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Viewpoint: Strategic Insights and a Scoping Review of Telehealth Platforms and SWOT Analysis of Amazon's Clinical Endeavors

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Abstract

The adoption of telehealth services has surged in the wake of the COVID-19 pandemic, revolutionizing traditional healthcare delivery models. Amazon Clinic's nationwide launch marks a significant milestone in this trend. We aim to offer a SWOT (Strengths, Weaknesses, Opportunities, and Threats) analysis of Amazon Clinic and compare its features with leading virtual healthcare platforms.

Amazon Clinic capitalizes on its vast consumer base, transparent pricing, and AI-driven intake for efficient healthcare. The competitive landscape features established healthcare providers and other telehealth platforms like CVS Minute Clinic and Teladoc, each with their unique strengths and services, creating challenges for Amazon Clinic.

Strengths include easy access and a transparent pricing model, filling gaps especially for the uninsured and young adults. Weaknesses are the lack of pediatric care and potential fragmented doctor-patient relationships. Opportunities lie in democratizing healthcare and filling system gaps. Threats include navigating complex regulations and competition from well-established providers. Limitations like non-acceptance of insurance could impede broader adoption. The platform excels for minor ailments but is less suitable for complex conditions requiring sustained, personalized care. Future success depends on regulatory navigation and establishing partnerships to broaden its service offerings.

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Background

The aftermath of the COVID-19 pandemic witnessed a surge in the demand for virtual healthcare[1]. Telemedicine-delivering healthcare services via digital platforms and media devices has successfully navigated numerous hurdles associated with conventional doctor-patient encounters by adding convenience and efficiency [2]. The recent nationwide launch of Amazon Clinic [3], a fully virtual healthcare service by Amazon Inc., demonstrates this move towards increasing healthcare accessibility using technology. The ability of Telemedicine to expand patient outreach underscores its immense potential in fostering efficient and equitable healthcare.

Scoping review

Search strategy and selection criteria:

The initial search terms included were, amazon clinic OR amwell OR Teladoc OR walmart virtual health service OR cvs minute clinic OR cirrusMD OR brightside health, from 2000 to 2023. This PubMed search yielded a total of 111 articles. A filter for yielding only [Title/Abstract] was used. One duplicate article was removed. All articles with titles not related to the topic were eliminated. After reviewing the abstracts, 8 articles were retained for a final review. Studies were exported from PubMed to Rayyan software. Afterwards, the authors assessed the full texts of the articles to determine final eligibility. Figure 1 demonstrates the PRISMA 2020 flowchart diagram depicting the process of selecting studies for the review.

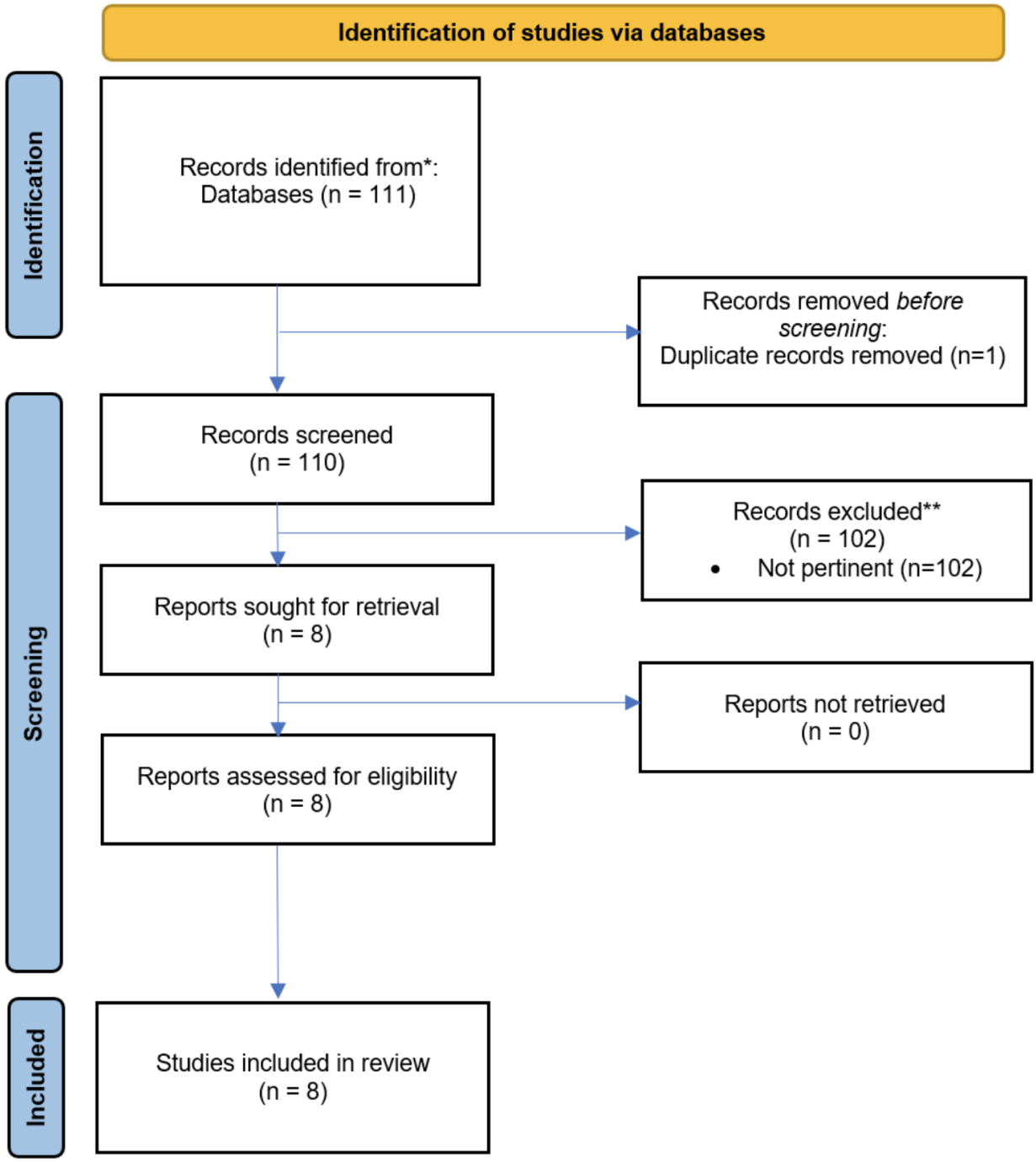

Figure 1. PRISMA 2020 flowchart for selecting studies for Telehealth literature search.

Results

The final review was conducted with 8 articles, including one comparative research study, two usability research studies, two retrospective analysis, one observational study and one review article.

In one of the comparison studies by Uscher Pines et al. between a telehealth platform, Teladoc, and traditional physician offices revealed some disparities. Teladoc providers were less likely to order diagnostic imaging and showed poorer performance in prescribing antibiotics for bronchitis [4]. For the bronchitis measure and not ordering antibiotics, Teladoc

performed worse than physician offices (16.7 versus 27.9%, $p < 0.01$)[4]. In adjusted models, Teladoc users were not more likely to be located within a healthcare professional shortage area (odds ratio (OR)=1.12, p=0.10) or rural location (OR=1.0, p=0.10)[4]. This finding points to the need for targeted marketing strategies to educate and increase the user base among the underserved population.

In another study, Uscher Pines and Mehrotra found that adult Teladoc users were generally younger and less engaged with the traditional healthcare system, with 75% of patients ranging between the ages of 18 to 50 [5]. These users predominantly sought care for acute respiratory infections, urinary tract infections, and skin problems, highlighting the challenge of ensuring follow-up visits in telemedicine [5]. Six percent of Teladoc visits resulted in a follow-up visit for a similar condition, in contrast to 13% of office visits and 20% of ED visits, underscoring a critical challenge concerning the reduced probability of subsequent follow-up visits [5]. Teladoc demonstrated a significant role in broadening healthcare access to patient populations that are otherwise not engaged with traditional healthcare providers.

Telehealth's benefits extend to both physicians and patients. Physicians can diagnose and prescribe for routine non-emergency conditions via telephone, a practice that expands their role, enhancing patient access to care, supporting the 'medical home' model as demonstrated in a study by Gorton et al. [6].

The design and interaction of telemedicine websites also play a critical role in their acceptance and widespread use, as shown in a study by Campbell et al., which focused on the usability of the Teladoc website before and after a redesign [7].

Telemedicine's impact extends beyond general healthcare to specialized fields like psychiatry. Chokshi et al.'s study on the tele-mental health platform Brightside demonstrated its effectiveness in treating depression, offering superior outcomes compared to traditional treatment approaches, with 80% of telemental health platform patients experiencing a reduction of 5 or more points from their baseline Patient Health Questionnaire-9 (PHQ-9) as compared to 52% of patients receiving traditional treatment ($p \leq 0.001$) [8].

Differential access to mental health care based on income levels was explored by Belanger et al., who found significant improvements in depression symptoms across various income groups using telehealth [9]. The study demonstrates a significant decrease in depression severity over time for both income groups undergoing telepsychiatry treatment, as indicated by declining PHQ-9 scores ($F=696.88$, $p<0.001$) [9]. By week 10, both groups' PHQ-9 scores reduced to below 10, signaling an overall improvement in depression severity. This emphasizes the importance of making tele-mental health services more accessible to all income brackets [9].

The scope of telemedicine in specialized areas such as skin reconstruction was explored by Duey et al. They compared face-to-face consultations with store-and-forward techniques and live video chats. While face-to-face interactions were preferred for skin cancer reconstruction, there was a noticeable shift towards virtual care, driven by factors like cost efficiency and reduced waiting times [10]. This shift highlights the growing potential of telemedicine in providing equitable healthcare solutions, especially for those facing socioeconomic barriers to traditional healthcare access.

In recent years, the landscape of healthcare delivery has undergone transformation, with telemedicine emerging as a vital

component. Amidst these developments, Amazon Clinic's entry into the telemedicine sector marks a significant milestone. This evolution can be traced back to the COVID-19 pandemic when virtual care platforms were implemented to maintain outpatient caseloads. The success of these platforms, noted for their quality of care, patient retention, and high satisfaction rates among patients and providers, was underscored in a study from Berlin [11]. They demonstrated significant adoption with 440 practitioners (76%) and 22,085 virtual clinic (VC) visits, achieving the goal of over 50% ambulatory visits via VC. Patient satisfaction was high for VC, with 68% recommending this model, and the implementation led to substantial cost savings [11].

Leveraging its vast consumer network and technological acumen, Amazon is poised to make a breakthrough in mass healthcare delivery. Prior to launching Amazon Clinic, it had already ventured into this domain by introducing a digital pharmacy. The success of this initiative has given them the ability to expand their efforts with the introduction of the Amazon Clinic. The telehealth landscape has seen prior endeavors by tech titans such as Google and IBM, albeit with limited success. In 2015, Google's foray into this realm as Google Helpouts, a platform facilitating digital interactions between doctors and patients. The venture did not gain traction primarily due to stringent healthcare regulations and the challenge of navigating an industry outside of Google's primary expertise. Similarly, IBM's Watson Health Unit encountered difficulties integrating healthcare with Artificial Intelligence and scaling it for a nationwide expansion [12].

Discussion

We have also conducted a SWOT (Strengths, Weaknesses, Opportunities, and Threats) analysis to outline the potential trajectory and implications of the newest entrant Amazon Clinics and compare it with the concurrent virtual healthcare platforms.

SWOT Analysis

A SWOT analysis is a methodological framework which provides a comprehensive view of the current landscape, enabling effective decision-making and strategy development [13].

Strengths:

Given its global brand recognition, vast consumer base, and implicit trust, Amazon may become successful. Some strengths are listed below:

1. Existing Data: Amazon already has vital customer details, like credit card information and home addresses, the initial setup process for users is easier. [14].
2. Nationwide Access: The service's nationwide availability ensures that users can access it anywhere within the country.[15].
3. On-Demand Model: Amazon offers 24/7 healthcare on the go, suiting modern consumers' desire for prompt services [16].

4. Transparent Pricing with Flexible Payment Options: Amazon's virtual healthcare service eliminates cost ambiguities with clear fee structures for video appointments ($75) and text-based consultations ($35) [9]. Patients are informed of the costs upfront, ensuring no surprise charges. Moreover, the acceptance of FSA (Flexible Spending Account) and HSA (Health Savings Account) cards adds another layer of payment flexibility.[17].
5. Insurance: The competitive pricing structure democratizes telehealth access, potentially enhancing overall health outcomes for a broader population segment, many of whom may be without insurance coverage[17].
6. Partnerships: By collaborating with prominent online telehealth platforms like Curai Health, Hello Alpha, SteadyMD, and Wheel, Amazon Clinic provides users the flexibility to choose their preferred interface [10].
7. Certified and Local Physicians: All physicians on Amazon's virtual healthcare service are board-certified, licensed and located within the U.S. This establishes a standard of care and professionalism expected from US licensed providers. [16].
8. AI-Powered Patient Intake: Amazon has integrated AI capabilities to streamline patient registration process[17]. This innovative addition ensures smooth and efficient onboarding experience, thereby reducing potential hurdles and waiting times. By utilizing AI, patients can expect a more intuitive and user-friendly intake, which enhances their overall experience from the first interaction [18].
9. Diverse Health Condition Coverage: Amazon's virtual healthcare service offers treatment for a broad spectrum of health conditions, from common skin issues like acne and eczema to providing prescriptions for birth control pills. This wide scope ensures that a diverse population can find the care they need [16].

Weaknesses:

The Amazon telehealth program, while innovative, also has certain limitations. One primary concern is that it does not cover the pediatric population[17], excluding a significant portion of the population from receiving virtual healthcare for basic health needs. Moreover, denying insurance plans could deter patients who are unwilling to pay directly and those who do not have any copay for their visits when using insurance [19].

While online messaging and video consultations offer quick healthcare access, they may fall short of delivering a personalized experience. Model lacks consistent patient-doctor relationship building, which is crucial for establishing trust. Each consultation might pair a patient with a different doctor, disrupting continuity of care. The platform might be adequate for treating common conditions but struggles with more complicated healthcare needs. With aging U.S. population having multiple health issues [20], managing numerous previous records and devising detailed treatment plans is challenging in such an on-demand setup. It will be difficult to obtain patients' prior health records for continuity of care unless Amazon has a secure portal for patients to upload their data. There is no coverage provided for behavioral health conditions or therapies, despite being a significant disease burden [21].

Furthermore, continuity with a consistent care team is vital for advising patients on lifestyle changes, and this model's fragmented approach could hinder compliance. Surgical procedures and other hands-on treatments are, understandably, beyond their reach at present. Additionally, if the consulting physician isn't locally based, they might be unaware of the best diagnostic and imaging facilities available or their reliability. This geographical disconnect also negates the possibility

of a physical examination, a fundamental diagnostic tool. Common parts of physical examination, like blood pressure checks, must rely on the functionality of the patient's equipment, its appropriate condition and the patient's ability to use it properly. Relying solely on video calls compromises diagnostic accuracy [22], increasing the risk of medical errors of omission and commission.

Lastly, Amazon collaborates with various online platforms. This can be confusing for patients who sought out the trustworthiness of Amazon's brand. In case of any legal disputes, the involvement of multiple parties can complicate matters, making it hard for patients to navigate their grievances.

Opportunities:

Multiple opportunities exist for this venture to be successful. The younger demographic, particularly college students, increasingly seek healthcare opinions from unreliable digital platforms such as YouTube and TikTok [23]. Amazon's clinic can bridge this gap through strategies like student discounts.

Amazon can collaborate with existing traditional healthcare systems. They can augment patient care by leveraging its hospitals, field expertise, and local market presence. Amazon's potential expansion of its services beyond mere consultations to include integration with laboratories, specialists, and other healthcare services is a viable prospect. With its pricing model, Amazon could cater specifically to the uninsured segment of the population.

Another possibility might involve introducing a subscription system for patients. Such a system would allow them to have multiple consultations within a specified period without incurring individual charges. Successful government-run programs offering universal healthcare coverage, as seen in Canada, the UK, and recently in India [24], can be referenced as models.

Additionally, there is an option to monitor and analyze the data from many wearable devices which track health data such as the Fitbit Sense, Samsung Galaxy Watch and Apple Watch, potentially expanding outreach and providing actionable information to the patients from this data [25].

Amazon can also utilize Amazon Web Services (AWS) and Internet of Things (IOT) to telemonitor certain health conditions and physiological parameters. Collaborating with these services can provide physiological data about a patient's sleep, crucial to overall health.

Lastly, Amazon could intertwine its telehealth services with other offerings, like pharmacy services, to create a comprehensive healthcare solution, strengthening Amazon's position in the healthcare industry.

Threats:

Established healthcare systems are a challenge to new entrants like Amazon Clinic. These traditional providers serve a large population and offer hybrid in-person and virtual visits. Amazon Clinic doesn't offer in-person visits, putting them at a disadvantage compared to these established players. Additionally, traditional healthcare systems are working hard to enhance their online services, with advantage of existing doctor-patient relationships.

Other competitors, such as CVS Minute Clinic, Amwell[26], Teladoc[27], and Walmart Health Virtual Clinic[28], each have their unique strengths and weaknesses, making the field highly competitive. For example, CVS Minute Clinic accepts insurance [29], and Walmart Health Virtual Clinic provides therapy for teens, services that Amazon Clinic doesn't currently offer [28]. Multiple competitors provide access to pediatric virtual healthcare and organizational subscription plans which remain a threat for wider outreach of Amazon Clinic. Also, lack of care targeted towards LGBTQ+ community [30] is lacking, which is provided by competitors like Amwell. Amazon Clinic needs improvement in few areas, as summarized in Figure 2.

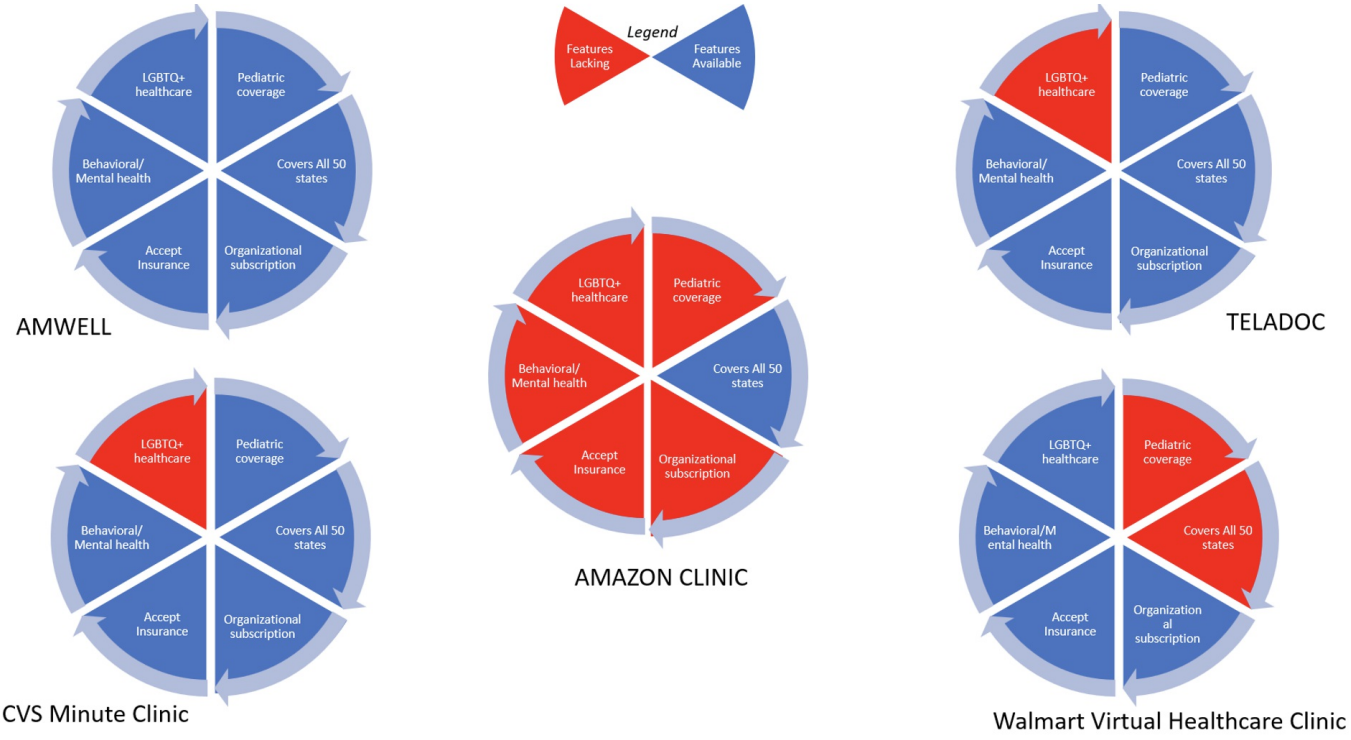

Figure 2. Comparative Analysis Between Amazon Clinic and the Concurrent Leading Virtual Healthcare Providers

Legal Aspect

The dynamic regulatory environment in healthcare poses a risk, as new regulations disrupt the on-demand healthcare business model. Violation of the Stark law in certain situations due to conflict of interest also remains a potential challenge. Lastly, there could be public concerns over Amazon treating healthcare more as a business than a service, potentially leading to conflicts of interest or issues with public perception.

Summary

The telehealth is evolving to transform healthcare delivery, making it more accessible, efficient, and patient-centric. Amazon Clinic's entry into the telehealth space is marked by several strengths, including its vast consumer network, transparent pricing, and AI-powered patient intake. However, limitations such as the lack of pediatric care, absence of

insurance acceptance, and potential for fragmented patient-doctor relationships pose challenges. Opportunities exist for Amazon to bridge healthcare gaps, especially among younger demographics and the uninsured, through strategic collaborations and service expansions. Yet, threats from established healthcare providers, other competitors and evolving regulatory landscapes could hinder its growth.

Statements and Declarations

Contributorship

- **Harpreet Grewal**

  Role: Lead Author and Research Coordinator.

  Contributions: Conceptualized the study, coordinated research activities, led the writing of the manuscript, and oversaw the data analysis process.

- **Gagandeep Dhillon**

  Role: Co-Author.

  Contributions: Assisted in the study design, analyzed data, and contributed significantly to the writing and editing of the manuscript.

- **Venkata Budhavarapu**

  Role: Co-Author.

  Contributions: Participated in literature review, data collection, and contributed to the drafting of specific sections of the paper.

- **Ram Verma**

  Role: Co-Author.

  Contributions: Provided expertise in statistical analysis, interpreted data findings, and contributed to the methodology and results sections.

- **Ripudaman Munjal**

  Role: Co-Author.

  Contributions: Offered technical insights into telehealth technology, reviewed and edited the technical content of the manuscript.

- **Pranjal Sharma**

  Role: Co-Author.

  Contributions: Conducted critical review of the manuscript, provided input on the study design, and contributed to the discussion and conclusion sections.

- **Gurmanpreet Sidhu**

  Role: Co-Author.

  Contributions: Assisted in manuscript preparation, literature review, and ensured compliance with publication

standards.

- **Rahul Kashyap**

  Role: Senior author and mentor.

  Contributions: Provided consultation on research methodology, contributed to the interpretation of results, and assisted in manuscript revision.

- Guarantor: **Harpreet Grewal**, MD. Email: harpreetsinghgrewal@gmail.com

Conflict of interests

The Authors declare that there is no conflict of interest.

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Ethical approval

Ethics committee approval was not needed since no patient data or humans were involved in the study. All information is reviewed from publicly available data.

References

1. ^*Shaver J. The State of Telehealth Before and After the COVID-19 Pandemic. Prim Care 2022; 49: 517–530.*
2. ^*Haleem A, Javaid M, Singh RP, et al. Telemedicine for healthcare: Capabilities, features, barriers, and applications. Sens Int 2021; 2: 100117.*
3. ^*Palmer A. Amazon rolls out its virtual health clinic nationwide. CNBC, https://www.cnbc.com/2023/08/01/amazon-rolls-out-its-virtual-health-clinic-nationwide.html (2023, accessed 9 September 2023).*
4. a, b, c *Uscher-Pines L, Mulcahy A, Cowling D, et al. Access and Quality of Care in Direct-to-Consumer Telemedicine. Telemed J E Health 2016; 22: 282–287.*
5. a, b, c *Uscher-Pines L, Mehrotra A. Analysis of Teladoc use seems to indicate expanded access to care for patients without prior connection to a provider. Health Aff (Millwood) 2014; 33: 258–264.*
6. ^*Gorton M. Welcome to the world of telehealth: physicians reaping significant benefits. J Med Pract Manage 2008; 24: 147–150.*
7. ^*Campbell JL, Monkman H. Pre- and Post-Redesign Usability Assessment of a Telemedicine Interface Based on Subjective Metrics. Stud Health Technol Inform 2022; 290: 872–876.*
8. ^*Chokshi S, Senathirajah Y, Yadav V, et al. A Comparative Evaluation of Measurement-Based Psychiatric Care Delivered via Specialized Telemental Health Platform Versus Treatment As Usual: A Retrospective Analysis. Cureus 2022; 14: e21219.*

9. [a, b, c, d]Belanger HG, Winsberg M. Exploring social determinants of health: Comparing lower and higher income individuals participating in telepsychiatric care for depression. Front Psychiatry 2022; 13: 1026361.
10. [a, b]Du EY, Moody RA, Simpson MC, et al. Factors Shifting Preference Toward Telemedicine in the Delivery of Skin Cancer Reconstruction Care. Laryngoscope 2023; 133: 294–301.
11. [a, b]Berlin A, Lovas M, Truong T, et al. Implementation and Outcomes of Virtual Care Across a Tertiary Cancer Center During COVID-19. JAMA Oncol 2021; 7: 597–602.
12. ^Lohr S. What Ever Happened to IBM's Watson? The New York Times, 16 July 2021, https://www.nytimes.com/2021/07/16/technology/what-happened-ibm-watson.html (16 July 2021, accessed 2 October 2023).
13. ^Teoli D, Sanvictores T, An J. SWOT Analysis. In: StatPearls. Treasure Island (FL): StatPearls Publishing, http://www.ncbi.nlm.nih.gov/books/NBK537302/ (2023, accessed 28 August 2023).
14. ^Kenneth C. Hohmeier P, Justin Gatwood P, Bradley Boucher P. Amazon Pharmacy: Distraction or Disruption? 27, https://www.ajmc.com/view/amazon-pharmacy-distraction-or-disruption- (2021, accessed 15 August 2023).
15. ^Amazon Clinic rolls out nationwide as e-commerce giant expands its health care footprint | CNN Business, https://www.cnn.com/2023/08/01/tech/amazon-clinic-expands-nationwide/index.html (accessed 15 August 2023).
16. [a, b, c]Bruce G. Can hospitals compete with Amazon Clinic?, https://www.beckershospitalreview.com/disruptors/can-hospitals-compete-with-amazon-clinic.html (2023, accessed 15 August 2023).
17. [a, b, c, d]Amazon Clinic. Amazon Clinic, https://clinic.amazon.com (accessed 15 August 2023).
18. ^Grewal H, Dhillon G, Monga V, et al. Radiology Gets Chatty: The ChatGPT Saga Unfolds. Cureus 2023; 15: e40135.
19. ^Weiner S. "I Can't Afford That!" J Gen Intern Med 2001; 16: 412–418.
20. ^Ansah JP, Chiu C-T. Projecting the chronic disease burden among the adult population in the United States using a multi-state population model. Front Public Health 2023; 10: 1082183.
21. ^Bijal AS, Kumar CN, Manjunatha N, et al. Health insurance and mental illness. Indian J Psychiatry 2019; 61: S791–S797.
22. ^Gajarawala SN, Pelkowski JN. Telehealth Benefits and Barriers. J Nurse Pract 2021; 17: 218–221.
23. ^Lupton D. Young People's Use of Digital Health Technologies in the Global North: Narrative Review. J Med Internet Res 2021; 23: e18286.
24. ^Grewal H, Sharma P, Dhillon G, et al. Universal Health Care System in India: An In-Depth Examination of the Ayushman Bharat Initiative. Cureus 2023; 15: e40733.
25. ^Verma RK, Dhillon G, Grewal H, et al. Artificial intelligence in sleep medicine: Present and future. World J Clin Cases 2023; 11: 8106–8110.
26. ^Home, https://patients.amwell.com/ (2023, accessed 31 August 2023).
27. ^Teladoc. Primary360: Virtual & Online Primary Care Doctors. Teladoc Health®, https://www.teladoc.com/ways-we-help/primary-care/ (accessed 31 August 2023).
28. [a, b]Virtual Telehealth Solutions & Services | Walmart Health Virtual Care, https://walmarthealthvirtualcare.com (accessed 31 August 2023).
29. ^Virtual Primary Care, https://www.cvs.com/virtual-care/ (accessed 31 August 2023).

30. ^*Dhillon G, Grewal H, Monga V, et al. Gender inclusive care toolkit for hospitals. The Lancet Regional Health - Americas 2023; 100583.*