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Sağlık İletişiminde Youtube Kullanımı: Artırılmış ve Sanal Gerçekliğin Kullanım Alanları Üzerine Bir İnceleme

The Use of Youtube in Health Communication: A Study on the Uses of Augmented and Virtual Reality

ABSTRACT

This study will discuss the use of social media within the scope of health communication. The study aimed to analyze the social media use of companies in the health sector using augmented and virtual reality within the scope of health communication. The study is essential since there is no research on the health communication of health companies using augmented and virtual reality technology. While the health companies using the augmented and virtual reality technology of the universe of the study constitute the sample, the Youtube channel of the XRHealth company is selected by random sampling among these companies. The Youtube channel contents of XRHealth company were analyzed with the content analysis method in the Maxqda program, and the following results were obtained: Shares were made about primary health care services, health promotion/development, and preventive health services. Among these topics, preventive health services were mainly included. Within the scope of preventive health services, videos about doctors, patients, and pieces of training for both doctors and patients are published. In addition to rehabilitation services within primary health care services, virtual and augmented reality and diagnosis-treatment services were included in the video. Content aimed at least promoting and improving health has been produced on the Youtube channel. As a result, a high concentration of protective and primary health care services in video content reveals the importance of AR and VR technology in health education in society.
Keywords: Health Communication, Health Literacy, AR, VR, Youtube

ÖZ

Bu araştırmada sağlık iletişimi kapsamında sosyal medya kullanımı ele alınacaktır. Çalışmada artırılmış ve sanal gerçekliği kullanan sağlık sektöründeki şirketlerin sosyal medya kullanımı sağlık iletişimi kapsamında analiz etmek amaçlanmaktadır. Artırılmış ve sanal gerçeklik teknolojisini kullanan sağlık şirketlerinin sağlık iletişimi üzerine araştırma bulunmadığından çalışma önem arz etmektedir. Çalışmanın evrenin artırılmış ve sanal gerçeklik teknolojisini kullanan sağlık şirketleri oluştururken örneklemini bu şirketler arasından rastgele örneklem metoduyla seçilen XRHealth şirketinin Youtube kanalı oluşturmaktadır. XRHealth şirketinin Youtube kanalı içerikleri Maxqda programında içerik analizi metoduyla analiz edilerek şu sonuçlara ulaşılmıştır: Birinci basamak sağlık hizmetleri, sağlığın teşviki/geliştirilmesi ve koruyucu sağlık hizmetlerine yönelik paylaşımlarda bulunulmuştur. Bu konu başlıklarından en fazla koruyucu sağlık hizmetlerine yer verilmiştir. Koruyucu sağlık hizmetleri kapsamında doktorlara, hastalara ve hem doktorlara hem de hastalara yönelik eğitimlere dair videolar yayınlanmaktadır. Video içeriklerinde birinci basamak sağlık hizmetleri çerçevesinde rehabilitasyon hizmetlerine ek olarak sanal ve artırılmış gerçeklik hizmetleriyle tanı-tedavi hizmetlerine yer verilmiştir. Youtube kanalında en az sağlığın teşviki ve geliştirilmesine yönelik içerik üretilmiştir. Sonuç olarak; video içeriklerinde koruyucu ve birinci basamak sağlık hizmetlerine yönelik içeriklerin yoğunlukta olması AR ve VR teknolojisinin toplumun sağlık eğitimi açısından önemini gözler önüne sermektedir.
Anahtar Kelimeler: Sağlık İletişimi, Sağlık Okuryazarlığı, AR, VR, Youtube

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Introduction

21st-century technology and integrated devices transform information into an easy form to mobilize and process, thus facilitating the development of virtual reality and its successor, augmented reality (AR) technology. According to Kayapa and Tong (2011), the photographic visualization in this technology is close to real life. It is formed in line with the reactions of those who have experienced this experience (Kayapa & Tong, 2011, p. 352). Therefore, these reactions give individuals the feeling of being in a place, in an environment that imitates reality.

Virtual reality (VR), in addition to being instant, is an environment that can be defined by at least two sense organs.(Demirsezen, 2019, p. 5) In this environment, individuals experience an environment that creates a sense of reality through the computer environment. According to Verbree et al. (1999), virtual reality is a means of conducting a digital exploration tour with the theme of interest in an artificial space. During this digital discovery, users can transmit data to each other simultaneously.

Learn what they do not know by giving them unique experiences(Aslan & Erdoğan, 2017, p. 22). Besides its educational feature, virtual reality platforms also contain a platform where individuals can express their ideas. At the same time, this platform is a ground where the senses, in reality, are embodied and imitated(Craig et al., 2009). In this context, virtual reality contributes to human life in a wide area, from the learning activity of the individual to the senses he feels.

Augmented reality, which is compiled and presented as new technology from different areas of technology, is a field that combines audio, video recording, location information, and GPS operations, which can be expressed as digital data and defined in a computer environment with the earth in reality (Zachary et al., 1997). Based on this technology, the picture that emerges when digital objects are placed on top of each other with natural environments allows the individual to be perceived as an environment in their memory (Kalec et al., 2017). This reality, created with the support of a virtual environment, facilitates and strengthens understanding due to the cooperation of sense and mental interpretation. In addition, this technology processes data simultaneously with 3D technology.

There are differences between augmented and virtual reality, which is a more sweeping change in virtual reality (Şalk, Semih; Köroğlu, 2020, p. 316). Based on these differences, virtual reality users find themselves in an artificial environment; Augmented reality users reside in a more realistic space where the world, in reality, is combined with artificial objects (Azuma, 1997, p. 355). There are also differences between virtual and augmented reality regarding the purpose of use.

While the priority of virtual reality is to position technology instead of reality, augmented reality aims to blend and reproduce reality with virtual products (Billinghurst et al., 2014, p. 79). According to Bimber and Raskar (2005, p. 5), augmented reality, rather than virtual reality, joins the individuals who experience it in a completely artificial space; it is an application that contains digital data in the video recording of an existing place. Therefore, augmented reality provides an experience that can be expressed numerically in the virtual world and includes a part of the real world.

Augmented and virtual reality, travel, education, health, etc., are used in sectors. In this research, companies' use of social media using augmented and virtual reality in the health sector will be analyzed within the scope of health communication.

1. Use of Augmented and Virtual Reality in Healthcare

VR and AR technology in healthcare; is used in-home care services, therapy/rehabilitation, and education. VR and AR technology provides advantages in creating virtual cadavers and deepening anatomy education in medical research or education (Moro et al., 2017). In addition, this technology provides benefits such as reversing surgical procedures (wrong tissue cutting, vessel cutting, color change in dead tissue) during training (Chen et al., 2020). Therefore, it is seen that AR and VR technology are beneficial in subjects such as unlimited practice in surgical procedures and anatomical models.

According to Yüksekdağ (2021, p. 139), using AR and VR in medical education effectively teaches various medical terms permanently and makes this learning more personalized and exploratory. In addition, since any technical error during this training does not pose a risk to patient safety, it has positive results in health education.

There are studies on the benefits of AR and VR in health education. According to Özdemir (2017, p. 613), these benefits can be classified as follows:
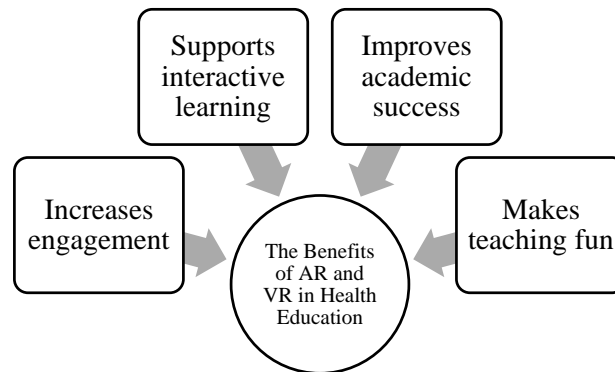
Figure 1: The Benefits of AR and VR in Health Education

Although AR and VR applications have positive results on students studying health, according to Wu et al. (2018), there are deficiencies, such as poor perception and low sensitivity, since these technical applications create a cognitive load. Accordingly, only well-designed practices bring success to health education.

Fields, where AR and VR are used in the health sector include rehabilitation/meditation, behavioral psychology (reaction/objective), and pain management.(Pourmand et al., 2018) In addition, these technologies are also used in acute/chronic pain areas, such as burns, post-traumatic stress disorder, and physical therapy (Koçak Yılmaz & Kaya, 2021). In this context, the usage areas of VR and AR technology in health can be schematized as follows:
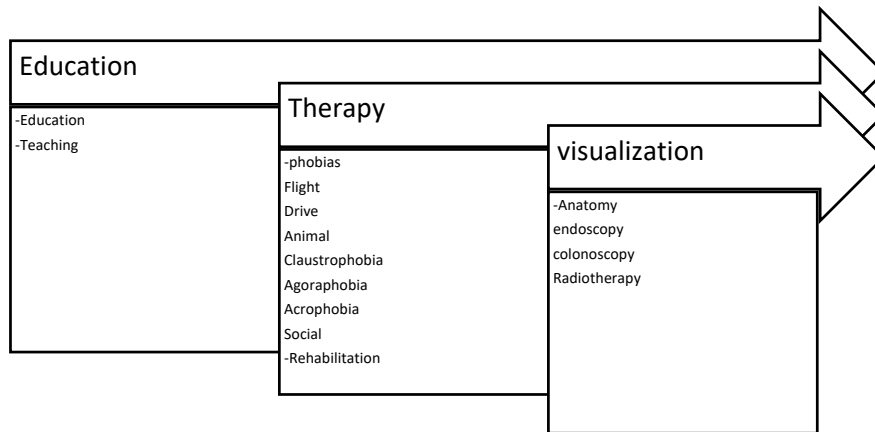
Figure 2: Uses of VR and AR in Healthcare
Source: Freitas et al., 2021, (Martín-Gutiérrez et al., 2017, Vardarlı, 2021

VR and AR offer countless repetition opportunities to the virtual cadaver during the education and training phases in the operating room environment in health education. In therapy, these technologies are used for overcoming phobia types and rehabilitation. Finally, VR and AR are used for anatomical visualization.

2. Use of Researched and Virtual Reality Applications in Health Communication and Health Literacy

The concept of health literacy can be defined as a communication policy aimed at meeting a common ground at the point of sharing the responsibility/obligation between healthcare professionals and patients (Balçik et al., 2014). According to Nutbeam (2000), the classification of health literacy, which appears to be the sharing of obligations between the health authorities providing health services and the patients, is as follows: The first level of health literacy is functional health literacy. At this level, basic literacy skills are sought. It includes the ability to understand health-related datasets in written/oral form. The second level is communicative health literacy and includes access to health information in changing communication channels. Critical health literacy is the third level of health literacy. Individuals at this level have the ability to analyze high-level health information and evaluate the socio-political or economic dimension of health.

In communicative health literacy, which covers the second level of health literacy, understanding and interpreting health-related information in various channels allows institutions and individuals to establish health-based communication. (Işık, 2010) At this point, health authorities and employees in traditional and new media environments communicate to raise public awareness through campaigns.

Technology advances are changing health communication and improving communication opportunities (Karaboğa & Kardeş, 2022). While health communication specialists prepare materials such as newspapers, magazines, promotional booklets, CDs, brochures, and websites; With the development of technical possibilities, it also carries out many public relations activities such as desire, expectation, competitor analysis, and public opinion research by establishing interactive communication in new media environments (Işık, Bilici & Darı, 2021). Therefore, every technical development experienced positively reflects health communication.

AR and VR technology used in health communication improves patient-doctor communication. According to Sabırcan (2020), AR or VR applications can be used in health communication

campaigns or corporate events to keep the target audience active, increase the impact of the shared messages, and increase the stakeholders' experiences.

It is easier and more effective to explain disease and treatment methods using AR or VR. This easy and effective method will positively affect healthcare professionals and patients (Mantovani et al., 2003). In addition, these technologies can be used to announce various health messages to target audiences in campaigns to gain or change health behavior (Bryant et al., 2020). In this context, augmented and virtual reality companies working to transmit health messages can be listed as follows:
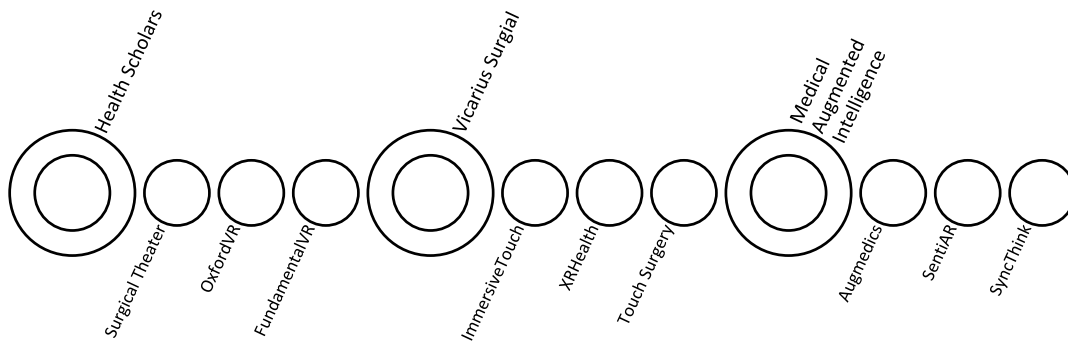
Figure 3: Augmented and Virtual Reality Companies Serving in the Health Sector
Source: *Sağlıkta Artırılmış Gerçeklik*, 2022

He works for health communication in companies that provide health services using VR and AR technology. Thus, more success can be achieved by providing the target audience's desired behavior change.

3. Related Studies

Studies have been carried out in the domestic and foreign literature on augmented and virtual reality in health communication. Some of the studies are classified as follows: Wiederhold et al. (2018) on the use of VR and AR technology in healthcare services; Aziz (2018); Demirci (2018); Hilty et al. (2020); Javaid and Haleem (2020) conducted the study. On the use of VR and AR in health education, Mantovani et al. (2003); Kaphingst et al. (2009); Sarıkoç (2016); Aslan and Erdogan (2017); Kyaw et al. (2019); Baniasadi et al., (2020); Martlı and Dincer, (2021) conducted research. On social interaction and VR in health, Westwood (2003); Zhao et al. (2018); Palanica et al. (2019) are working on it.

When the literature is examined, it is seen that the use of VR and AR technology in health communication focuses on health education, health services, and social interaction. Therefore, this research aims to fill the literature gap by considering the use of social media for health communication purposes by AR and VR companies.

4. Methodology

In this research, AR and VR technology in terms of health communication will be discussed.

4.1. Purpose and Importance

This research will discuss the use of social media for health communication purposes by companies in the health sector using VR and AR technology. Since there is no study on the use of social media for health communication purposes by AR and VR companies serving in the health sector, the study is essential.

4.2. Method

The content analysis method will be used in the study. According to Krippendorff (1989), content analysis is an analysis technique that provides valid and repeatable results from a data set. In this context, the primary purpose is to reach the main themes explaining the data obtained (Çalık & Sözbilir, 2014). In line with this goal, the research questions are as follows:

- What topics does XRHealth share within the framework of health communication?
- What topic does XRHealth share the most?

4.3. Data Collection and Analysis

The data collection technique of the study is observation. In this technique, the researcher systematically notes his observations for a purpose (Özdemir, 2010). In this context, AR and VR companies serving in the health sector were identified within the scope of the research (*Sağlıkta Artırıllmış Gerçeklik*, 2022). Then, XRHealth company was selected by random sampling among companies actively sharing on Youtube. The posts of these companies on their official Youtube accounts were analyzed by the content analysis method in the Maxqda program (*XRHealth*, 2022). Youtube shares were analyzed between 1 February and 10 April 2022. The research has been analyzed with maxqda version 2020.03. The fact that AR and VR companies serving in the health sector do not regularly share on social media constitutes the limitation of this study.

5. Results

XRHealth company started sharing videos on Youtube in 2017. The number of videos published on the channel is 110. When the published video contents are evaluated with the content analysis method in health communication, the titles obtained are as follows: Primary health care services are health promotion/development and preventive health services.

In health communication, coding was made regarding health education (f=62) regarding preventive health services. The sub-codes and frequencies of the preventive health services theme are as follows:
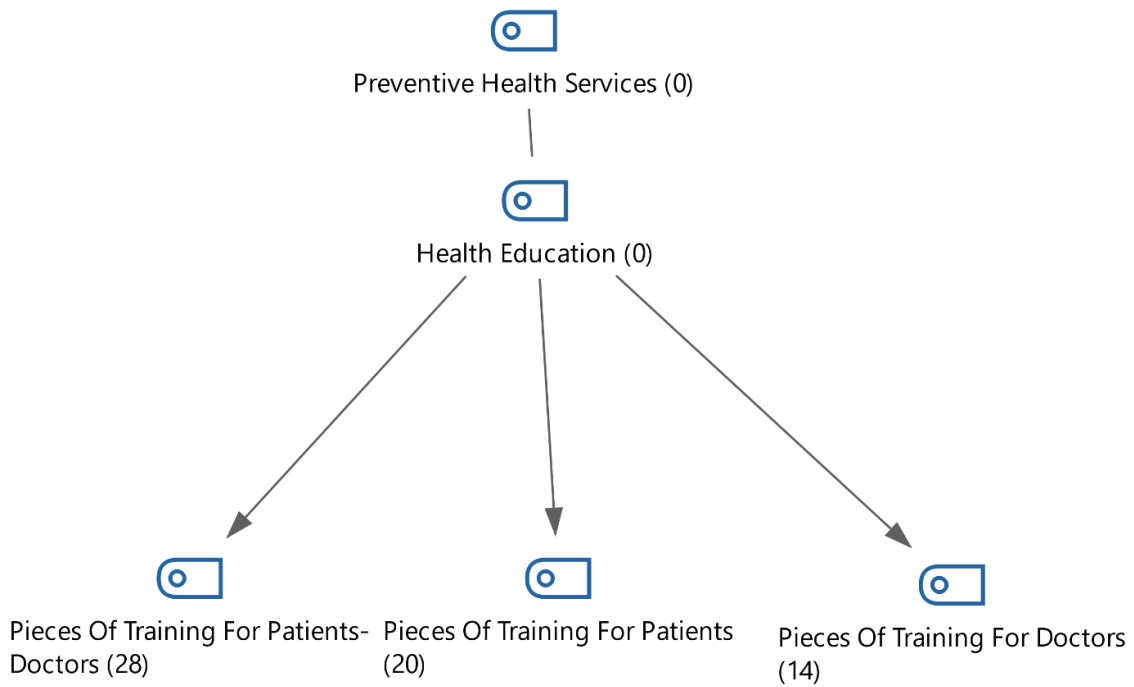
Figure 4: Theme and Sub-Themes of Preventive Health Services

On the theme of preventive health services, training for patients-doctors (f=28), training for patients (f=20), and pieces of training for doctors (f=14) are under the sub-title of health education. The use of the platform is mentioned in the title of pieces of training for patient doctors. Clinician support (f=5) and patients' experiences (f=15) are mentioned in training for patients. Video contents related to Webinars (f=5) and VR treatment techniques (f=9) were shared in training for doctors.

Coding was done on the theme of health promotion (f=22). The sub-headings and frequency distributions of this theme are as follows:
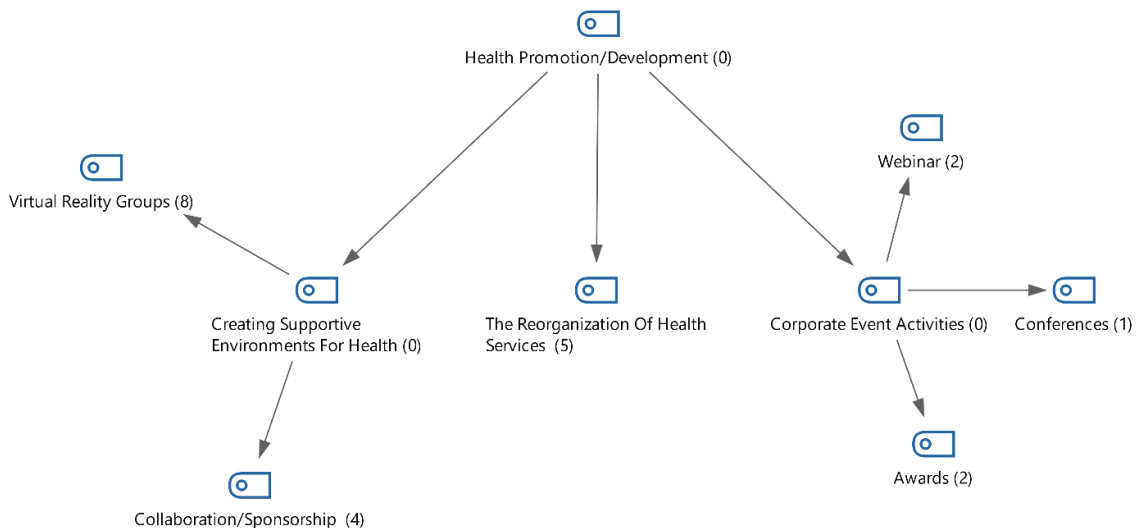

Figure 5: Themes and Sub-Themes of Health Promotion and Promotion

Depending on the health promotion theme, the frequency of the reorganization of the health services sub-theme is (f=5). Collaboration/sponsorship (f=4) and virtual reality groups (f=8) are

sub-themes of the theme of creating supportive environments for health. The sub-themes and frequency distribution of the corporate event activities theme were published in the conference (f=1), webinar (f=2), and awards (f=2) video.

Coding was done in the primary health care theme (f=36). The sub-headings and frequency distributions of this theme are as follows:
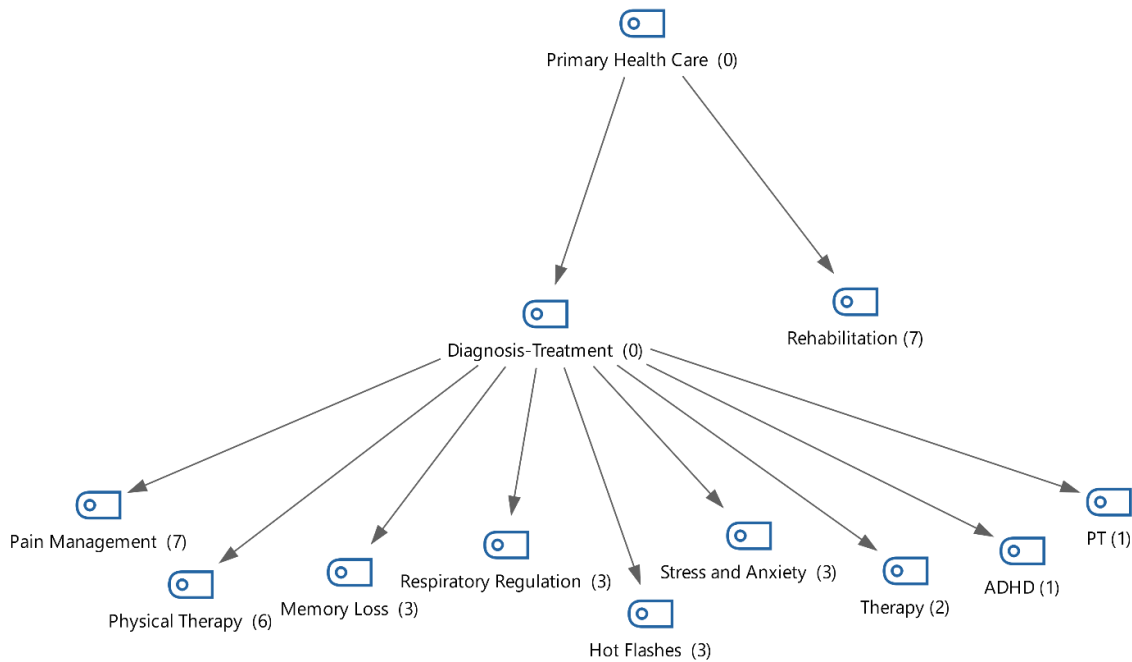
Figure 6: Primary Health Care Themes and Sub-Themes

Based on the primary health care theme, the video was shared in the rehabilitation theme (f=7). A video was shared under the diagnosis-treatment sub-theme (f=29). The themes and frequencies of these videos are as follows: Pain management (f=7), physical therapy (f=6), stress and anxiety (f=3), hot flashes (f=3), respiratory regulation (f=3), memory loss (f=3), therapy (f=2), PT (f=1) and ADHD (f=1).

Figure 7: XRHealth Word Cloud

When the video contents are analyzed with the content analysis method, the word cloud is as follows: XRHealth (f=99), health (f=42), virtual reality (f=34), telehealth (f=21), research (f=20), VR (f=20), therapy (f=19), knowledge (f=16), pain (f=13), physical therapy (f=13), patient (f=10), the user (f=10), clinician (f=9). It is seen that the word cloud is entirely compatible with health communication topics.

Conclusion and Evaluation

In this research, the posts on the official Youtube accounts of XRHealth, which provides services in the health sector using VR and AR technology, were analyzed with the content analysis method in the Maxqda program. The following results were obtained: In the context of health communication, preventive health services, primary health care services, and services for health promotion/development were shared. In this context, the first research question is, "What topics does XRHealth share within the framework of health communication?" question has been answered.

XRHealth company mainly mentioned preventive health services in the context of health communication. While sharing primary health care services after preventive health services, he shared at least about health promotion and development. In this context, it can be said that the company gives more importance to preventive health services and produces a company policy on health education, which is a primary health care service. Therefore, the second research question, "What topic does XRHealth share the most?" has been answered.

Content has been produced on reorganizing health services, creating health-supporting environments, and corporate activity activities in health sharing health promotion and development. This context contributes to health communication with health-supporting circles such as corporate sponsorship activities, collaborations, and virtual support groups. In addition, events such as webinars, conferences, and awards were implemented as corporate health communication activities.

Rehabilitation and diagnosis-treatment services are emphasized as primary health care services. In this context, the diagnosis-treatment process of pain management, physical therapy, memory loss, hot flashes, therapy, stress, and anxiety are evaluated using AR and VR technology.

There are training videos for doctors and patients on the link between health education in preventive health services. Training for doctors includes webinars and videos with more expertise in VR treatment techniques. In the videos for patients, there are videos where patients who benefit from VR technology explain their experiences and content to promote health services by providing clinician support. There are educational videos for using the VR treatment platform for both doctors and patients as the final content.

As a result, there are messages for health communication in the social media shares of health companies using VR and AR technology. In this context, the impact of AR and VR technology on health education in health messages seems quite clear, as health companies produce content that will highlight protective and primary healthcare services on social media.

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Katkı Oranı Beyanı

Yazarlar makaleye eşit oranda katkı sunmuşlardır.

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