

Knowledge, Attitude & Practice among psoriasis patients in India towards tele dermatology during COVID-19 Pandemic.

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Abstract:

Background: The current COVID-19 pandemic has imposed upon the entire community norms of social distancing and home quarantine. Follow up consultations in these times can be made through tele dermatology through smart phones. Success of this technology in these hours of crisis depends upon the knowledge, attitude and behaviour of patients towards tele dermatology. Follow up consultations done through teleconsultations will decrease risk of exposure to COVID-19 among psoriasis patients who need frequent follow ups.

Aim: The main objective of this study is to assess the awareness, knowledge, attitude and practice of tele dermatology through tele dermatology among psoriasis patients at a tertiary care teaching hospital.

Materials and Methods: A cross-sectional survey, from Psoriasis Clinic registry maintained in the outpatient department of DVL of a tertiary care teaching hospital in India is conducted. A pre-validated self-administered questionnaire is used for the survey to assess knowledge, attitude and practice of tele dermatology. Analysis will be done as per study objectives using descriptive statistics for quantitative data and content analysis for qualitative data.

Results: Out of 150 patients, 87(58%) were males and females were 63(42%). Most common age group to participate in the study was 36-45 years- 43(28.7%). Majority of participants were educated up to –graduate 53(35.3%). Males had higher knowledge and attitude scores compared to females. Most of the patients found using teleconsultations easy and convenient.

Conclusion: Tele dermatology is the need of the hour to be implemented in these hours of COVID-19 pandemic.

Key Words: tele dermatology; psoriasis; COVID-19

Introduction:

A novel coronavirus named severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) was reported causing the disease known as COVID-19 in December 2019. As of June 19th, 2020, there have been 195 countries affected with 8.24 million cases and 446,000 deaths [1]. In India, every state has been affected and as of June 18th there were 381,000

cases with 12907 deaths [1]. A significant rise in case numbers is expected in the coming weeks.

The Ministry of Health and Family Welfare (MoHFW) of India suggested implementation of several changes to curb spread of the corona virus [2]. Lockdown measures are considered the main factor in a decline in transmission from a median daily reproduction rate of 2.66 to 1.05 within

a week [3]. Clinics, private hospitals are closed, OPDs are shut down and reduced to emergency cases, temperatures recorded on entry, wearing masks and having travel histories recorded and telemedicine is being implemented. Doctors are mandated to wear full PPE [4]. Due to the unprecedented nature of this pandemic there is uncertainty among dermatologists regarding the precautions to be taken during consultations.

During these hours of crisis, telemedicine is a boon which can be used by practitioners for consultations. It reduces risk of acquiring novel corona virus, reduces travelling during lockdown times and makes healthcare easily accessible. The WHO definition of Telemedicine is as 'The delivery of health care services, where distance is a critical factor, by all health care 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 health care providers, all in the interests of advancing the health of individuals and their communities [5]. The term is an umbrella term that includes tele-health, electronic medical records, e-health and other components of health information technology [6]. It is seen as a potential means of overcoming the growing shortage of health practitioners in developing countries [7]. There are 3 primary modes: Video, Audio, or Text (chat, messaging, email, fax etc.) Each one of these technology systems has their respective strengths, weaknesses, and contexts, in which, they may be appropriate or inadequate to deliver a proper diagnosis [5]. An android app that can deliver both real time video consultation RT-TD (through video and/or audio chat) and asynchronous store and forward SAF (patient can send the picture and/or text, and the dermatologist can reply at a convenient time). Successful implementation of any new technology depends on factors like the knowledge of the concept, attitude and practical implementation by the concerned professionals. In these times of COVID-19 and the need for social distancing, not many patients are familiar with tele dermatology and this can serve as an interface between patients and dermatologists.

Psoriasis is an immune mediated genetically determined chronic dermatological disorder which affects skin, nails, joints and has various systemic associations. There is evidence that the disease is associated with a high impact on the health-related quality of life and considerable cost. In India, incidence of psoriasis was found to be ranged between 0.44%-2.3% [8-10].

Patients with psoriasis need constant follow up. Especially those on systemic treatment with drugs such as methotrexate, cyclosporine, acitretin etc or those on biologics need regular check-ups and regular monitoring of few biochemical parameters. The current COVID-19 pandemic has imposed upon the entire community norms of social distancing and home quarantine. Follow up consultations in these times can be made through Tele dermatology. Success of this technology in these hours of crisis depends upon the knowledge, attitude and behaviour of patients towards teledermatology.

Materials & methods:

Study design & sites: The study is a questionnaire based cross sectional analysis. 150 patients diagnosed with psoriasis, recruited from the outpatient department of dermatology, venereology & leprosy of a tertiary care hospital at Hyderabad, India were included in the study. The sample included patients with psoriasis diagnosed clinically, histopathologically or by both means seeking treatment in the outpatient department with at least one year since initial diagnosis. Those not willing to participate in the study, those unable to answer the questionnaire were excluded from the study.

Questionnaire Design: A pre-tested structured, trilingual questionnaire was developed to investigate key research questions comprised of both open- and close-ended questions. The questionnaire was divided into 6 main categories including demographic information, socio economic information, general knowledge about COVID-19, questions about knowledge, questions about attitude and questions about practice. To assess knowledge, attitude & practice 5 questions in each section were asked. Cut of ≥ 3 was taken as good knowledge. Consent was taken from each patient in google forms and institutional ethical committee clearance was also obtained.

KAP Score: To calculate KAP a scoring system was prepared. Each correct answer was coded as 1 while each incorrect answer was coded as 0. In practice session, components with better practice obtained a higher score upto 5 while respondents with poorer practice received lower scores. The final score for each category was then divided in quartiles. Four categories of knowledge, attitude and practice were outlined according to the score obtained by each respondent. Good knowledge and good practices cut off was ≥ 3 for maximum score of 5; attitude was marked on Likert scale 1-5 with total score of 25 where cut off of ≥ 12 was taken as positive attitude. The Cronbach's alpha test value was found to be 0.603 with mean inter item correlation value of 0.171 for this KAP scale on reliability analysis.

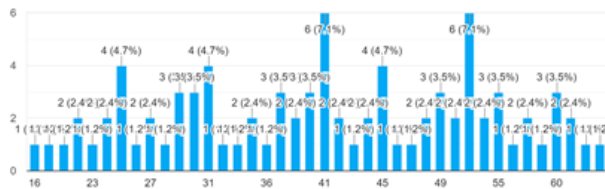
Statistical analysis:

The collected data was entered in the statistics package for social science (SPSS) version 22 for Windows. All continuous data were expressed as mean (\pm SD), and categorical variables were expressed as numbers and percentages. Descriptive statistics and frequency distributions were used to describe participant characteristics. For variables with greater than two categories, one-way analysis of variance ANOVA was used to compare means. To reconfirm the predictor variables- Binary logistic regression analysis was used to measure various outcomes such as knowledge about COVID-19, Telemedicine, their practices and attitudes.

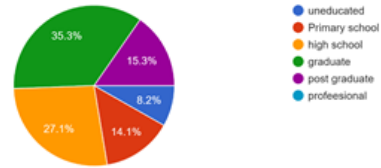
Results:

A total of 150 patients were included in the study. Out of them, 87(58%) were males and females were 63(42%). Most common age group to participate in the study was 36-45 years- 43(28.7%) followed by 46-55 years- 36(24%). Majority of participants were educated upto -graduate level 53(35.3%). The mean duration of psoriasis was 7.43 \pm 5.46 years. 83(55.3%) patients had comorbidities like Diabetes mellitus, obesity, hypertension and hyperlipidaemia.

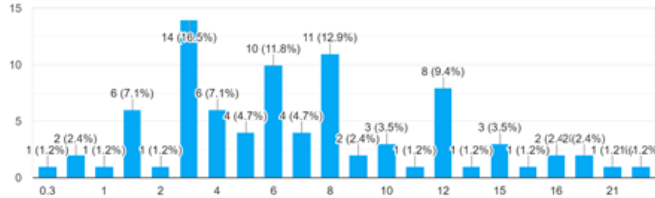
Age
85 responses



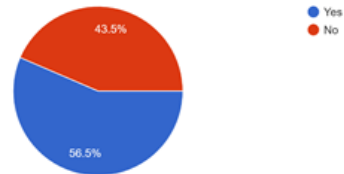
Education level
85 responses



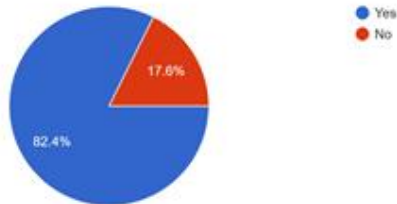
For how many years have you been suffering from psoriasis?
85 responses



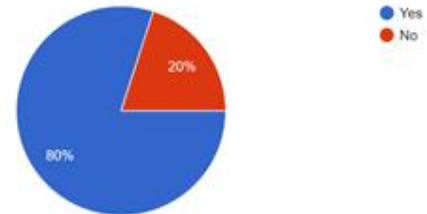
Do you have any comorbidities (High BP, diabetes, obesity, High cholesterol) that need regular follow up visits to the hospital?
85 responses



1) Are you worried about getting the Corona Virus?
85 responses



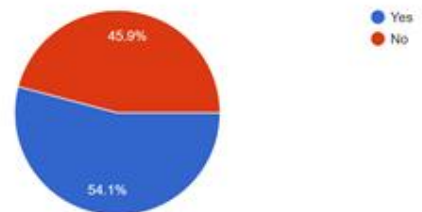
2) Are you maintaining social distancing and hand hygiene?
85 responses



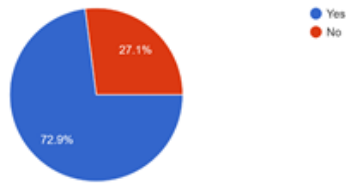
3) Do you think the lockdown is useful in preventing spread of Corona virus?
85 responses



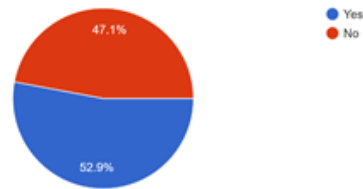
4) Do you think most of the patients with Corona virus have mild symptoms?
85 responses



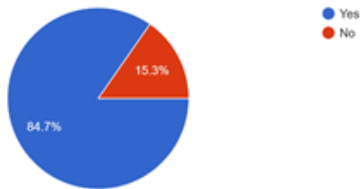
5) Do you think the course of COVID-19 could be devastating?
85 responses



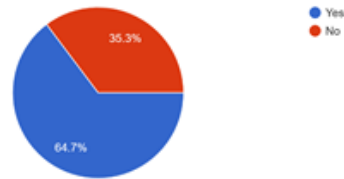
1) Are you aware about Teledermatology?
85 responses



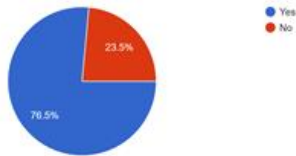
2) Are you aware about course of the psoriasis?
85 responses



3) Are you regularly using the medications even though you cannot come for follow up because of lockdown
85 responses



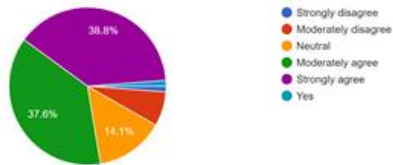
4) Do you think Psoriasis worsens/ relapses if you do not come for regular follow up visits?
85 responses



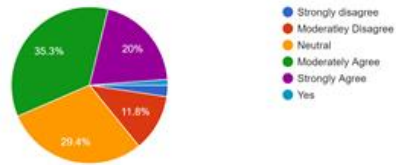
5) Do you think teledermatology consultations for follow up during COVID crisis are useful?
85 responses



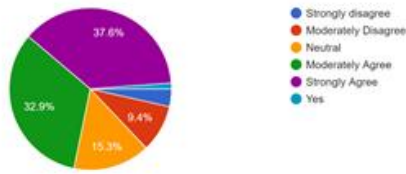
1) You are entirely responsible for taking proper skin care while suffering from Psoriasis.
85 responses



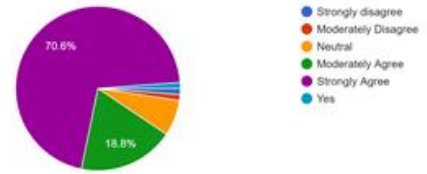
2) Comorbidities (high BP, Diabetes, Obesity etc) will worsen the psoriasis prognosis.
85 responses



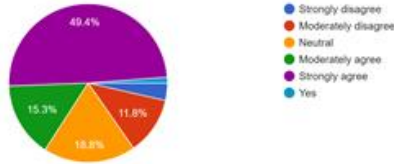
3) The COVID crisis and social distancing influenced your family members / friends behaviour towards you.
85 responses



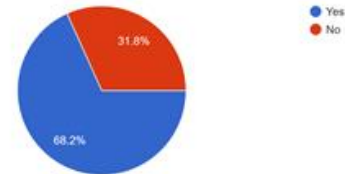
4) Tele consultation is better than direct consultation in COVID crisis.
85 responses



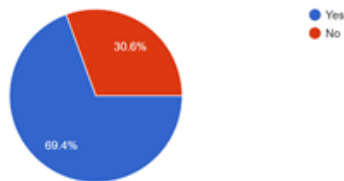
5) You are satisfied if the doctor does not examine you personally.
85 responses



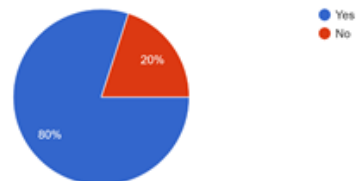
1) Do you frequently come for follow up visits to the hospital?
85 responses



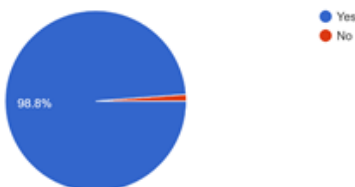
2) Do you take prescribed medicines/ apply creams, lotions regularly?
85 responses



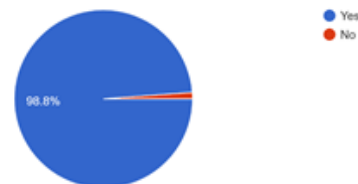
3) Did you find using the teleconsultation app easy?
85 responses



4) Do you think tele consultations save your time?
85 responses



5) Does the teleconsultation decrease your chances of exposure to Corona virus?
85 responses



Knowledge about COVID-19 Score: The maximum knowledge score was 5. The mean score was 3.88 and standard deviation (SD) was 0.810. The study indicated that 103(68.7%) of participants had good knowledge regarding COVID-19. About 79.9% (n=119) of participants were worried about acquiring the corona virus. 120(80.5%) were maintain social distance and hand hygiene. 145(97.3%) think that the lockdown is useful in preventing the spread of corona virus. 80(53.7%) - think that most of patients with COVID-19 will have mild symptoms and 111(74.5%) think that the course of COVID-19 could be devastating. The study indicates that males 69(67%) had higher knowledge than females 34(33%). The patients in 36-45 years of age group had better knowledge

31(30%). Patients educated up to graduate level 39 (37.9%) had better knowledge compared to others.

Knowledge about Tele dermatology score: The maximum score in this category was 5. 76(51%) of patients were aware about tele dermatology. 124(83.2%) of patients were aware about the course of psoriasis. 96(64.4%) of patients reveal that they have been regularly using medications during lockdown even though they cannot come for regular follow up visits. 116(77.9%) of patients think that the course of psoriasis will worsen if they do not come for regular follow up visits. 141(94.6%) of patients think that tele dermatology consultations are useful for follow up visits during COVID-19 crisis. Figure 1.

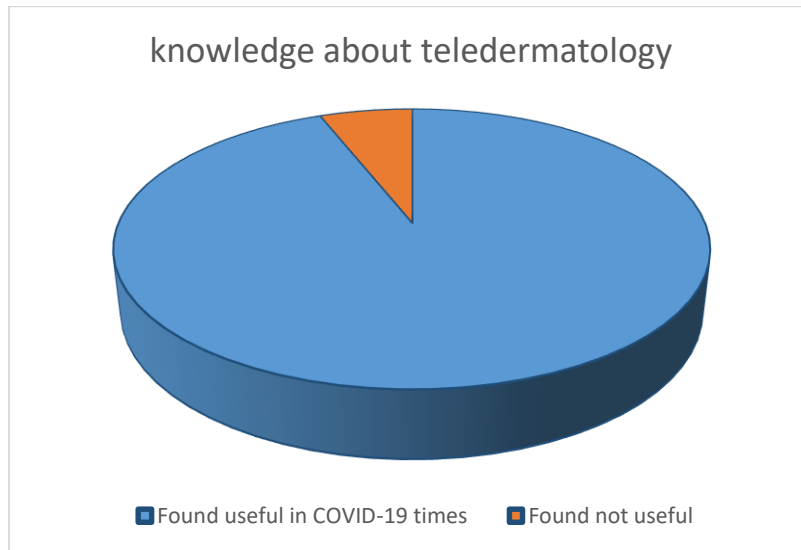


Figure 1

Males had higher knowledge 67(67.7%) about tele dermatology and its benefits during COVID-19 crisis. 36-45 years of age group 27(27.3%) of patients had better knowledge in comparison to other groups. Graduate level of educated patients had good knowledge 42(42.4%) about COVID-19 and advantages of tele dermatology during lockdown period.

Attitude Score: The maximum score was 25 for 5 questions on attitude. 60(40.3%) of patients took the entire responsibility of psoriasis skin care upon themselves. 51(34.2%) of patients moderately agreed and 47(31.5%) were neutral that their comorbidities will worsen the course of psoriasis. 55(36.9%) of patients strongly agreed and 49(32.9%) moderately agreed that the influence of family and friend’s behaviour towards them was influenced by COVID-19 crisis and social distancing. Almost 99(66.4%) strongly agreed that tele consultation is better than direct consultation during the COVID-19 crisis. Strongly agreed were 67(45%) and 31(20.8%) were neutral and 25(16.8%) moderately agreed that they were satisfied if the doctor does not examine them personally. It

can be noted that 36-45 years of age group and male gender is associated with positive attitude.

Practice score: The maximum practice score was 5. 102(68%) of psoriasis patients reported that they would frequently come for follow up visits, 105(70%) took prescribed medicines, applied creams, lotions regularly. 117(78%) found using the tele consultation app easy. 148(98.7%) reported tele consultations saved their time, avoiding travelling. And 148(98.7%) reported decreasing chances of risk of exposure to corona virus due to tele consultations. Figure 2. On one-way ANOVA we found statistically significant association of sex and education with knowledge related to COVID-19, knowledge about tele dermatology, their practices and attitude where males had higher mean score and as education increased the score also increased. Table 1 and Table 2. Attitude mean scores were found to be insignificant. This was reconfirmed with binary logistic regression analysis using Enter method. Table 3

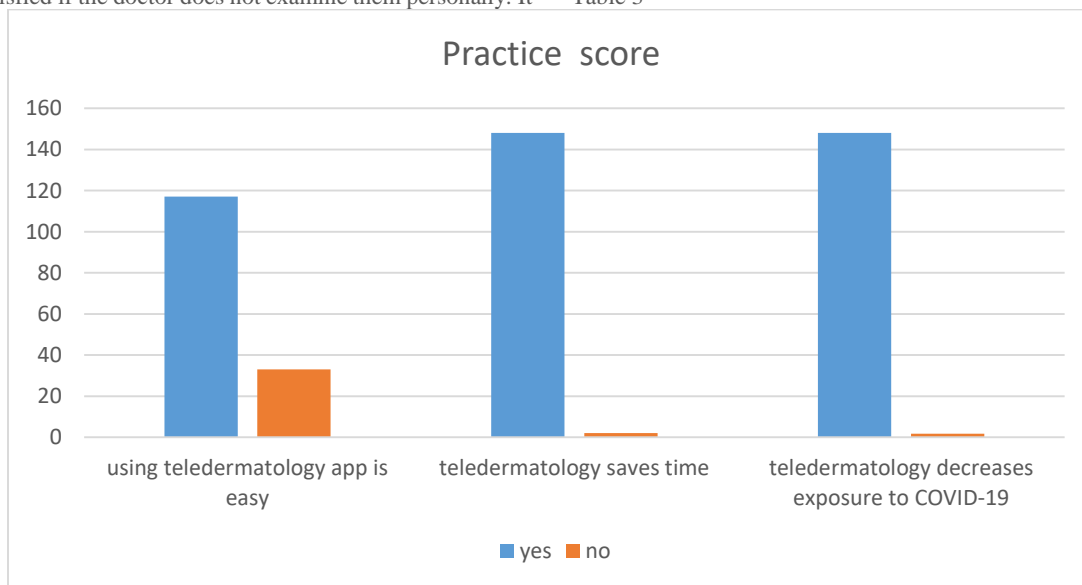


Figure 2: Practice score

Sex	Mean scores of knowledge about COVID-19	p-value
Male	4.03±0.798	

female	3.66+ 0.782	0.006
	Mean scores of knowledge about tele dermatology	
Male	3.89+0.928	0.008
female	3.46+1.059	
	Mean scores of attitude	
Male	20.22+2.438	0.041
female	19.30+3.082	
	Mean scores of practice	
Male	4.52+0.775	0.0001
female	3.58+1.252	

Table 1: One-way ANOVA between knowledge, attitude, and practices with sex

Education	Mean scores of knowledge about COVID-19	p-value
Uneducated	3.84+0.898	0.046
Primary	3.40+0.502	
High school	3.90+0.632	
Graduate	3.94+0.969	
Post graduate	4.12+0.740	
	Mean scores of knowledge about tele dermatology	
Uneducated	3.38+0.767	0.026
Primary	3.30+0.571	
High school	3.60+1.007	
Graduate	3.83+1.13	
Post graduate	4.16+0.91	
	Mean scores of practices	
Uneducated	3.61+1.19	0.0001
Primary	2.75+0.91	
High school	3.95+1.06	
Graduate	4.62+0.76	
Post graduate	4.79+0.58	

Table 2: One way ANOVA between knowledge, attitude and practices with education

Variables	Outcome	Odds ratio	p-value
Educational level	Knowledge about telemedicine	1.939	0.002
Sex	Knowledge about COVID-19	0.411	0.039
Educational level	Practices regarding tele dermatology	2.515	0.0001
Sex		0.275	0.007

Table 3: Binary logistic regression analysis predicting the socio demographic variables with various outcomes

Discussion:

No study was found assessing the Knowledge, Attitude and Practices (KAP) of teledermatology among psoriasis patients during COVID-19 crisis. Thus, it was difficult to compare the current results with others.

The results showed that participants with better knowledge also had a better attitude score. In the practice section, 78% found using the app easy. Inadequate knowledge regarding spread of corona virus tends to decrease awareness and may lead to poor practices leading to increased risk of acquiring the virus. Good knowledge about teledermatology, and

better attitude decreases chances of patients’ risk of exposure to corona virus.

It was found that males are more knowledgeable about teleconsultations than females. Subgroup analysis revealed that age and educational level were significantly associated (p < 0.05) with knowledge and experience with teleconsultations. In the current study it is noted that knowledge and attitude improved with age. Respondents with a lower age or with a higher educational level had more often heard of the term tele dermatology or its applications and were more likely to have experience with online apps. Similar results were observed in a study on Knowledge, use and attitude

towards eHealth among patients with chronic lung diseases by Hofstede et al [11].

Good knowledge of COVID-19 was significant among psoriasis patients, who had higher socioeconomic status. This finding was consistent with study by Hofstede et al [11]. This could be explained by the fact that participants with higher socioeconomic status have better access to education and alternative private check-ups without waiting for conservative treatment facilities in the health system. In the current study, controlling other variables, educational status had a significant association with good knowledge. This might be because educated participants are able to read necessary information easily compared to the illiterates.

Majority of patients had no previous experience with telemedicine. This finding is like a study conducted by Jayakody et al [12]. In the current study, duration of psoriasis was a significant predictor of practice. This may be due to regular counselling and contact with health professionals.

It was also observed that among female patients, follow up visits were not regular, treatment routine and self-care was poor. This could be because of elderly female patients' limited access to health care. Females were not maintaining social distancing and hand hygiene during lockdown. This could be because of overburden due to increase in work at home, pressure to meet demands of all family members who are at home due to lockdown.

The COVID-19 crisis and social distancing had further added to the stigma faced by psoriasis patients who are treated as untouchables by some family members.

Evidence suggests that regular follow up visits are a core part of the treatment of psoriasis [13]. Patient education is the most constructive track that could assist with early detection, lessen the complications, and assist with the management of psoriasis. This study reemphasized the fact that properly designed and implemented telemedicine apps would be fruitful for patients with psoriasis. Provided complete information on COVID-19 characteristics, healthcare professionals could effectively implement tele dermatology, according to the psoriasis patients' needs who need regular follow ups due to chronic course and frequent relapses. Proper implementation of lockdown measures and effective maintenance of social distancing and hand hygiene go a long way in preventing transmission of novel corona virus among patients.

Conclusions:

The COVID-19 pandemic proved that telemedicine and teledermatology which were just an option before are indeed essential in crisis times. As most of the patients do not have the facility of computers, laptops and internet to have teledermatology consultations, we are implementing teledermatology through a unique android app. As most of the patients

have smart phones with 4G/3G internet facilities, using tele consultations and follow up visits would be tested for simplicity and convenience. Widespread use of smartphones and android/iOS apps; ease of use; increased availability of health care professionals; reduced need for travelling; decreased exposure to the corona virus are all the advantages that make patients with chronic dermatological problems who require regular follow ups choose teledermatology as the preferred means of consultations. Widespread propaganda will help teledermatology penetrate deeper among society and will soon emerge as the most convenient means of consultations.

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