consultation with local doctors. There were isolated cases where the call was received by the husband and by the mother in law who did not know about the treatment with us at Bangabandhu Sheikh Mujib Medical University. One of the consultants was a male gynecologist who reported that some husbands sounded suspicious and not very happy talking. But the women were more receptive of the calls: some who knew the consultant beforehand were happier to talk. The apparent problems during consultation as reported were as follows. There was no eye contact. The other side could not always comprehend what was said. Important points could have been missed as papers were not available. Repeat calls had to be made in some cases to clarify points. The patients could not specify the details and the name of drugs satisfactorily. The consultants had to follow ques. There was difficulty in following prescription and reports. None of the patients used video call or apps like Whats app, Imo or Facebook Messenger. Many patients did

not have or could not operate android phones. There were certain advantages quoted as well. Patients were more comfortable with the one to one consultation, more open about their inner feelings. There was more concentration as only one patient on the other side, compared to the consultation room in the hospital shared by more than one patient and more than one consultant. Consultation was more precise and less time consuming as it was predominantly checklist based. Male patients with male factor appeared more comfortable to talk on phone than in person. When the consultants were asked about any major technical problem, occasional network disturbances were reported. They felt it would be easier to consult if previous medical information were digitally available at hand. When asked if an optimal combination of younger and more experienced support staff will be helpful for telemedicine service, the response was that communication skill of the consultants was more important. The consultants were asked to comment on how to build a cost effective model to keep the remote consultation working. Remote consultation would be more effective if it was supported by the digital records of the patients, kept and updated to be available online at the time of consultation. Couples who are at the initial stage of consultation were not sure about their problems. Older patients were more aware of their problems and more eager to talk. Some patients were depressed because of failure of treatment, some were happy because they got pregnant. A cost effective model can be built for remote consultation for selected cases, like if the patient wants to know if to continue drugs or not or to talk about untoward side effects. The patients input, remote sonogram or investigation reports may not be reliable. A cost effective

model of remote consultation may not be possible in all cases. People may be more willing to pay if they can talk with the faculty. More distant the areas where the

women reside, more willing they are to accept cell phone based remote consultation including video call.

Table I: Background Characteristics of the patients (n=222)

Characteristics	Values
Age in years (mean,SD)	28.01±4.84
Residence n (%)	34.2
Dhaka city	34.2
Nearby districts	31.5
Remote districts	
Level of education n (%)	
Higher (University)	31.9
Others	68.02
Duration of infertility in year's n (%)	
< 2 years	18.0
2-5 years	31.1
> 5 years	50.9
Pending treatment stages n (%)	
Optimization	44.6
Tubal evaluation by hysterosalpingography	14.0
Tubal evaluation by laparoscopy	8.6
Ovulation induction	21.6
Ovulation stimulation & intrauterine insemination	6.8
Preparation for in vitro fertilization	2.3
Reproductive surgery	2.3

Table II: Causes of non-compliance with the drugs we prescribed

Causes of non-compliance (n=99)	Values n (%)
Pregnancy	32.32
Corona pandemic	36.36
Indecision	35.35
Pending laparoscopy, OI,IUI,IVF	10.10
Changed consultant	4.04
Drugs unavailable	8.08
Drugs costly	4.04
Side effects of drugs	1.01
Husband abroad	3.03

Table III:Presenting complaints at the time of our call

Presenting complaints (n=25)	Values n (%)
Abdominal pain	52
Endometriosis	28
Unspecified cause	12
Pelvic inflammatory disease	4
Back-pain	4
Obstructive mullerian anomalies	4
Abnormal Uterine Bleeding	36
Infrequent menstruation	12
Amenorrhea	12
Prolonged menstruation	8
Heavy menstrual bleeding	4
Sexual dysfunction	8
Weight gain	4

Table IV: Fertility treatments leading to pregnancy (n=32)

Treatments	Values n (%)
Optimization	36
Laparoscopy	6.2
Ovarian stimulation	43.7
Intrauterine insemination	9.4
Not specified	12.5

Figure I: Perception of the patients about remote consultation

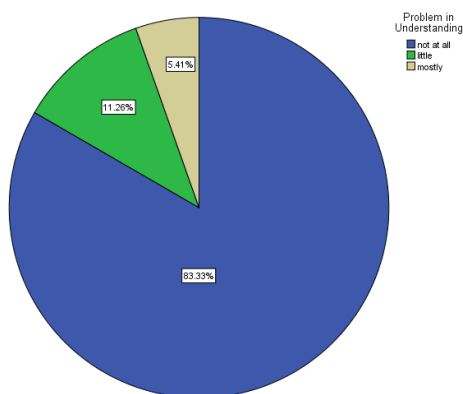


Figure II: Satisfaction of the patients with cell phone based consultation

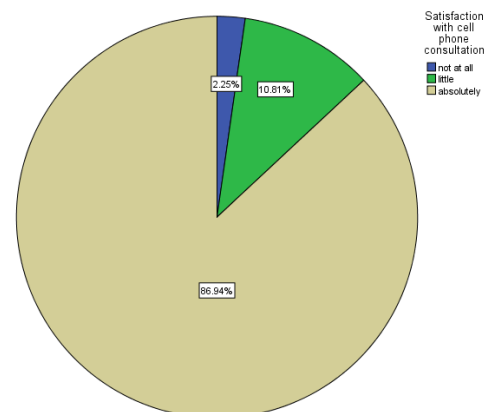


Figure III: Attitude about payment for cell phone based consultation

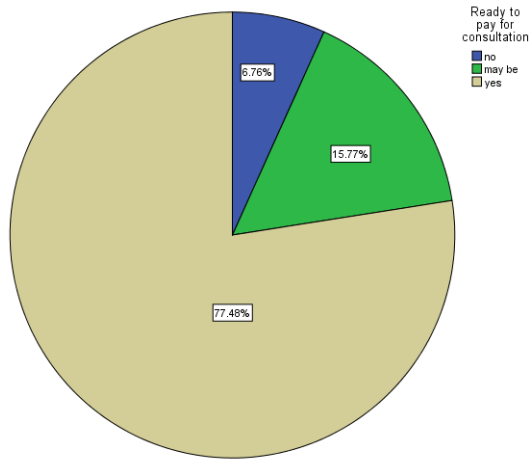


Figure IV: Experience of the patients from distant areas about remote consultation

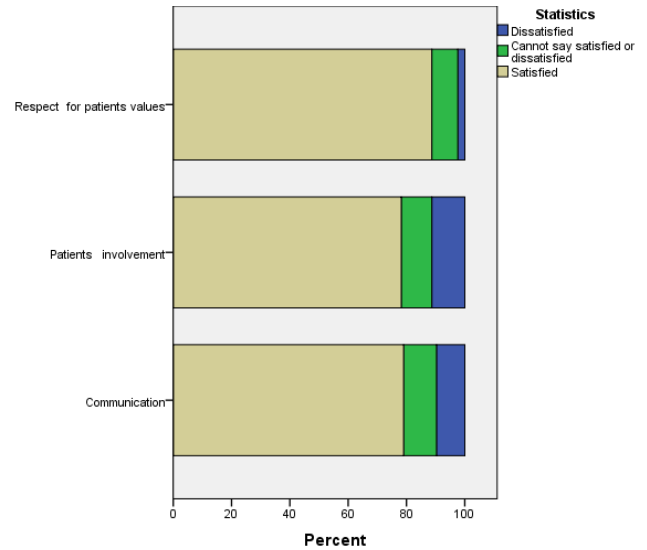
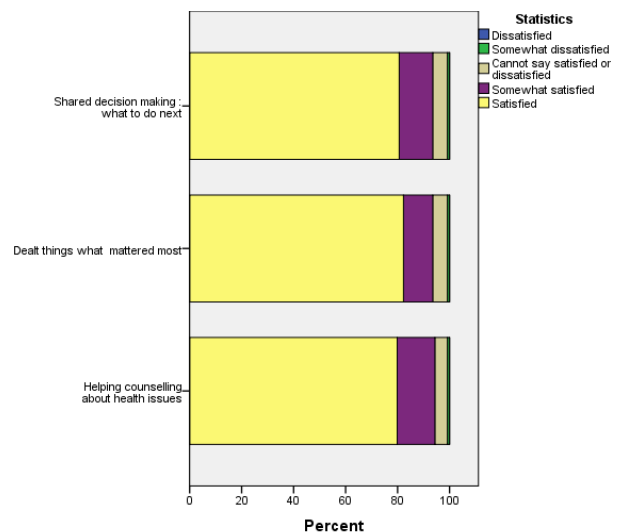


Figure V: Experience of the Consultants about the remote consultation



DISCUSSION

The cross sectional observational study was undertaken to explore the effectiveness of cell phone based remote consultation for the patients who attended the Department of Reproductive Endocrinology and Infertility in the three months preceding the lockdown for Covid-19 crisis. Almost half (55.4%) of the patients were non-compliant with the drugs

prescribed to them before the pandemic. Presenting complaints like abdominal pain, abnormal uterine bleeding and others were present in 10.8% women. Among the patients 83.33% had no problem with comprehensibility, 89.94% was satisfied absolutely with remote consultation and 77.48% was willing to pay for remote consultation if needed. Regarding experience of cell phone based consultation, the



consultants were mostly satisfied. A specialized official service of COVID-19 telephone hotline and smartphone app was opened in January 2020 in Western China which by March 2020 provided consultation to 1094 patients from 137 clinicians.^[5] Before COVID-19 outbreak, around 50 large healthcare systems in USA had integrated telemedicine services. Many of them offered free telemedicine screening for COVID-19 since March 2020. Crowded hospitals risked transmission of COVID-19 infection. Telemedicine enabled continuity of care for patients and discouraged non-essential visits to doctors and hospitals. Routine follow up outpatient visits for chronic diseases were managed through telemedicine. Alibaba launched a teleconsultation service for all Chinese people living overseas from doctors who experienced the pandemic in Wuhan, China.¹ The government of India had guidelines for the telemedicine practice to aid continued delivery of healthcare service during pandemic.^[2] Similar hotlines were opened by Directorate General of Health and Family Welfare, Sheikh Mujib Medical University in Bangladesh. Many commercial web-based platforms and private clinics launched reimbursed video consultation with provision for exchanges of investigation reports, images and prescriptions. Telemedicine has been used in different disciplines of clinical practice. As to the conditions treated by female pelvic medicine and reproductive surgeons, behavioral, medicinal and conservative management are possible as first line virtual treatments. Similar patient satisfaction can be achieved by virtual visits through education, active listening and shared decision making.^[6] Telemedicine can be applied to physical rehabilitation medicine. However absence of devices, bad connection, and human diffidence to technology are the

barriers reported.⁷ Telehepatology may be helpful for evaluation of patients for liver transplantation by triaging them from referral to evaluation and listing without much delay. Patients with psychosocial barriers to transplantation can be identified earlier.^[8] Telemedicine can reduce the loss to follow up among geriatric and psychiatric patients. Through telemedicine doctors are able to continuously identify and manage the patient's conditions.^[9] Most postoperative video visits could adequately replace in person postoperative visits in Urology. Telephone visits were reimbursed as well as video visits during the pandemic. This is because all patients did not have access to the necessary devices for video calls.^[10] The online platform Fertility Consult was evaluated by a pilot study which reported that the patients were satisfied with the independent, well prepared, web based advice and the professionals felt that the patients were properly advised without loss of quality. However they felt the need to explore the ways of separating advice and treatment.¹¹ The use of telephone is the simplest form of telemedicine. Video calls and other applications augments the service.^[5] Remote patient management helps self-management and shifts responsibilities to non-clinical providers at home for those with chronic health conditions. Cost reduction is achieved by the reduction in the use of emergency departments and hospitals, and the expenditure of commuting and waiting for in patient visits.^[12] The telemedicine reduced the number of patient visits, eased the overcrowding and allayed worry among patients with chronic diseases.^[5] New patients may benefit less from telemedicine because patient provider bond is not established. Telemedicine is not appropriate when patients require discussion about serious illness and end of life conversation.^[8]

With the onset of COVID-19 pandemic a substantial number of outpatient visits of patients with non-urgent conditions has been clinically managed efficiently from the distance. It has been possible due to the almost universal availability of smart phone. Except for physical examination, quality of care is equivalent to in- person care. Care should be taken not to compromise patients' safety by any means.^[13] A previous study on the socio-demographic profile of the couples attending our service reveals that 64.13% of women had 10 years of education or less, 35.35% of the women were from low and 37.37% of the women were from middle socioeconomic condition.^[14] The findings explain why a large number of women were not reachable with the cell phone. This probably excludes a large proportion of patients who have socioeconomic and educational disadvantages in utilizing the technology appropriately and brings in an unintentional bias in the results. The women within Dhaka city could not be included in satisfaction survey as many of them started to attend the hospital after cessation of strict lockdown. So the results are biased towards women living in distant areas. Moreover the satisfaction level may not be the same when the curve flattens in the pandemic or clinical activities return to pre-pandemic state. The

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professionals can provide service from the department, patients can communicate with doctors they can trust. The patients can have some consultations which are not limited by travel distance or overhead cost. A cell-phone based remote consultation service can replace at least a proportion of hospital visits by the patients. Further studies comparing remote with face to face consultation including patients who are visiting can be planned.

Limitations of the study:

This was a hospital based study. Sample size was limited and follow-up period were short in comparison to other studies. So, the result of the study may not reflect the exact picture of the whole country.

CONCLUSION

Cell phone based remote consultation of patients with reproductive problems is largely satisfactory for the patients as well as consultants. There is future for this service with reimbursement for selected conditions at some levels of treatment and follow up. However socioeconomic and educational disadvantage in technological behavior is a barrier to the widespread acceptance of this service.

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