

## The Rise of Tele-health Communication: Accessibility to Healthcare Services: A Systematic Review

Rupinder Flora\* and Taranjeet Parmar

Department of Medicine, University of Medicine and Health Sciences, New York, USA

\*Corresponding author: Rupinder Flora, Department of Medicine, University of Medicine and Health Sciences, New York, USA, Tel: 6614097207; E-mail: rflora2@alumni.uwo.ca

Received Date: Jul 01, 2019; Accepted Date: Jul 22, 2019; Published Date: Jul 29, 2019

Copyright: © 2019 Flora R, et al. This is an open-access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.

### Abstract

With much advancement in healthcare and technology, physicians use an electronic medical record (EMR) system to document patient encounters. Tele health is a growing phenomenon, allowing physicians to either be in a clinic or home setting when it comes to the patient encounter. The main purpose of this type of encounter is to allow wider access to patient care for people who are not able to see a physician. Examples of this are individuals residing in retirement homes, as physical or mental disability can become a limiting factor. The main goal of this study is to get a better understanding of tele healthcare with regards to access, patient satisfaction and everyday usage of this form of technology. More precisely, it is an in-depth look at how various methods, such as telemedicine can increase an individual's accessibility for seeking healthcare needs while attempting to increase patient satisfaction with healthcare services provided.

**Keywords:** Healthcare needs; Tele health; Tele medicine; Access; Quality; Satisfaction

### Introduction

Tele health, used interchangeably with telemedicine, has been defined as the concept of exchanging medical information between different physical settings through the use of electronic communication [1]. The goal of tele health is to improve patient health and increase compliance, by providing healthcare services in the comfort of a patient's home. The World Health Organization (WHO) has defined the term: 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, in all the interests of advancing the health of individuals and their communities [2]. This definition by WHO, electronic communication can be explained as video conferencing, application on the smartphone and secure messaging [3]. With appointments being pre-booked, a physician assistant travels to an underserved area with their laptop. Here, a quick history and physical exam is conducted, and then the physician is connected to the patient via telemedicine communication and discussion of treatment options occurs [3].

The Department of Health and Human Services has estimated 60% of healthcare institutes use a form of telemedicine. The same can be said about hospitals, which constitutes 50% of use of telemedicine. The Kaiser Permanente of Northern California reinforced these statistics, by stating that virtual communication was able to exceed that of interpersonal visits [4-10]. This form of healthcare services was able to fill gaps in care from physician shortages, reducing patient travel burdens, and refilling prescriptions quicker [4].

A very important part of tele health is that it can offer services to remote and rural areas for providers, while making it more convenient

for patients with mobility restrictions and chronic illness. With all this in mind, the purpose of this study is to investigate the various ways telemedicine can increase access to healthcare services for patients, along with patient satisfaction.

### Methodology

There is a plethora of information available online on tele health medicine, but we restricted our research to peer-reviewed journals to enhance the credibility of the paper. We used electronic databases PubMed, ELSEVIER and Ovid. We confined our search to studies of tele health communications, along with patient satisfaction and access to healthcare services.

#### PubMed Search Strategy:

(Tele health [Title/Abstract]) and  
(Telemedicine [Title/Abstract]) or  
(Patient Satisfaction [Title/Abstract]) or  
(Healthcare Access [Title/Abstract]) or  
(Underserved Areas [Title/Abstract]) or  
(Quality [Title/Abstract])

Limited to literature published from July 1, 2013 through January 1, 2018, English Language and Humans.

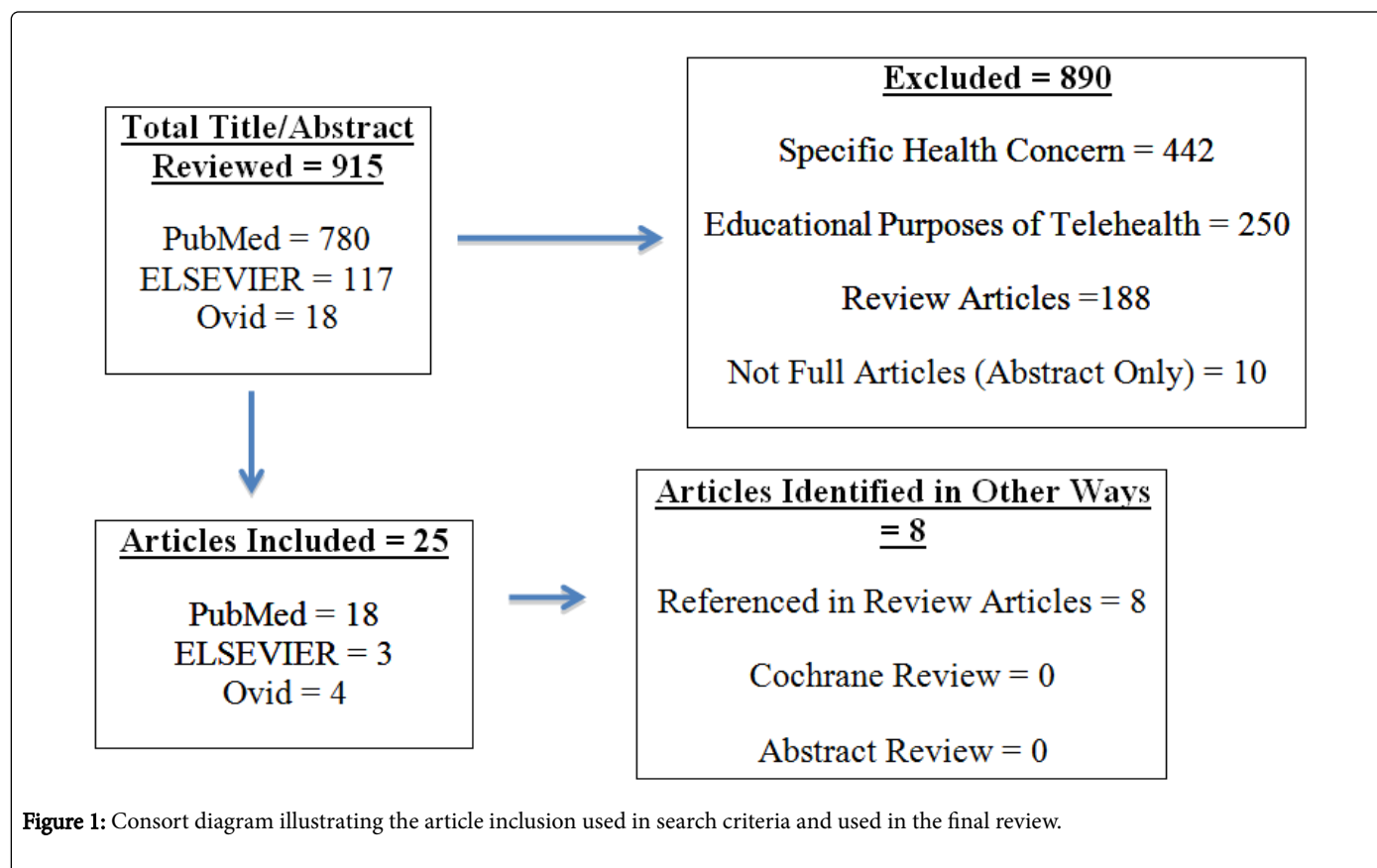
**Table 1:** Strategy Text Box: which describes the technique that was used to search for articles and to execute the tele health systematic review.

The major keywords included in our investigation are healthcare needs, tele health, telemedicine, access, quality and patient satisfaction. We retrieved thousands of articles based on these keywords and the topic and identified 915 research papers meeting initial search criteria (after removing duplicates).

<p><b>Inclusion Criteria:</b> The need of service, targeted clients, mobility restriction, chronic disease conditions, patient satisfaction, the explicit goal of the study stated, description of the population in need of care stated, conclusions consistent with results, limitations stated, with future suggestions indicated, studies conducted in North America and published between the years 2013 to 2018.</p>	<p><b>Exclusion Criteria:</b> International studies on telehealth, articles not connected to rural/remote or underserved areas, the age range of patients, studies conducted that showcased telehealth for educational programs (i.e. grand round presentations, in-service assistance).</p>
--	--

**Table 2:** Inclusion and Exclusion Criteria Text Box: aspect used in search criteria and used/not used in the final review.

However, after adjusting for remote, rural and mobility restrictions and time range and removing review articles that were not about the ways tele health helps provide healthcare to patients of various needs, it was found that few of them were appropriate for our research Figure 1.



**Figure 1:** Consort diagram illustrating the article inclusion used in search criteria and used in the final review.

## Results

We were able to analyze a total of 25 articles, mainly looking at access to tele health, patient satisfaction and the usage of tele health as a means of providing healthcare. A total of articles looked at the effectiveness of this form of healthcare services, with eight looking at patient satisfaction and four articles describing how tele health has increased in everyday medical needs. From these articles, it was found tele health (to date) has not been able to show a significant socio-economic benefit to patients and healthcare providers and systems. However, it is able to increase access to healthcare services, specifically for patients with mobility restrictions. Also, a large volume of articles was able to showcase a positive outcome for remote patient monitoring, specifically for chronic disease and behavioral health [4,11-14]. There were a total of ten articles that were able to show improvements in mortality, quality of life and a decrease in hospital admissions.

Of the eight articles indicating patient satisfaction, patients stated that they saw this form of technology as a convenient way of managing healthcare needs. In one of the retirement home tele health interventions, patients were able to experience a 57% decrease in waiting times for medical referrals and referrals to treatment initiation [4]. In another study, there was a significant increase in outpatient visits via tele health (40%) and decreased emergency room visits the following year of tele health implementation [6]. In these articles, a tele health program-providing healthcare service can increase access to healthcare, lower unnecessary costs, and allow patients to be seen sooner, while improving morbidity and mortality.

## Discussion

Tele health allows patients with mobility restrictions and who reside in remote areas to see a physician with ease in the community. In our findings, it has been found that there was a 20% increase in improved outcomes. Due to its easy usage, low cost, improved communications

and decrease travel times, more and more medical staff and patients are embracing this form of technology [1]. Another reason for an increase in everyday use is that tele health has shown to increase communication between physicians, along with decreasing missed appointments, wait times and improving treatment compliance [1,8].

Patients residing long distances from clinics and hospitals can have travel difficulties due to weather being an issue, especially during winter. Patients stated that tele health has allowed them to see a healthcare professional in their own communities [1,9,10]. This can limit unnecessary travel and expenses, for both the patient and physician. However, the use of tele health is not as widespread in rural areas as originally thought, as one-third of hospitals (both rural and urban) had a tele health program [1,3]. In these hospitals, 61.4% of those hospitals had tele health as a service in only one department. As for rural healthcare services, hospitals located here were less likely to have tele health as compared to an urban setting hospital (35.2% versus 42.1%) [1]. Another concern is how reimbursement should occur with this type of healthcare services technology. One question is whether the cost of a tele health visit is charged the same, as it would be for a face-to-face in clinic visit [1,9].

In one article, patients were 95% satisfied with the healthcare services they received from tele health. They rated it as a better experience than a traditional visit, with uninsured people more likely to recommend a tele health than the latter. Even with 80% of patients having health insurance, 41% stated that they did not have a primary healthcare provider, 95% of these patients liked the convenience of tele health [9,11,12]. This is due to the fact that many patients have busy lifestyles, thus making it harder for them to see a physician in a clinical setting [9]. With all this in mind, patient satisfaction is substantially favorable for tele health technology, thus it is the driving force for healthcare programs being associated with it.

### Limitations

Some limitations were identified during this review. One was that tele health has been in use since the early 1990s, as physicians stated it was an easier way of providing care to some patients. However, in comparison to traditional medicine, it is relatively new [5]. Therefore, only five years worth of articles were reviewed. With technology changing on a constant basis, it would be feasible for more studies on tele health to be conducted to get a better idea of where this form of healthcare is trending. Since articles published in English were only looked at, there is a possibility that our findings were not generalized on a global scale. As well, publication, small sample size, age and selection bias could have occurred, as only three search databases were looked at, with an emphasis on people with limited healthcare access [5]. This could have limited our scope in finding relative articles.

### Future Suggestions

In this paper, we have been able to showcase areas where tele health has been impactful. However, there are areas where more attention should be focused. One such area can be to explore the economic impact of tele health in association to the areas of medicine that are relying on its use. Chronic disease management in retirement homes can be significant when it comes to care in these facilities, therefore it would be beneficial to further look into. Determining if tele health is significantly beneficial to the geriatric population, a larger sample size

can show the statistical analysis with regards to treatment and when care is provided.

### Conclusion

More access to healthcare is always for the betterment of patient care and tele healthcare has proved beneficial to providing care to people who have decreased access to such services. This was further solidified with patient satisfaction. It is also an option for physicians wanting to expand their practices to people in more rural areas. However, challenges can occur, as healthcare personnel, with ever changing technology, must make adaptations. This can range from incorporating tele health into clinical workflow for better management of physician-patient relationships, which is evolving on a daily basis. This review was able to determine success rates with the use of tele health, however, until medical benefits and economic gains are determined, there are practical barriers to the widespread implementation of such means of healthcare services.

### References

1. Nelson R (2017) Telemedicine and Telehealth: The Potential to Improve Rural Access to Care. *Am J Nurs* 117: 17-18.
2. Ryu S (2010) Telemedicine: opportunities and developments in Member States: report on the second global survey on eHealth (Global Observatory for eHealth Series, Volume 2). *Healthc Inform Res* 18: 153-155.
3. Finkelstein SM, Speedie SM, Potthoff S (2016) Home telehealth improves clinical outcomes at lower cost for home healthcare. *Telemed J E Health* 12: 128-36.
4. Houser SH, Ray MN, Maisiak R, Panjamapirom A, Willing J, et al. (2013) Telephone follow-up in primary care: can interactive voice response calls work?. *Stud Health Technol Inform* 192: 112.
5. Kruse CS, Krowski N, Rodriguez B, Tran L, Vela J, et al. (2017) Telehealth and patient satisfaction: a systematic review and narrative analysis. *BMJ Open* 7: e016242
6. Zheng Y, Head B, Schapmire T (2016) A Systematic Review of Telehealth in Palliative Care: Caregiver Outcomes. *Telemed J E Health* 22: 288-294.
7. [www.ntia.doc.gov/reports/telemed/index.htm](http://www.ntia.doc.gov/reports/telemed/index.htm)
8. Naraimha S, Madathil KC, Agnisarman S, Rogers H, Welch B, et al. (2016) Designing Telemedicine Systems for Geriatric Patients: A review of the usability studies. *Telemed J E Health* 23: 459-472.
9. Polinski JM, Barker T, Gagliano N, Sussman A, Brennan TA et al. (2016) Patient Satisfaction with and preference for Telehealth Visits. *Journal of General Internal Medicine* 31: 269-275.
10. Tuckson R, Edmunds M, Hodgkin ML (2017) Telehealth. *N Engl J Med* 377: 1585-1592.
11. Young J, Badowski M (2017) Telehealth: Increasing Access to High Quality Care by Expanding the Role of Technology in Correctional Medicine. *J Clin Med* 6: 20.
12. Bashir A, Bastola D (2018) Perspective of Nurses Toward Telehealth Efficacy and Quality of HealthCare: A Pilot Study. *JMIR Med Inform* 6: e35.
13. Tabak M, Brusse-Keizer M, van der Valk P, Hermens H, Vollenbroek-Hutten M, et al (2014) A telehealth program for self-management of COPD exacerbations and promotion of an active lifestyle: a pilot randomized controlled trial. *Int J Chron Obstruct Pulmon Dis* 9: 935-944.
14. Ekland A, Bowes A, Flottorp S (2010) Effectiveness of telemedicine: A systematic review of reviews. *Int J Chron Obstruct Pulmon Dis* 79: 736-771.