

Research Paper: Hand therapy in Iran during the pandemic of covid-19: Scraping Social media (Instagram)



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ABSTRACT

Background: The fast-evolving pandemic of COVID-19 has forced clinicians to implement tele-health strategies in their routine practice. Social media provides unprecedented opportunities to transfer educational, monitoring, and individualizing data to the target populations. There have been numerous efforts on social media to use telerehabilitation approaches for patients and therapists.

Question/purpose: The purpose of this study was to explore and analysis the trend that hand therapists used for tele-rehabilitation approaches during the lock dawn period in Iran.

Methods: Scraping method was used to map out the tele-rehabilitation strategies that Iranian therapists have implemented for the hand and upper extremity injuries during the COVID-19 pandemic. Tele rehabilitation method was searched by relevant hashtags and direct contact with therapists. Extracted data were described and categorized by content analysis and thematic coding.

Results: During lock dawn period, 27 records from 18 accounts were posted with relative tele rehabilitation content in Iran. Based on the content of extracted data four themes were conceptualized: Empowerment, informative, adaptive to new situations, and supportive approach. The content that were covered in the most posts were informative approach (40%).

Conclusion: In spite of the urgent necessity for delivering care during the lockdown, the total number of the active therapists was very low. No documented method or platform was identified.

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1. Introduction

The COVID-19 pandemic with more than 3.7 million cases in less than 5 months has shifted many medical processes to be managed remotely by telecommunication/telehealth [1]. Fast, convenient, and potentially more efficient flow of information to the target societies is possible by telehealth [2]. Many free and friendly virtual applications are common for daily communication and freely used by the public through available electronic devices like smartphone and tablet. This provides an unprecedented opportunity to transfer educational, monitoring, and individualized data to the target patients, applying different methods like text, picture, voice, and video [3]. Instagram is now free, allowed, and one of the most popular applications for Iranians [2, 4, 5]. It has a high potential for public and private data transfer that needs only routine smartphones and minimal skills. So, Instagram would find its place during COVID-19, ultimately [6, 7].

Rehabilitation is a substantial part of the treatment for upper extremity problems, the COVID-19 crisis has forced therapists to implement telemedicine approaches in their routine practice to continue their role in preventing possible disabilities [8]. The COVID-19 made rehabilitation centers to invent policies of telehealth, like many other organizations. Telehealth has made fast, convenient, and potentially more efficient flow of information available for serving the target societies [2].

The best scenario is to take a lesson now and to prepare infrastructures that are applicable and substitutable immediately during future crises. Knowing the attitude, methods, and fields those healthcare providers and patients are applying Instagram during this current crisis could smooth the road of telemedicine for rehabilitation centers [6, 9].

Social mapping technologies, under the broad umbrella of 'digital humanitarianism,' can be used as the sources of data gathering in times of crisis [10, 11]. Web scraping or web data extraction as one of the methods of social mapping is being used to explore, extract, and categorize data

from social media for analysis [12].

In this study we aimed to map out the trend that Iranian hand therapists used for tele-rehabilitation approaches, and to know how the everyday use of tele-rehabilitation is functioning during the COVID-19 lockdown of routine services.

2. Methodology

In this study, web data scraping method was used to establish categorical dimensions of the taken approaches in tele-rehabilitation during the COVID-19 lockdown in Iran. We scraped Instagram to map out the tele-rehabilitation strategies that Iranian therapists have implemented for the hand and upper extremity injuries during the COVID-19 pandemic.

Study sample and data collection

Web scraping was done with searching Farsi and English hashtags, including #tele-rehabilitation, #telehealth, #tele-health, #telemedicine, #handrehabilitation, #hand_rehabilitation, #handtherapy, and #hand_therapy from the public Instagram pages while setting Iran as the target location. Following platform terms and conditions, we did not use or save any other information related to the users [13]. To access the information from the private accounts, we provided several calls through stories on Iranian associations of rehabilitation Instagram pages and asked therapists or clinics to share their related posts, stories, and live videos with us.

We have set the time of our search from the first to the last official day of lockdown in Iran, which is March 23 to April 18. We used a strict approach to review the content and categorize the uploaded posts, stories, and live videos without any additive information from the account administrators. The research protocol was based on the ethical guidelines as defined by the Association of Internet Research (AoIR) Ethics Working Committee [14].

Analysis

The total number of posts using each hashtag was recorded. Data extraction and analysis were

done manually due to the limited number of posts on Instagram with related hashtags based [15].

The collected data specified the number of posts, stories, likes, and dates using frequency and percentage. For each post we further searched to know who posted by analyzing the Instagram profile. Data conclusion included whether or not they were personal page of a hand therapist or a clinic. Posts were included in our study if they were relevant to hand therapy tele rehabilitation. Duplicate posts or general tele rehabilitation method were excluded. Later, the content of pictures and comments were categorized thematically, and content analysis was conducted using the deductive approach [16]. Thematic analysis is a process of encoding the extracted qualitative data. The extracted contents of posts and comments were reviewed for the meaning unites and later categorized into codes. Further, themes were generated based on the categorized codes. In the end, the extracted themes were reviewed by the research team (AF, MF, ES, and YF) for assurance of accuracy and usefulness [17, 18].

3. Results

Our search with the abovementioned hashtags found 1160 posts. Eighteen Instagram accounts mentioned tele-rehabilitation in their posts, stories, or live videos. Out of 18 accounts, 10% of pages belonged to hand therapy clinics, 70% were personal hand therapists' pages, and the rest belonged to general rehabilitation clinics or expert accounts. In total, 20 posts and ten stories were posted with relative tele-rehab contents during the lock dawn period. Overall, 27 records were included for analysis. The content of included records visualized rehabilitation methods in various hand and upper limb including; extensor tendon injuries (2 records), osteoarthritis (1 record), shoulder pain (3 records), tendinopathies (2 records), thumb CMC pain (1 record), postural alignment (1 record), and wrist fracture (2 records). Eight records contained general information about the importance of tele-rehabilitation or its meaning. Biofeedback and exoskeleton robot were introduced as new available technology in two records. Three records contained adaptive approaches to deliver care in home such as using a bottle of water instead of dumbbells, hot towel

instead of hot packs, or a simple rope instead of pulley. Two records represented general methods of hand therapy for patients and therapists such as putty exercises.

Two webinar and one related lived were also highlighted in two accounts during this period. Webinars were about the different methods of tele-rehabilitation. The highlighted live was about delivering hand therapy care during crisis. All therapists used what's app video call to communicate with their patients. They had continuous sessions to follow the patients.

In the next step, the research team analysis the content of images, captions, stories, and comments were done by research team. Different codes were extracted from meaning units. Through thematic analysis of the extracted codes, four themes were conceptualized: Informative, empowerment, supportive and adaptive approaches to the new situation (Table-1).

Empowerment approach: One of the essential categories based on data was the empowerment approach during the crisis. This theme was extracted based on the most frequent meanings driven from the data. In this category, different methods were used to educate patients or other therapists. These methods varied from the performance of the exercises by the therapists themselves, to the tutorial of the exercises using another person's hand or a doll as a model for the recorded videos.

Adaptive approach to the new situation: In this category, therapists tried to use the available means at home, or in some cases, they tried simplifying the exercises due to the limitation of the availability of therapeutic instruments.

Supportive approach: There were some companies and engineering groups that tried to introduce and provide some facilities such as biofeedback and wearable robots.

Informative approach: Different accounts tried to introduce the tele-rehabilitation strategies as an approach that can be used during crisis. Figure 1, illustrated the frequency of the Themes in recorded posts, stories and comments.

Table1. unit meanings, codes and themes

Unit meanings	Codes	Theme
Video from therapist about how to do exercises		
Diagnosis based on symptoms		
Education on others hand for care givers	Education to patients and therapists	Empowerment approaches
Education of doing exercises on doll		
Recorded video extracted from YouTube		
Images about how to use putty		
Exercises with simple tools in home	Adapting exercises	Adaptive approach to new situation
Home educational video		
Biofeedback in mobile	Advertisement for sale	Supportive approach
Exoskeleton robot		
How to do tele rehab with video chat		
What is tele rehab	Informational	Informative approach
Introduce virtual rehabilitation		

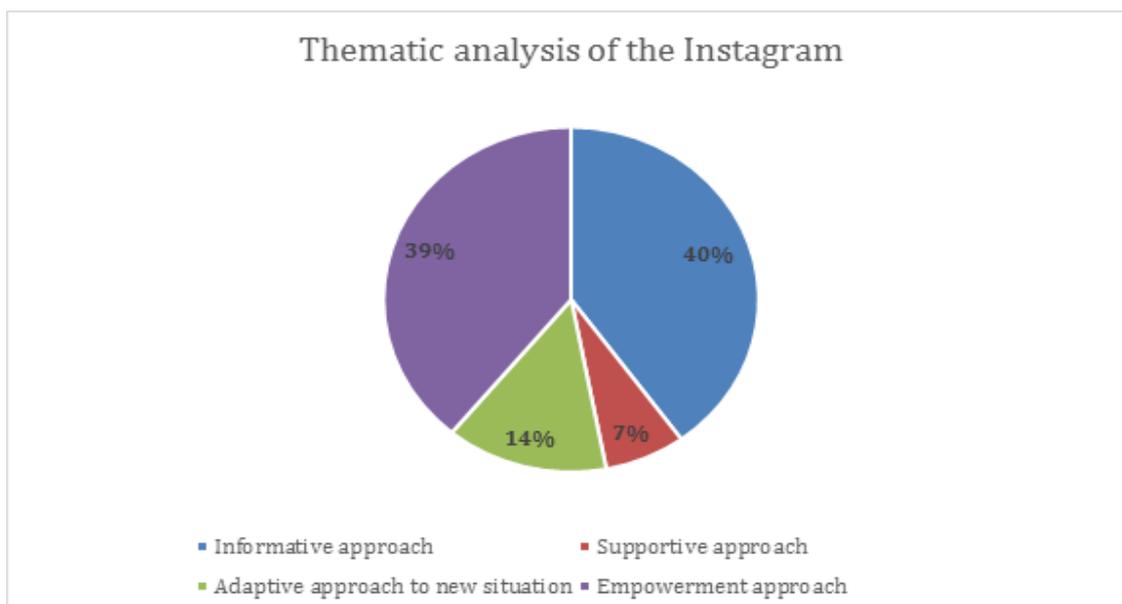


Figure 1. Thematic analysis of the Instagram based on posts and stories

4. Discussion

The results of our web scraping report indicated that totally 18 Instagram accounts had activities about hand tele-rehabilitation strategies during lockdown in Iran. The very low number of notices and educations about hand tele-rehabilitation methods, and the low number of hand therapists and specific hand therapy clinics limit reliable sources for hand therapy intervention during the lockdown. Analyzing the contents of data indicated that there is a lack of educational

programs for therapists to use tele rehabilitation approaches properly. Therapists tried to use their own personal approaches and experiences for the patients without evaluating those reliability, applicability, and effectiveness.

Iran with near 84,000,000 million population and high burden of hand trauma and injuries [19-21] needs widespread cares in surgery and rehabilitation. Based on the findings of his web scraping, the available sources are not enough to cover even the least needs.

Further, difficulties such as low speed Internet, lack of Internet coverage in some areas, and expensive cost of data in Iran, delimited tele-rehabilitation interventions.

Remote delivery of cares to support ongoing rehabilitation during lock down is a popular implemented method by health care team. However, the urgent needs of rehabilitation cares delivery led to cutting the corners. The therapists started using this model without proper training and skill. Ignoring the important steps of preparation a delivery method before launching, can lead to poor quality of care and increase fear for the patients. All those above-mentioned issues together would decrease the quality of providing hand rehabilitation for patients. The best scenario during such a crisis is learning the best and most functional practices and actions that can be taken immediately to prepare infrastructures that are applicable and suitable

Limitations

This study has possessed considerable limitations. One of the significant problems is that some people around the country do not have access to Instagram, or their access is limited. This problem can be generated due to factors such as not having the required devices for using the app, slow or limited Internet connections or living in areas in which no Internet connection is provided.

Another limitation can be generated due to a lack of application familiarity. As Instagram provides, there are a variety of ways for a shared post or story to be searched and seen, such as hashtags, profile names, and locations. However, using them requires both people who upload the posts and people who search for them to be familiar with these facilities. Lack of familiarity from therapists or patients can diminish the number of views and can limit the accessibility of the posts.

Ethical Considerations

Compliance with ethical guidelines

The research protocol was based on the ethical

guidelines as defined by the Association of Internet Research (AoIR) Ethics Working Committee

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Authors' Contribution

Maryam Farzad: Substantial contributions to the conception or design of the work. content analysis and coding.

Erfan Shafiee: acquisition, analysis, or interpretation of data for the work, Data scraping and data analysis. Content analysis and coding.

Amir Reza Farhoud: interpretation of data for the work, Final approval of the version to be published; Content analysis and coding.

Yasaman Falahati: Final approval of the version to be published; data scraping and data analysis. Content analysis and coding.

Nader Alirezaloo: Data Scraping and data analysis, Final approval of the version to be published; Content analysis and coding.

Conflict of Interests

There was no funding or potential conflict of interest in this study. Each author certifies that he or she has no commercial associations (e.g. consultancies, stock ownership, equity interest, patent/licensing arrangements, etc.) that might pose a conflict of interest in connection with the submitted article

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