

Perception of Tele-dermatology Consultation among Social Media Users

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Abstract

Introduction: Tele-dermatology is significant for faster delivery of health care particularly in geographically isolated areas.

Objectives: To know the perceptions of tele-dermatology consultation among social media users in terms of impact, their willingness to pay for the consultation and the barrier they may have during the consultation.

Materials and Methods: An exploratory cross-sectional study was done on 360 social media users online regarding impact (time and cost), willingness to pay and the barriers of tele-dermatology consultation by using the questionnaire.

Results: Participants believed the services to be time saving (91.7%) and cost effective (89.2%). Majority (70.3%) were willing to pay for services and 30.8% agreed NRs.400 fee and 37.2% agreed NRs.200 fee. Those willing to pay less than NRs 200 felt "services not being 100% reliable (59.3%), OPD price being cheaper (48.1%), saving doctor's time too (38.3%), Wi-Fi and mobile data also cost (22.2%) and transportation fee could not be accounted to the doctor's fee (13.6%)". While participants not willing to pay any money responded as the services not being 100% reliable (60.7%) and preferred to visit OPD for consultation (47.7%) if paying the price. The barrier in using tele-dermatology were dissimilarity from face-to-face interaction, poor networking in rural area, unavailability of physical examination, low camera quality leading to misdiagnosis and not convenient for multiple lesions.

Conclusion: The impact of tele-dermatology in terms of cost and time is appreciable. However, for better service implementation the barriers of the participants, needs to be evaluated.

Keywords: Dermatologist; Perception; Tele-medicine

Introduction:

Tele-medicine is an emerging medical practice that uses telecommunication for the exchange of medical information between health care provider and patient situated far apart.¹ Recently, virtual dermatological care has grown exponentially, making tele-dermatology a common discipline in telemedicine.² There are advancement in context of dermatology because it is more of a visually based specialty and is considered using credentials of telemedicine to a greater degree.³ Tele-dermatology is imperatively 'dermatology at distance' to widespread the reach of a dermatologist to those in need.⁴ Tele-dermatology is delivered through three modalities – Real time, store-forward, and mixed interaction which is a hybrid of the two.^{4,5}

Tele-dermatology may be a useful alternative where specialized dermatological assistance is not available.

It has been accepted by patients and practitioners alike.⁶ Still, risks of malpractices, misdiagnosis due to poor photo quality and incomplete history and requirement of high-quality technology are challenging the implementation of the services.⁷ Tele-dermatology is found to be practiced mostly in European and North American countries.⁸ In 2016, 102 tele-dermatology programs were active in USA.⁹

Due to recent growth of information technology in Nepal, tele-dermatology nationalization seems a real possibility.¹⁰ Hence, in this study we tried to identify the individual's willingness to pay for the services, the impact they feel and the barriers they face in tele-

Date of Submission: June 27th 2022

Date of Acceptance: September 1st 2022

Date of Publication: October 1st 2022

How to cite this article

Poudel S, Pokharel S, Agrawal S, Marahatta S. Perception of Tele-dermatology Consultation among Social Media Users. *NJDVL* 2022;20(2):56-59 <https://doi.org/10.3126/njdvl.v20i2.46816>



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Funding: None

Conflict of Interest: None

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dermatology so that it might help in planning further steps for its implementation in the future.

Materials and Methods:

This study was a community-based explorative study done on social media users. It was carried out in social media platform from 13th April 2019 to 2nd May 2019 over the duration of 28 days. The sample size of the study was 360 and purposive sampling method was used. We prepared a semi-structured questionnaire under direct supervision of the subject experts considering points relevant to local context. It had been validated by pre-testing on 40 participants. The questionnaire focused on the impact of tele-dermatology in terms of cost and time in which we asked closed questions if they felt the services are cost effective and time saving; willingness to pay for the services if they would pay for the services or not, if denied we asked reasons comprising multiple responses, and if agreed we asked the amount they would pay and reason if they were to pay less than 200. The participants were asked about barriers they might witness and it included answers in multiple responses. We used different social media platforms to contact the participants. The participants were people in our friends list in the social media, and other people in circle of those friends and so on. Interview was taken online through social media after taking a verbal consent. The study population comprised of any social media user with age greater than 13 and expressing consent for the interview. However, subjects with age 13 and less, those denying consent for participation and those living abroad were excluded. The study was approved from the Institutional Research Committee at BP Koirala Institute of Health Sciences, Dharan. Data entry was done in Microsoft Excel and SPSS v11.5 was used for statistical analysis. We used descriptive and inferential statistical methods for data analysis. Descriptive statistics were presented in percentage, ratio, mean, SD and median along with presentation in graphical form. Categorical variables were analyzed with the χ^2 testor with Fisher’s exact test if at least one cell had an expected count < 5. P value <0.05 was considered to be significant.

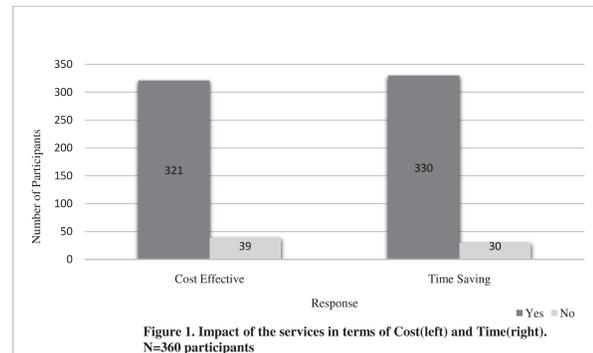
Results:

A total of 360 social media users were selected for the interview on perception of tele-dermatology consultation from all over the country. In a total of 360 participants interviewed, 236(65.6%) were males and 124(34.4%) were females. Participants of the study were from age 16 to 55 years, mean age of 25.29+/-7.62SD years. Most of the participants belonged to age group of 21-30 years.

Impact of Tele-dermatology Consultation

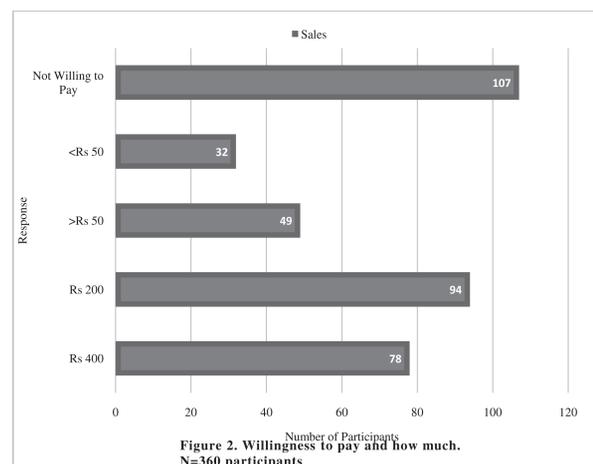
Figure 1 depicts the impact of tele-dermatology consultation. Out of 360 participants, 321(89.2%) assumed tele-dermatology consultation as cost-

effective and 330(91.7%) assumed it as time saving method. 307(85.3%) participants thought the consultation to be cost effective as well as time saving.



Willingness to Pay for Tele-dermatology Services

A brief interaction among the participants about their willingness to pay for these services (Figure 2) revealed that 253(70.3%) of the 360 individuals were willing to pay for their tele-dermatology consultation while the remaining 107(29.7%) were not willing to pay. Out of 253 that were willing to pay, only 78(30.8%) of them were willing to pay NRs. 400 for their each tele-dermatology consultation while the remaining 175(69.2%) were not willing to pay NRs. 400. Out of the 175 individuals who were not willing to pay NRs. 400, 94(53.7%) of them were willing to pay NRs. 200 while 81(46.3%) of them were not willing to pay NRs. 200. Out of the 81 individuals who were not willing to pay NRs. 200, 49(60.5%) of them were willing to pay more than NRs. 50 while 32(39.5%) of them were willing to pay only less than NRs. 50. Among the 81 unwilling to pay at least 200, 59% thought that the services would not be 100% reliable, 48% thought that the price would be greater than that of OPD charges, 38% thought that that it would save doctor’s time too, 22% thought that they also have to bear Wi-Fi and mobile data costs and 13.6% saying that the travel cost saved cannot be given to the doctor. Among the 107 unwilling to pay any amount, 60.7% thought that the services would not be 100% reliable and 47.7% thought that it is better to consult through OPD if price has to be paid.



Barriers in Tele-dermatology

The participants think that the major barrier in tele-dermatology in our country would be dissimilarity from face-to-face interaction(55.5%), examinations cannot be done through this method (55%), poor camera quality could lead to misdiagnosis (52.2%) and the services would not be convenient for multiple lesions over the body (50.8%).They also think that poor internet facilities in our country (55.3%) would be a major barrier in the implementation of tele-dermatology.

Relation between willingness to pay and independent variables:

As mentioned in table 1, most of the participants who were willing to pay for their tele-dermatology consultation fall under the age group 31-40 years but the data was not statistically significant.

Table 1. Relation between Willingness to Pay and Age

Age	Willingness to Pay		P-value
	Yes	No	
20 and under	54(21.3%)	23(21.5%)	0.792
21-30	151(59.7%)	68(63.5%)	
31-40	27(10.7%)	8(7.5%)	
41 and above	21(8.3%)	8(7.5%)	

As in table 2, male participants were more willing to pay for their tele-dermatology consultation compared to female participants and the data was statistically significant (P=0.007).

Table 2. Relation between Willingness to Pay and Sex

Sex	Willingness to Pay		P-value
	Yes	No	
Male	177(70%)	59(55.1%)	0.007
Female	76(30%)	48(44.9%)	

Discussion:

To our knowledge, this is the first study so far that evaluated the perceived willingness to pay for tele-dermatology consultation and the barriers for its use among social media users in Nepal.

Most of the participants (89.2%) perceived that the tele-dermatologyconsultation is cost-effective method compared to an in-person consultation. This result can be correlated with the previous studiesand yielded tele-dermatology as cost-savingscompared with conventional face-to-face care.^{11,12}

Similarly, most of the participants (91.7%)thought tele-dermatology consultation as a time saving method.

This result is similar to the study of AL Quran HA, Khadr, Ellauzi ZM, et. al.¹³In their study, most patients perceived the visit to the tele-dermatology clinic required less travel time, shorter waiting time and less cost than a visit to the specialist clinic at the main hospital. Tele-dermatology service ultimately saves the travel cost, travel, and waiting time so that individuals would definitely feel itsimpact.

In the present study, majority of the participants (70.3%) were willing to pay for their tele-dermatology consultation. However, out of 253 only a minority (30.8%) were willing to pay NRs. 400 for the teleconsultation, while the rest were willing to pay lesser. This result can be compared with the study of Pathipati and Justin,in which people expressed willingness to pay for the tele-dermatology services but believed that the cost should be lower than that of an in-person visit.¹⁴

Participants reported that the services not being 100% reliable and not being as efficient as an OPD were the main reasons to pay a low price or not pay any for the tele-dermatology services.

Most of the participants think that the major barrier in tele-dermatology in our country would be dissimilarity from face-to-face interaction, as physical examinations cannot be done through this method and poor camera quality could lead to misdiagnosis. They also think that poor internet facility in our country would be a major barrier in the implementation of tele-dermatology. So, these matters are to be addressed, if tele-dermatology is to be implemented in our settings.

Impact of tele-dermatology consultation among the participants reveals that, male participants have larger percentage of agreement over whether tele-dermatology services are both cost-effective and time saving approach or not.

The study on participants’ willingness to pay for tele-dermatology services reveals that, most of the participants who were willing to pay for their tele-dermatology consultation fall under the age group 31-40 years. This could be accounted to the fact that this age group is professionally active and are more influenced by the cost-effective and time saving impacts of tele-dermatology. Similarly, male participants were more willing to pay for their tele-dermatology consultation compared to female participants (P=0.007). This could be because females are comparatively more conscious and sensitive towards their skin problems and do prefer an in-person consultation, in comparison to males.

Conclusion:

As per this study, maximum of the participants was found to have faith in the services being time saving and cost-effective. Most of the participants were also willing to pay a reasonable amount for the consultation. However, a few participants who were not willing to pay a reasonable amount or not at all presumed that it is not 100% reliable and the OPD pricesare cheaper.

The major barriers in tele-dermatology were the services not being similar to face-to-face interaction, poor network facilities in the rural areas, and lack of convenience for examination and multiple lesions.

The impact of tele-dermatology in terms of cost and time seems appreciable among the participants. The willingness to pay a significant amount for the services among the participants should be taken into consideration for the effective implementation of the services. However, as majority of the participants were from urban area, we recommend further studies with

larger sample size and involving maximum people from rural areas to explore more on its facilitators and barriers might be necessary.

Acknowledgements

We would like to express our sincere gratitude to BP Koirala Institute of Health Sciences, Dharan for providing the opportunity for undergraduate students to take part in this research work.

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