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The Virtual Reality Training in the First Aid of the Geriatric Individuals

INNOVATIVE HEALTHCARE EDUCATION THROUGH VIRTUAL REALITY

6-7 ARALIK 2023

Karabük Üniversitesi
15 Temmuz Şehitler Konferans Salonu

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PROCEEDINGS BOOK

This congress was organised within the scope of the Erasmus + project titled "The Virtual Reality Training in the First Aid of the Geriatric Individuals" supported by the Turkish National Agency.

Karabük Üniversitesi Yayınları

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INVITATION

Dear colleagues,

"Innovative Healthcare Education Through Virtual Reality Congress" organised with our partners from Türkiye, Germany and Macedonia within the scope of Erasmus + project titled "The Virtual Reality Training in the First Aid of the Geriatric Individuals" will be held on 6-7 December 2023 at Karabük University 15 July Martyrs Conference Hall. We are proud and happy to invite you to our congress where we will discuss innovative health care education with augmented reality in all aspects in the 100th anniversary of our Republic.

In our congress, current developments specific to virtual reality applications in health care services and education, theoretical and practical basic issues, and research in this field will be presented on a common platform. In our congress, where knowledge and experience are shared, our unity will be enriched with various conferences, panels, courses, verbal/poster presentations and social content issues. We believe that our congress, which will bring scientists, academicians and clinicians together under the umbrella of virtual reality, will be further enriched with your support.

We will be very happy and honoured to see you, our esteemed colleagues, among us at our congress.

Best Regards,

On behalf of the Organising Committee

Asst. Prof. Dr. Durdane YILMAZ GÜVEN

Project Manager

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SCIENTIFIC PROGRAMME

06.12.2023	**WEDNESDAY**
9:00am-12:00 am	**Registration**
10:00am-12:00am	**FIRST AID TRAINING COURSE FOR GERIATRICINDIVIDUALS- VR SIMULATION** Dr. Durdane Yılmaz Güven, Dr. Sevil Güler, Dr. Hülya Bulut, Dr. Tuğba Aydın Yıldırım, Dr. Duygu Kes, Dr. Kasım Özacar
12:00pm-1:00pm	**Lunch**
1:00pm-1:30pm	**WELCOME CONFERENCE** **Opening Remarks**
1:30 pm-2:00 pm	**INNOVATIVE HEALTHCARE EDUCATION THROUGHVIRTUAL REALITY** **Moderator:** Dr. Hülya Bulut, Gazi University **About the Project (15')** Dr. Durdane Yılmaz Güven, Karabuk University **First Aid VR Simulation (15')** Dr. Kasım Özacar, Karabuk University
2.00 pm-2.30 pm	Coffee Break
2:30 pm-3:15 pm	**CONFERENCE** **Moderator:** Dr. Kasım Özacar, Karabuk University **VIRTUAL REALITY: THE PAST, THE PRESENT AND THE FUTURE** Dr. Patryk Ziółkowski, Gdansk University of Technology, Faculty of Civil and Environmental Engineering, Department of Engineering Structures, Politechnika Gdanska, Poland
3:15 pm-4:15 pm	**ORAL PRESENTATION SECTION** **Moderators:** Dr. Sevil Güler, Gazi University -Dent. Ivona Naumoska Opetchevska-SosuSv.KiriliMetodij (North Macedonia)
5:00 pm-8:00 pm	**WELCOME RECEPTION** **Location to be Announced**

07.12.2023	**THURSDAY**
8:00am-10:00am	**Registration**
10:00 am-11:00am	**PANEL: VR IN TRAINING FUTURE HEALTH PROFESSIONALS** **Moderators:** Dr. Durdane Yılmaz Güven- Karabuk University, Eng. Yılmaz Olcay- Karabuk University **Virtual Reality and Health Education: The Past, The Present andThe Future (15')** Dr. Ali Arı, Inonu University **The Use of Virtual Reality in Midwifery Education (15')** Dr. Reyhan Aydın Doğan, Karabuk University **The Use of Virtual Reality in Nursing Education (15')** Dr. Songül Güngör, Osmaniye Korkut Ata University
11:00am-12:00pm	**PANEL: USING VR IN PATIENT EDUCATION WITH EXAMPLES** **Moderators:** Dr. Ali Arı-Inonu University, Eng. Gökhan Kutlu Karabuk Provincial Directorate of National Education **The effect of management of epileptic seizure training program prepared with virtual reality technology on seizure management of parents** Dr. Fatma Dilek Turan, Akdeniz University (15') **The effects of virtual reality (VR) training on patients undergoing laparoscopic surgery on their life findings, their pain and anxiety** Dr. Arzu Tuna, Balıkesir University (15') **Exposure Therapy with Virtual Reality** Dr. Nefise Demir, Karabuk University (15')
12:00pm-1:00pm	Lunch
1:00pm-2:00 pm	**PANEL: VR IN PATIENT CARE AND TREATMENT**

	Moderators: Dr. Arzu Tuna- Balıkesir University, Dr. Fatma Dilek Turan-Akdeniz University **The effect of virtual reality glasses application on anxiety and fatigue in women with breast cancer receiving adjuvant chemotherapy: Pretest-posttest randomized controlled study** Dr. Arzu Uslu, Harran University (15') **Effects of Virtual Reality Based Movement Therapy on Upper Extremity Functions, Daily Living Activities and Cognitive Functions in Stroke Patients** Dr. Oğuzhan Bahadır Demir, Sakarya University of Applied Science (15') **The effect of haptonomy and virtual reality on anxiety, prenatal attachment and acceptance of pregnancy in the unplanned pregnant women: Imagining the baby** Dr. Ayşe Nur Yılmaz, Fırat University (15')
2:00pm-2:30pm	Coffee Break
2.30 pm-3.00pm	**PANEL: VR- SHARING EXPERIENCES** **Moderator:** Dr. Sevil Güler, Gazi University **VR- Sharing Experiences** Dr. Aydanur Aydın, Gümüşhane University (30')
3:00 pm-4:00pm	**ORAL PRESENTATION SECTION** **Moderators:** Dr. Duygu Kes- Karabuk University, Dr. Tuğba Aydın Yıldırım- Karabuk University
5:00 pm-7:00 pm	**CLOSING CEREMONY** *Congress Result Report *Giving Awards to the Ranking Papers

PAPER PROGRAM

Oral Presentations				
No	**Title**	**Presenter**	**Date**	**Time**
s1.	The Effect of Virtual Reality Applied During Blood Collection on Pain and Anxiety in Adults: A Randomized Controlled Study	Magbul Ahmet Çoban, Serap Sayar	06.12.2023	3:15 pm-3:22pm
s2.	The Effect of Technology-Based Breastfeeding Training on Breastfeeding Success and Self-Efficacy after Caesarean Section	Ümmühan Kılıç, Mevlüde Alpaslan Arar, Muhammet Ali Oruç	06.12.2023	3:23pm-3:30pm
s3.	Enhancing Oral and Maxillofacial Surgery through Virtual Reality Technology	Elif Meltem Aslan Öztürk, Fatema Shaaban, Hakan Ünal	06.12.2023	3:31pm-3:28pm
s4.	Innovation in Health Education: Integration of Vertebrae Obtained from Cadaver with 3D Scanner into Virtual Reality Application	Aya Aldashash, Emin Uysal, Eda Sağıroğlu	06.12.2023	3:29pm-3:36 pm
s5.	Türkiye'de, Ebelikte Sanal Gerçeklik Teknolojilerinin Kullandığı Tezlerin İncelenmesi	Sebahat Hüseyinoğlu	06.12.2023	3:37pm-3:44pm
s6.	Use of Virtual Reality Technology in Graduate Thesis in Surgical Units in Turkey: Systematic Analysis of Thesis	Ömer Faruk Çetinkaya, Fatma Dilek Turan	06.12.2023	3:45pm-3:52pm
s7.	İntervertebral Disklerin Eğitim Amacıyla 3 Boyutlu Modellenmesi	Sevecen Kaplan, Gökçe Özturan	06.12.2023	3:53pm-4:00pm
s8.	A Systematic Review of Studies Evaluating Virtual Reality Applications to Support Nursing Education for Nursing Students	AydanurAydın, Sevil Güler, Hülya Bulut	06.12.2023	4:01pm-4:08pm
s9.	Metaverse Concept In The Treatment Of Mental Illness And Psychiatric Nursing	Serap Arslan, Sevgi Dinç	06.12.2023	4:09pm-4:15pm

s10.	Virtual Reality for Sustainable Education: A Study on Anatomy Education	Tolga Ateş, Okan Aydın	07.12.2023	3:00pm-3:07 pm
s11.	Sanal Gerçeklik Teknolojilerinin Sigara, Beslenme, Alkol, Fiziksel Aktivite ve Obezite Risk Faktörleri Üzerindeki Etkinliği	Hilal Doğan Güney, Ümit Topcuoğlu, Buse Eren	07.12.2023	3:08pm-3:15pm
s12.	Virtual Reality-Based Interventions in Dialysis Patients: A Literature Review	Neşe Altınok Ersoy	07.12.2023	3:16pm-3:23pm
s13.	Türkiye'de Obstetri ve Jinekoloji Alanında Sanal Gerçeklik Gözlüğü Kullanımı ile ilgili Lisansüstü Tezlerin Sistematik İncelenmesi	Nihal Aydın	07.12.2023	3:24pm-3:31pm
s14.	Measurement of Learning and Teaching Effectiveness of Virtual Reality Based Anatomy Education in Vocational and Technical High Schools	Emin Uysal, Süleyman Sayın, Hacer Hüsrevoğlu Terzi, Özlem Göktürk, Sevgi Yirmibeş Yılmaz	07.12.2023	3:32pm-3:39pm
s15.	Düşme Riski Yüksek Yaşlılarda Sanal Gerçeklik Müdahalelerinin Düşme ve Denge Üzerine Etkisi: Gözden Geçirme	Feyza Demir Bozkurt, İlknur Dolu	07.12.2023	3:40pm-3:47pm
s16.	Virtual Reality Application in Chronic Wound Dressing	Nagihan Küçükakarsu	07.12.2023	3:48pm-3:55pm
s17.	Effectiveness of Virtual Reality Technology in Improving Muscle Activities of Children With Cerebral Palsy: A Systematic Review of Randomized Controlled Studies	Fatma Dilek Turan	07.12.2023	3:56pm-4:03pm
s18.	Hemşirelik – Virtual Reality Üzerine Yapılan Çalışmaların Bibliyometrik Analizi	Fatma Ay, Ayşegül Oksay Şahin	07.12.2023	4:04pm-4:10pm
s19.	Use of Virtual Reality in Pain Management in Patients with Total Knee Arthroplasty	Durdane Yılmaz Güven	07.12.2023	4:11pm-4:18pm

Poster presentation				
No	**Title**	**Presenter**	**Date**	**Time**
P1.	The effect of virtual reality in cardiac rehabilitation: A scoping review	Duygu Kes	06.12.2023	4:15pm-5:00pm Presenters must be present in the poster presentation area at the specified hours.
P2.	Uzaktan Eğitimde Sanal Gerçekliğin Yeri ve Önemi	Gulnara Zeynalova, Sebahat Hüseyinoğlu	06.12.2023	
P3.	Health Promotion and Virtual Reality Applications at School Age	Nesrin Arslan	06.12.2023	
P4.	Beden İmajı ve Özsaygı Sorunu Yaşayan Bireylerde Kullanılan Sanal Gerçeklik Destekli Terapötik Yaklaşımların Etkileri	Sibel Taşdelen, Nevin Onan	06.12.2023	
P5.	The missing dimension in studies using virtual reality technology: how much importance is given to the qualitative research method?	Fatma Dilek Turan	06.12.2023	
P6.	Başarılı Yaşlanma Başarıya Eşlik Eden Yenilikçi Bakış	Dilber Erdoğdu Demiral, Kadriye Gümüş	06.12.2023	
P7.	Tip 1 Diyabetli Çocuklarda Sanal Gerçeklik Uygulamalarının Psikososyal Desteğinin İncelenmesi	Bilal Kocatepe	06.12.2023	
P8.	Virtual Reality Application Examples in Disabled Individuals	Wahirou Bankı Imorou, Tuğba Aydın Yıldırım	06.12.2023	
P9.	Development and Implementation of Multi-Skill Haptic Assisted Virtual Reality Simulation for Nursing Students; Pre-Study	Özlem Doğu, Gülüzar Çit, Kayhan Ayar, Cemil Öz, Ramazan Bozkurt	07.12.2023	4:20 pm-4:50 pm Presenters must be present in the poster presentation area at the specified hours.
P10.	Türkiye'de Ebelik ve Hemşirelik Lisans Eğitiminde Sanal Gerçeklik Teknolojilerini Karşılaştıran Tez Çalışmalarının İncelenmesi	Bilgenur Bulut, Sebahat Hüseyinoğlu, Reyhan Aydın Doğan	07.12.2023	
P11.	The Place of Virtual Reality Applications in Health Care of Elderly Individuals	Wahirou Bankı Imorou, Tuğba Aydın Yıldırım	07.12.2023	
P12.	Virtual Reality Reminiscence Therapy	Sakine Fırıncık	07.12.2023	
P13.	A New Concept on Human Psychology: The Uncanny Valley	Gamze Aşkaroğlu, Sevgi Dinç	07.12.2023	
P14.	The effect of virtual reality in pulmonary rehabilitation: A scoping review	Duygu Kes	07.12.2023	

* Posters will be displayed throughout the congress.

ORAL PRESENTATION 1

The Effect of Virtual Reality Applied During Blood Collection on Pain and Anxiety in Adults: A Randomized Controlled Study

*Magbul Ahmet Çoban, **Serap Sayar

*Necmettin Erbakan University Meram Faculty of Medicine Hospital, Blood Collection Unit, Konya, Türkiye

**KTO Karatay University Faculty of Health Sciences, Nursing Department, Konya, Türkiye

Introduction: Effectively managing pain and anxiety during blood collection positively influences individuals' hospital experiences, contributing to reduced pain, fear, and anxiety during future invasive procedures. This is crucial for promoting psychological relaxation and shortening the duration of examination and treatment procedures. Nurses play a vital role in reducing pain and anxiety during invasive procedures by redirecting attention through both pharmacological and non-pharmacological interventions.

Purpose: The purpose of this research is to determine the impact of virtual reality applied during blood collection on pain and anxiety in adult patients.

Materials and Method: This study was conducted as a randomized controlled experimental research in the blood collection unit of a university hospital between February 2022 and June 2022. The study sample consisted of a total of 76 patients (control: 38, experimental: 38) assigned to groups using the block randomization method. Data were collected using the Visual Analog Scale (VAS) and the State-Trait Anxiety Inventory (STAI-I). Patients in the experimental group were exposed to virtual reality with nature images during blood collection, while the control group underwent routine blood collection procedures only. Anxiety levels before and after blood collection, as well as pain levels during blood collection, were measured for both groups. Data were analyzed using the Mann-Whitney U test for numerical variables, chi-square tests (Pearson chi-square/Fisher exact test) for categorical variables, mixed-design analysis of variance for within and between-group evaluations at different times, and the Bonferroni-Dunn test for multiple comparisons. The randomized controlled study protocol of

this study was presented as an oral presentation at the sixth International Medical Sciences and Multidisciplinary Approaches Congress.

Results: Patients in the experimental and control groups exhibited a homogeneous distribution in terms of sociodemographic and descriptive characteristics ($p>0.05$). The STAI-I mean scores of patients in the experimental group were significantly lower than those in the control group ($F=14.008$, $p=0.00$), and the VAS mean scores during the procedure were also significantly lower in the experimental group compared to the control group ($z=-5.333$, $p=0.00$).

Conclusion: Virtual reality applied during blood collection was found to be effective in reducing pain and anxiety levels in adults. It may be recommended to expand the use of VR application in hospitals during invasive procedures, to raise awareness of nurses working in clinics about the use of easy and effective distraction methods during anxiety-increasing and painful procedures, to conduct more comprehensive studies on VR application in different sample groups of adults.

Keywords: Virtual Reality; Adults; Pain; Anxiety; Nursing

ORAL PRESENTATION 2

The Effect of Technology-Based Breastfeeding Training on Breastfeeding Success and Self-Efficacy after Caesarean Section

Ümmühan KILIÇ[1], Mevlüde AlPASLAN ARAR[2], Muhammet Ali ORUÇ[3]

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Abstract

Introduction: Breast milk is an important source of nutrients that contains vitamins and minerals essential for infants, as well as beneficial properties that reduce mortality from infectious diseases[1]. All mortality risk factors are higher in non-breastfed infants than in breastfed infants[2]. While breastfeeding provides mother-infant bonding, it also reduces the rates of illness and mortality of children[3]. In recent years, there are studies reporting the use of different technological methods to ensure effective breastfeeding. These methods are reported to increase mothers' knowledge about breastfeeding, increase self-efficacy, intention and positive attitude development, and improve breastfeeding outcomes [3,4,5].

Objective: The aim of the study was to determine the effect of breastfeeding education using virtual reality on breastfeeding success and self-efficacy in women with primary caesarean section.

Materials: Sociodemographic Information Form consisting of eight questions, LATCH Breastfeeding Diagnostic Measurement Tool[6] and Breastfeeding Self-Efficacy Scale[7] Virtual Reality (VR) Goggles and Breastfeeding Video were used to collect data.

Methods: The study was conducted as a randomised controlled trial. Intervention and control groups were formed from the mothers included in the study (n=66). By simple sequential randomisation, 35 women were included in the experimental group and 31 women in the control group. Sociodemographic data were collected before the patients underwent caesarean section. LACT and Breastfeeding Self-Efficacy Scale were also collected after each group received breastfeeding education at the 4th and 24th hours after caesarean section. In the control group, the mother received routine breastfeeding training at the clinic, while the intervention group

received breastfeeding training with the virtual reality method. Data were analysed by Chi-Square test, Mann-Whitney U and Wilcoxon test.

Results: It was found that 22.7% (15) of all participants were between 18-25 years of age, 74.3% of the intervention group and 82.1% of the control group had a history of planned pregnancy ($p>0.05$). A significant difference was found between the mean scores of self-efficacy scale and LACTH scale of the intervention and control groups ($p<0.001$). Cronbach's alpha coefficient of the Breastfeeding Self-Efficacy Scale was calculated as 0.914 at the fourth hour and 0.944 at the 24th hour. A linear relationship was found between Breastfeeding Self-Efficacy Scale scores and LATCH scale scores in all participants, intervention and control groups.

Conclusion: In the study, it was found that breastfeeding education given with VR was effective in increasing the mother's breastfeeding self-efficacy and breastfeeding success. Breastfeeding self-efficacy of the intervention group was higher than that of the control group. In the literature, there are technology-based breastfeeding trainings given to mothers [4,8,9,10,11,12]. However, there is no breastfeeding education using VR. Breastfeeding success of the intervention group is higher than the control group. Although studies evaluating breastfeeding success using technological methods are limited[3,13], there is no study conducted with VR. The use of virtual reality goggles as an educational tool had positive effects on breastfeeding success and self-efficacy scores. Virtual reality goggles can be used for postnatal breastfeeding support.

Keywords: Breastfeeding Success, Caesarean section, Educational Technology, Breastfeeding Self-Efficacy, Virtual Reality.

References

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ORAL PRESENTATION 3

Enhancing Oral and Maxillofacial Surgery through Virtual Reality Technology

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Abstract

This research explores the use of virtual reality (VR) technology to improve surgical planning and comprehension in the field of oral and maxillofacial surgery. The virtual environment provides a 3D visualization of impacted teeth and hard tissue structures, thus aiding surgical planning, decision-making, and offering an immersive training tool for dentists and students. The methodology involves data processing, volume rendering, and cross-sectioning within a VR environment, with promising results.

Introduction

Oral and maxillofacial surgery often involves intricate procedures with limited visibility. The adoption of VR glasses in this context offers the potential to revolutionize the field, enhancing surgical planning and understanding. This research project aims to demonstrate the practical applications of VR glasses in this surgical domain.

Purpose

The primary purpose of this research is to investigate and demonstrate the potential benefits and applications of virtual reality (VR) technology in the field of oral and maxillofacial surgery. The research aims to show how VR can enhance surgical planning, decision-making, and comprehension, ultimately leading to more effective and precise treatment options for patients. Additionally, it explores the use of VR as an immersive training tool for dentists and students, which can significantly contribute to their education and skill development.

Materials

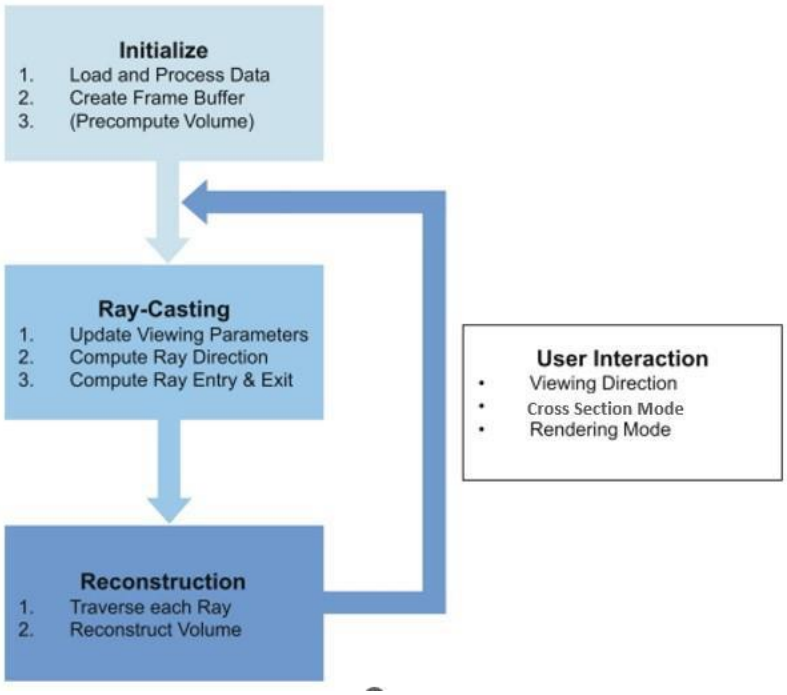
Software Tools:Unity,Visual Studio.

Medical Data:CBCT (Cone beam computed tomography) images of the oral and maxillofacial region

VR Headsets Technology:VR headsets are the hardware used to immerse users in the virtual reality environment.

Methodology

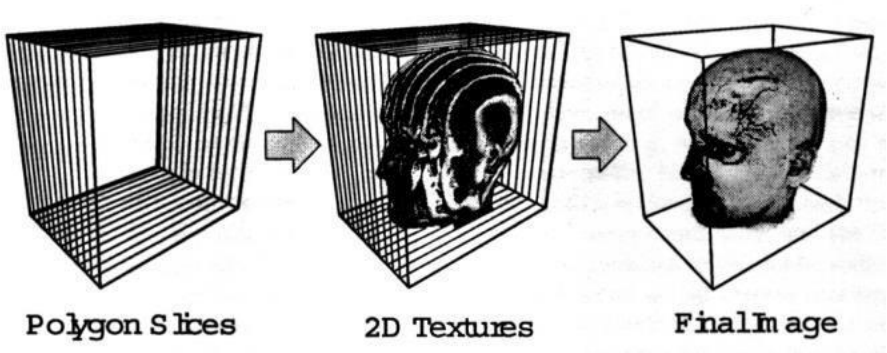
1. **Software and Data Processing:** Unity and Visual Studio software were employed. Medical data, including CBCT images of the oral and maxillofacial region, underwent processing using C#. Users had the flexibility to customize image filters to meet their specific needs. These filters addressed contrast and illumination issues, leading to the conversion of 2D medical images into 3D models.



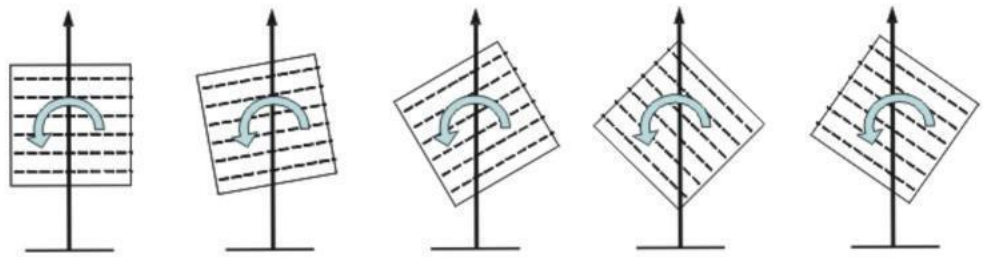
The steps to implement a dental medical database-based volume renderer for 3D modeling are as follows.

2. **Volume Rendering:** Accurate rendering of volumetric data is critical for producing highquality 3D representations. A methodology was implemented involving three stacks of

2D slices, each aligned along major axes. This approach ensured precise renderingfrom various viewpoints and provided a comprehensive representation of the volumetric data.

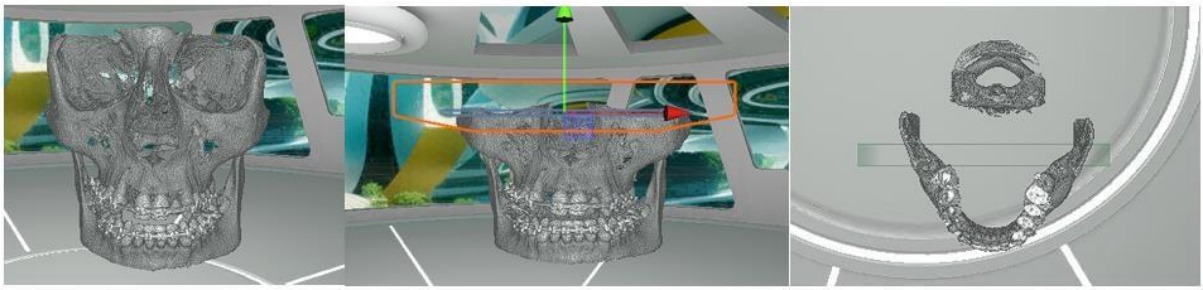


Object-aligned slices used as proxy geometry with 2-dimensional texture mapping



The stack of slices is chosen depending on the current viewing direction. Between image (3) and (4) the stack used for rendering has been swichted.

3. **Cross-Sectioning:** Cross-sectional representations of the generated 3D models were achieved through shader application in Unity.



Cross Section Mode

Results

The research project successfully leveraged a variety of image filters and Unity's shader features to convert 2D medical data into user-controllable 3D models within a virtual reality environment. These 3D models hold significant promise for enhancing surgical planning, decision-making, and training in oral and maxillofacial surgery.

Conclusion

The application of VR technology to the field of oral and maxillofacial surgery represents a groundbreaking advancement in dentistry. It significantly improves the understanding of patients' conditions, leading to more precise and effective treatment options. This research underscores the transformative potential of VR glasses, with far-reaching implications for both practitioners and patients in the domain of oral and maxillofacial surgery.

Keywords: Cross Section;3D Medical data; Navigation; Oral surgery; Virtual reality.

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ORAL PRESENTATION 4

Innovation in Health Education: Integration of Vertebrae Obtained from Cadaver with 3D Scanner into Virtual Reality Application

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Introduction

Traditional anatomy courses often rely on two-dimensional drawings or models, limiting students' comprehension of complex structures like spinal bones. While cadavers and models address this, practicality and ethical concerns arise. Utilizing 3D visualization technologies and 3D scanning, accurate models are created and seamlessly integrated into Virtual Reality (VR). This digitizes and enhances the educational process, providing an interactive, sustainable solution. This study pioneers the integration of cadaveric 3D scanning and VR, offering advanced insights into the anatomical structures of human spinal bones, revolutionizing the study of anatomy.

Purpose

This research focuses on transferring 3D-scanned models of human spine bones (Cervical 4, Thoracic 10, Lumbar 5 Vertebrae, and Sacrum) from cadavers to the virtual reality environment. By enabling a detailed examination of anatomical structures, this method enhances the educational experience, allowing learners to practically apply theoretical knowledge. Virtual reality fosters a lifelike learning environment, offering health professionals an interactive and effective platform to elevate their skills and knowledge in medical education.

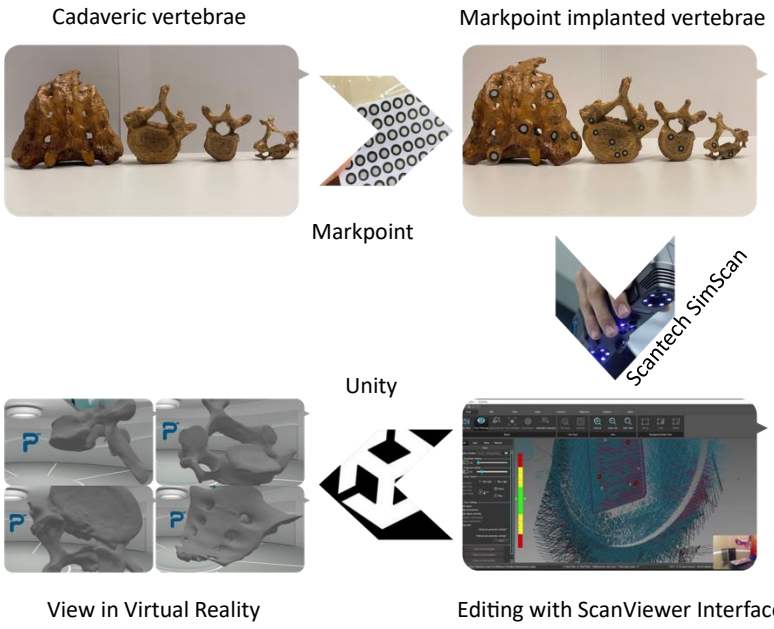
Materials

In the study, 3D scanning processes were performed on vertebral bones taken from cadavers at Lokman Hekim University. Along with the sacrum bone, one vertebral bone from each section, cervical, thoracic and lumbar, representing the human spine sections, was used. In this study,

SIMSCAN Portable 3D Laser Scanner, which can perform high-precision scanning with built-in HD cameras and three scanning modes with an accuracy of up to 0.020 mm, was used.

Methods

In the Spine bone scanning procedure utilizing the Simscan 3D scanner, an intricate scan of the bones was conducted, utilizing advanced sensor technologies for high-resolution data capture. The ScanViewer program facilitated the processing of the obtained data, finalizing the 3D models, which were then saved as .OBJ files. Subsequently, the Unity program was employed to seamlessly transfer these detailed models into the virtual reality (VR) environment. This method ensures a remarkable level of precision, enabling the presentation of 3D models in education within a realistic and interactive VR setting, enhancing the overall learning experience with lifelike anatomical structures.



Results

The 3D scanner technology used was successfully applied on the spine bones and this process allowed the successful creation of realistic 3D models. At the end of this process, four 3D

models were obtained. These models represent C4, T10, L5 and sacrum bones. Additionally, while it may take approximately 5 hours to design a 3D model of a vertebra on a computer, the process performed by 3D scanning usually takes approximately 45 minutes. This makes this method a successful option in terms of time and precision.

Conclusion

The 3D models obtained as a result of this study are considered to be accurate and realistic. It has the potential to be used as additional educational material by medical and health sciences students. The virtual reality environment offers students the opportunity to examine structures that are difficult to understand and imagine in detail in 3D. In this context, it will be possible for students to understand their anatomical knowledge in more depth and prepare for clinical applications more effectively.

Key words: 3D Scanning, Virtual reality, Spine

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ORAL PRESENTATION 5

Measurement of Learning and Teaching Effectiveness of Virtual Reality Based Anatomy Education in Vocational and Technical High Schools

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Introduction

As Çankaya Lokman Hekim Vocational and Technical Anatolian High School, the Anatomy laboratory was established and started to be used with the support of Pi Health Technologies within the scope of the Health Vocational High Schools Anatomy Virtual Reality Laboratory - Lokman Hekim Anatomy VR Lab project, which we are realizing with the support of Ankara Development Agency in 2023. In this context, the effectiveness of the Anatomy laboratory course, which our students take in virtual reality environment besides traditional methods, in learning and teaching has been investigated.

Purpose

It is observed that the anatomy course, which is one of the basic building blocks of the health education curriculum, contains intensive and complex information, and that learners, especially at high school level, have difficulties in the process of comprehending the subjects and internalizing the information they have learned. Our 9th grade students have difficulties due to the fact that the anatomy course is difficult and consists of Latin words, they experience fear of failure and this leads to school dropouts. Especially for Generation Z students, a highly interactive education that will enrich their imagination, give them a sense of being in the environment, and develop their clinical skills instead of traditional methods will increase the academic success of students. The abstract structures in the anatomy course will be made 3D and concretized with virtual reality (VR), enabling the learners to benefit from this technology, examining the anatomical structures they see in the textbooks in three dimensions and seeing

the relationships between these structures in a concrete way, and their effects on the learning speed will be investigated.

Materials and Methods

The curriculum on anatomy was created and the curriculum and course operation were scripted for virtual reality environment developers. In association with the created scenarios, the developer made 3D modelling and the application was started to be used in our school Çankaya Lokman Hekim Vocational and Technical Anatolian High School. Animation of the models created was prepared. Animations were transferred to virtual reality environment within the scenarios. Lokman Hekim Virtual Reality (VR) Anatomy Laboratory was established. In this virtual laboratory, students started to be able to do laboratory training in classrooms and students' learning speed was measured by exams.

Findings

The curriculum was organized by our partner Lokman Hekim University Faculty of Health Sciences and our teachers through Anatomy Virtual Reality (VR) Laboratory. Trainings were given to our students through the determined curriculum. Students were able to see the anatomical models, which are the basis for health education, in 3D, and a high level of increase was observed in students' participation rates and interest in the course. Thanks to the training provided by the developer engineers, teachers mastered the use of the virtual reality application which allowed them to educate students using virtual laboratory in anatomy lessons. It was observed that the virtual laboratory was used more actively and participatory than an equipped real laboratory. In our school, there are five 9th grade classes who take anatomy lessons which contain 134 students in total, 112 of these students take lessons with Virtual Reality Laboratory and 22 students take lessons with traditional methods. When learning rates were measured, it was observed that students who actively participated in the lesson with virtual reality applications had faster learning and longer memorization periods.

Conclusion

With the Anatomy Virtual Reality Laboratory, students' ability to establish a connection between reality and digital content has increased, and their understanding and transfer of

anatomy lessons has become easier. In addition, their willingness to learn and motivation for the course increased. The exam performances of 112 students who took lessons with VR increased by 64% compared to 22 students who took lessons with the traditional method. In terms of teachers, their workload was lightened as they were able to receive feedback on students' weak learning areas instantly. Finally, virtual reality (VR) applications are considered to be a sustainable educational material for vocational education.

Keywords

Anatomy, Virtual Reality, Three Dimension, Vocational, Education

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ORAL PRESENTATION 6

Use Of Virtual Reality Technology In Graduate Thesis In Surgical Units In Turkey: Systematic Analysis Of Thesis

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ABSTRACT

Introduction: Virtual reality technology is a technology that is frequently used in surgical units, as in all fields.

Purpose: To examine postgraduate theses made using virtual reality technology in surgical units in Turkey.

Materials-Methods: The search was carried out between January and April 2023, with the terms “virtual reality”, “surgery”, “surgical units” in the National Thesis Center of the Council of Higher Education, without year limitation.

Results: 32 theses were reached by scanning. There are a total of seven theses, three of which are restricted with full texts by the authors, and four with abstract and full texts, which cannot be accessed. Theses are grouped in four ways, according to their years, types, populations (adult/pediatric) and departments. When the distribution of the theses made using virtual reality technology in surgical units is examined, it was determined that the first thesis was made in 2009 and the most thesis was done in 2020. Most of the total number of theses (84.0%) consists of theses made in the last three years. When grouped according to thesis types; it was determined that doctorate (48.0%) and master's theses (44.0%) were high and close to each other, and only two theses were specialization in medicine (8.0%). When the theses were grouped according to the populations (adult/pediatric) they were made, it was seen that most of them were made in the adult population (72.0%), while the other part was made in children (28.0%). Two of the theses (8.0%) were made for educational purposes and were not applied to

patients who were followed up, treated or cared for in surgical units. In five theses (20.0%), range of motion was examined and pain was evaluated during physiotherapy practices in patients hospitalized in surgical units. It was clearly seen that the most evaluated and targeted parameter in both the pediatric and adult population was pain (72.0%).

Conclusion: In our country, using virtual reality technology in surgical units; The effectiveness of virtual reality technology has been proven in all theses regardless of the thesis year, the type of thesis, the population in which the thesis is made. In theses, it is suggested that virtual reality technology will become a method that makes a difference in surgical training and care of surgical patients by creating a standardized and accessible prototype. It is thought that the analysis of theses made with virtual reality technology used in surgical units will guide new research.

Keywords: Surgery, surgical units, postgraduate thesis, virtual reality

ORAL PRESENTATION 7

3 Dimentional Modeling of Intervertebral Discs for Educational Purposes

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Objective:

Intervertebral discs, essential structures supporting spinal flexibility, mobility, and the spinal cord, are crucial for the diagnosis, treatment, and surgery of spinal issues.[1] While imaging techniques like magnetic resonance imaging, computed tomography, ultrasound, and cadaver examinations contribute to understanding the structure and function of intervertebral discs, they may fall short of providing an in-depth analysis of undistorted disc structures.[2],6 The advancement of technology has introduced 3D (dimentional) modeling and virtual reality into various fields, creating interactive environments. In the medical field, there have been significant developments in education and examination methods.5 This study aims to leverage new technologies to obtain 3D models of intervertebral discs and disc herniations.

Materials and Methods:

Intervertebral discs were 3D-modeled using the Blender program and optimized for integration into game engines. The annulus fibrosus structure texture was generated using Adobe Substance Painter, followed by the creation of the nucleus pulposus structure texture.1,3 These processes aim to establish a realistic intervertebral disc model. The stages of intervertebral disc herniations were also 3D modeled using Blender and Adobe Substance Painter, with corresponding textures.5,7 Ultimately, models of both healthy intervertebral discs and disc herniations were transferred to a virtual reality environment via the Unity game engine.8 The accuracy of the intervertebral disc anatomy was verified by comparing the models with visual references from the literature.1,2

Results:

The 3D modeling of intervertebral discs yielded models for each type of central, foraminal, and posterolateral disc herniations, including bulging, protrusion, extrusion, and sequestration

stages. These 3D models were cross-referenced with images found in the literature.2,5 The intervertebral discs and disc herniations were prepared as 3D models ready for examination.

Conclusion:

These disc and disc herniation models offer detailed examinations within a 3D and interactive space for medical students, practitioners, and researchers. They serve as a potential solution to the limitations of traditional 2D visuals and written descriptions, potentially revolutionizing visualization and understanding of this complex spinal structure. In subsequent stages, herniation animations will be generated and refined based on these models, further enhancing their pedagogical and diagnostic value.

Keywords: herniation, intervertebral disc, 3D, virtual reality

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ORAL PRESENTATION 8

A Systematic Review of Studies Evaluating Immersive Virtual Reality Applications to Support Nursing Education for Students

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ABSTRACT

Background: Virtual reality (VR)-based interventions are widely used in education. However, there is no framework for researchers to examine the results of immersive virtual reality (IVR) applications in nursing education.

Objective: This systematic review aims to assess, combine, and contrast IVR interventions employed in nursing student education.

Methods: A systematic review was conducted on Ovid MEDLINE, PubMed, Nursing and Allied Health (CINAHL), Web of Science, and Scopus, covering the period from 2013 to June 2023. The databases were searched using the following terms: "Nursing student", "Nursing education", "Virtual Reality", "Randomized Controlled Trial", and associated words. The studies that met the inclusion criteria were appraised by two independent reviewers. Our systematic review protocol is registered with PROSPERO (Registration number: CRD42023477436). To organize and scan all references, EndNote X9 software was employed. EndNote was used to import search citations, and duplicate postings were found and eliminated. Rayyan15 was used to screen the references once they were imported. This review's publications were found by a sequential inspection of titles and abstracts in Rayyan. Two separate authors (AA, SG) independently reviewed data found using the search approach for eligibility or ineligibility based on established eligibility criteria. The two authors were a good fit for each other. A third author (HB) assessed all included publications and incorporated them in the systematic review. The PRISMA flowchart was used for this review.

Results: Thirteen publications out of the 667 retrieved citations satisfied the requirements for review inclusion. After removing 152 duplicates and 515 publications for other reasons, a total

of 13 publications were included in this review. The total publication population consisted of a total of 1124 nursing students. One of the publications was randomized controlled trials, twelve were quasi-experimental, and four were single-group pretest-posttest without a control group. Studies that also evaluated cognitive features were found. It was observed that "Cognitive learning satisfaction" and "Cognitive exam" scales were used to evaluate this situation. It was determined that nursing abilities and clinical skills were structured using measurement tools that were valid for the situation. Six publications did not question the experience of users implementing the IVR intervention.

Conclusion: It was determined that IVR has yielded positive results in nursing education and can serve as a valuable resource to support clinical education. Nursing students find IVR applications immersive, realistic, and interesting. By incorporating VR into nursing education, education can become more enjoyable and interesting. IVR applications may be preferred in subjects that are planned to provide effective learning in nursing students (clinical skills, attitude, etc.).

Implications for Practice: Further research ought to center on the use of IVR in diverse fields of nursing education over extended durations, with numerous replications, and meticulous analysis of the outcomes.

Ethics and Dissemination: Ethical approval is not necessary as this study proposes utilizing previously published research. The outcomes of this comprehensive review will be publicly accessible via a peer-reviewed journal.

Keywords: Systematic review, nurse education, immersive virtual reality

ORAL PRESENTATION 9

Metaverse Concept In The Treatment Of Mental Illness And Psychıatrıc Nursıng

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[2] Karabuk University Faculty of Health Sciences, Department of Nursing, Department of Psychiatric Nursing

Objective: The aim of the study was to provide information about the concept of metaverse in the treatment of mental illnesses in line with the relevant literature and to provide information about how it can be reflected in psychiatric nursing.

One of the areas that is inevitably affected by the increasingly popular Metaverse concept is the health sector. The two words that make up the concept, "meta" means beyond and "universe" means universe.[7] The metaverse, which has an incredible potential to provide realistic experiences to its users, is a concept that includes many technologies. Technologies such as augmented reality, virtual reality, robotic technology, artificial intelligence have started to be used in the field of health. In healthcare services, metaverse can be used in areas such as patient care, rehabilitation services, clinical applications, education, and research.[11] It is thought that the Metaverse universe will bring a new dimension to the treatment of mental illnesses and offer various possibilities.

In the literature, it is seen that virtual reality and augmented reality applications have started to be used in the treatment of mental illnesses within the metaverse universe. Virtual reality (VR), which consists of the words virtual and reality, which are completely opposite to each other, is a human-computer interaction tool that gives people the feeling of being there and makes people an active participant in the virtual world.[1] Virtual reality technology has an extraordinary potential to overcome mental health problems by making the individual feel experiences similar to real life. The ability to create and repeat unlimited artificial environments, to monitor and evaluate the situation instantly, to receive instant feedback and to intervene makes it possible to use new methods in the treatment of psychiatric diseases.[3] In a meta-analysis study, it is reported that the use of virtual reality provides positive results especially in the treatment of

mental illnesses such as anxiety disorders, depressive symptoms, neurodevelopmental disorders, psychotic symptoms.[4] In a different study, 33 participants with specific phobia were exposed to virtual reality exposure therapy under the supervision of their therapists. In the study, it was determined that virtual reality exposure was an effective method.[6] Virtual reality relaxation (VRelax) is considered to be an effective tool for reducing stress and a promising mental health intervention. Compared to standard relaxation exercises, VRelax was found to have a stronger effect on reducing anxiety.[10] A study conducted with dementia patients shows that virtual reality is feasible for patients with mild to moderate dementia, even those who periodically exhibit challenging behaviors and are hospitalized.[9] Apart from mental illnesses, the use of virtual reality technologies is considered as an auxiliary intervention tool for anxiety management and changing mood positively during the treatment of cancer patients.[8] Virtual reality allows mental health professionals to think outside traditional views and options.[5] These changes in healthcare services suggest that psychiatric nurses, one of the healthcare professionals, should also gain awareness about metaverse applications, which are thought to be widely used in the treatment of mental disorders in the future. Psychiatric nurses can manage patient care with their professional knowledge and skills in the face of possible problems that may occur during and after the applications. In addition, metaverse applications can also be used as a training tool to increase the knowledge and skills of psychiatric nurses on issues such as communication with patients and case management. The world of metaverse may be an area of interest for psychiatric nurses who embrace the importance of continuous learning and self-improvement.

Conclusion: It can be said that psychiatric nurses should also gain awareness and increase their knowledge about the applications in the metaverse world, which is thought to be used as an effective method in the treatment of mental illnesses in the future.

Keywords: Metaverse, Psychiatric Nursing, Mental Illness

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ORAL PRESENTATION 10

Virtual Reality for Sustainable Education: A Study on Anatomy Education

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Introduction:

The use of virtual reality technology in the field of education has rapidly increased in recent years. In this study, the aim is to transfer the detailed examination of the human body, which is difficult or impossible to experience in the real world, to the virtual reality world, eliminating difficulties and impossible situations to create a more understandable and sustainable educational material.

Objective:

The aim of this study is to simulate processes that are not possible or difficult to examine and research using traditional educational methods in a virtual environment, providing an interactive and sustainable educational experience. For example, in the traditional education method, accessing a cadaver for a detailed examination of skull bones is difficult, and dissecting these bones for detailed examination makes it impossible to reassemble them. Instead, in the virtual reality application, skull bones are dissected into pieces, allowing users to hold and examine the pieces in detail. When it is desired to reconstruct the pieces into their original structure, they can be returned to their former form with a given command.

Method:

3D models prepared using programs such as Houdini, Maya, and Substance 3D Painter for the virtual reality application were dissected in accordance with the nomenclature and grouping in the literature, and texture and color were added to each piece to closely resemble reality. The created models were positioned for animation and sent to the Unity game engine. Functions created in the C# programming language and Oculus software were combined in the Unity game engine to allow end-users to observe the models using virtual reality goggles and to examine them in detail by holding them with controls.

Findings and Conclusion:

As a result of our studies, it has been observed that the interactive anatomy education program created using virtual reality technology deepens students' understanding and makes knowledge transfer more effective. Additionally, creating a sustainable education system reduces costs and environmental

impacts in education, providing students and professionals with the opportunity to learn the complex structure of the human body in detail.

Keywords: Virtual Reality, Anatomy Education, 3D Models, Interactive Education, Educational Technologies

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ORAL PRESENTATION 11

Effectiveness of Virtual Reality Technologies on Obesity Risk Factors

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Introduction: Smoking, poor nutrition, risky alcohol use, physical inactivity and obesity are the main preventable risk factors of chronic diseases. Due to its widespread prevalence, obesity is known as one of the most serious health problems in both developed and developing countries, and is considered a chronic and progressive disease with high morbidity and mortality rates.[1,2] Health services are one of the areas that are rapidly affected by new technologies. The technologies used in the delivery of health services are among the important factors in increasing service efficiency and improving quality.[3,4] It is thought that virtual reality technologies, among these technologies, will be significantly effective in health services in the future. Clinically validated virtual reality technologies have become widely used worldwide.[5] A number of systematic reviews; have examined the effectiveness of virtual reality interventions in improving risk factors for smoking, alcohol, physical activity, and chronic diseases, but studies focusing on nutrition and obesity are very limited.[6]

Purpose: Considering the limitations of existing systematic reviews and existing gaps in the literature, the aim of this study is; To review the literature on the use of virtual reality technologies in the treatment of obesity and overweight.

Materials and Methods: In line with the purpose of the study, selected scientific studies on virtual reality technologies and obesity, published between 2018 and 2023, were compiled with certain criteria.

Findings: Worldwide, tobacco use causes more than 8 million deaths each year, alcohol use causes more than 3 million deaths each year, poor nutrition such as high sodium, low grain and low fruit intake causes 11 million deaths worldwide, and physical inactivity causes 1 million

deaths each year. 6 million deaths occur. The use of virtual reality technologies in the field of healthcare in Turkey has started to increase in the last 5 years.

Discussion: So far, traditional methods such as medical nutrition, behavior change and pharmacological treatments have been used in the treatment of obesity. Studies on the effects of virtual reality technologies on obesity; report increasing interest in helping individuals improve their perception of body image and in greater use of virtual reality technologies to promote healthy habits.[7] As virtual reality technologies become more accessible and portable, their increased use as a potential alternative to modify health-risk behaviors at home or in the clinic may increase.[7,8] A variety of new techniques are presented and analyzed in the context of current clinical practice and future goals.[9]

Conclusion: Overall, this review demonstrates that virtual reality technologies interventions have the potential to be an effective alternative to current treatments for smoking, nutrition, physical activity, and obesity, and the promising potential applicability of virtual reality technologies in healthcare settings. It is also thought that it will contribute to the increasing knowledge about virtual reality technologies in medical environments and help the development of new methodologies. Given the limited number of studies investigating the effectiveness of virtual reality interventions across multiple health risk behaviors, particularly alcohol consumption, nutrition, smoking, and obesity, further research is needed to expand the evidence base in multidisciplinary studies in addition to traditional methods for obesity.

Key words: obesity, virtual reality, diet

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ORAL PRESENTATION 12

Virtual Reality-Based Interventions in Dialysis Patients: A Literature Review

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Abstract

Introduction: Dialysis patients often experience symptoms such as fatigue, nausea, dizziness, and headaches associated with their treatment.[1,2] Virtual reality interventions are employed not only for managing symptoms but also in the training of dialysis techniques. [3,4]

Purpose: This literature review aimed to investigate the impact of virtual reality-based interventions in dialysis patients.

Materials, Methods:. Articles published between January 2000 and November 2023 were searched in PubMed. Medical subject heading (MeSH) terms and keywords included "Hemodialysis," "Renal Dialysis," "Dialysis," "Peritoneal," "Renal," "Renal Replacement," "Kidney," and "Virtual Reality," "Virtual Reality Exposure," "Virtual Reality Exercise." From 1100 identified studies, 525 duplicates were removed, and 543 were excluded based on title and abstract relevance. After assessing 32 full-text studies, 12 were further excluded (review, n = 5; not including HD patients, n=3; study protocol, n=1; not including virtual reality-based interventions, n=4). Ultimately, 19 studies met the inclusion criteria for this literature review. [1-19]

Results: The literature review includes 19 studies, with virtual reality-based interventions categorized as virtual reality exercise programs (n=10), virtual reality training programs (n=6), virtual relaxation (n=3), and virtual interactive games (n=1). Parameters assessed encompassed home dialysis equipment use (n=1), cannulation skills training (n=2), quality of life (n=1), anxiety (n=1), depression (n=3), dialysis tolerance (n=1), functional capacity (n=10), inflammatory status (n=2), exercise adherence (n=1), blood pressure (n=1), heart rate (n=1), intradialytic hypotensive events (n=1), and serum albumin levels (n=1). [1-19]

Conclusion: Healthcare professionals, including nurses, can utilize virtual reality-based interventions to alleviate dialysis-associated symptoms, maintain or improve physical function, and provide feasible training in dialysis for patients or health professionals.

Keywords: Virtual reality, dialysis, review.

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ORAL PRESENTATION 13

Systematic Review of Postgraduate Theses on the Use of Virtual Reality Glasses in the Field of Obstetrics and Gynecology in Turkey

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Introduction: Virtual reality is an advanced computer-designed technology that enables people to perform impossible actions, allows them to easily enter the places they want to be in the virtual environment, and gives them a real feeling.[1] This technology has begun to be used in obstetrics and gynecology, as in many other fields.[2,3]

Aim: This study aimed to examine postgraduate theses on the use of virtual reality glasses in the field of obstetrics and gynecology in Turkey.

Method: The study population consisted of master's and doctoral theses registered in the National Thesis Center database of the Council of Higher Education. In this study, the keywords "Virtual Reality" and "Virtual Glasses" were used. In the data analysis, whether the theses were master's theses or doctoral theses, their authors, publication year, field, purpose, sample group, sample number, design, and results were summarized.

Results: Among the 18 postgraduate theses obtained from scanning for the research, 8 of them are master's theses,[4-11] and 10 of them are doctoral theses.[12-21] Postgraduate theses; 11 were conducted in the field of midwifery, six were conducted in the field of nursing, and one was conducted in neuroscience. All of the theses examined are of the experimental type. Research the use of virtual reality glasses; it has been determined that it is used in patients from whom breast biopsy samples are taken, in chemotherapy applications in breast cancer patients, during a pelvic examination, in non-stress test applications, in pregnant women diagnosed with a threat of premature birth, in unplanned pregnancies, during episiotomy repair, during labor and birth, and in the education of midwifery students. The effect of virtual reality glasses on patients and pregnant women in the field of gynecology and obstetrics in Turkey was examined: pain, anxiety, fear, birth process, fetal distress, birth perception, mother-baby attachment, and satisfaction evaluation. The use of virtual reality glasses in the education of students has also been investigated for fetal development, first care of the newborn, and birth mechanism.

Conclusion: In line with the results obtained from research conducted with virtual reality glasses, it has been stated that applications in the field of obstetrics and gynecology are practical. It is recommended that virtual reality glasses be used in applications and training studies for patients in obstetrics and gynecology.

Key Words: Virtual reality glasses, obstetrics, gynecology, theses

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ORAL PRESENTATION 14

Examination of Theses Using Virtual Reality Technologies in Midwifery in Turkey

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İntroduction: In today's world, with the advancements in information and communication technologies, significant changes have occurred in educational tools and materials. Some of the applications that assist students in their learning and minimize errors include blended learning, various computer-based platforms, augmented reality, and virtual reality applications. Virtual Reality (VR) is a powerful resource that can contribute to education by providing an environment that allows students to experience scenarios and situations rather than just imagining them.

Purpose: In this study, it is aimed to examine the postgraduate theses made using virtual reality technologies in the midwifery department in Turkey in terms of quantity and content.

Materials and Methods: The study was of retrospective descriptive type and document review technique was used. The documents were accessed through the National Thesis Center of the Council of Higher Education. The population of the research was scanned with the keywords "virtual reality" and "virtual glasses" by selecting the Department of Midwifery in the detailed scanning and 12 theses were reached. The data was collected with the Thesis Evaluation Form prepared in line with the literature, the thesis type, research type, sample group, education-training used were included in the form. teaching method, evaluation criteria and result information were questioned. Quantitative analysis method was used to analyze the data regarding the theses in the research. The data obtained are given as numbers and percentages.

Results: It was determined that 33% (n = 4) of the theses included in the study were master's degree studies and 67% (n = 8) were doctoral studies and were conducted in the Department of Midwifery at 7 different universities between 2019-2022. It was concluded that 50% of the theses were published in the literature in 2022. All theses were prepared with a randomized controlled, experimental design. While 25% (n=3) of the theses examined its effectiveness in midwifery education with students, 75% (n=9) were conducted to evaluate its effect in terms of

various variables on pregnant women in the antepartum and intrapartum periods. It was determined that the effect of virtual reality applications was evaluated mostly on pain with 75% (n = 6) (during episiotomy, labor pain, pelvic examination). Its effect on anxiety and attachment was investigated with 25% (n=3). All studies reported that virtual reality applications were effective. Additionally, attention was drawn to the need for further studies.

Conclusion: It is thought that virtual reality technology is very effective in applications in the field of midwifery, but the number of studies conducted using this technology in the field is limited and more studies are needed.

Key words: midwifery, virtual reality, midwifery theses

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ORAL PRESENTATION 15

The Impact of Virtual Reality Interventions on Falls and Balance in Elderly Individuals at High Risk of Falls: A Review

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Introduction: One of the leading causes of injury and mortality in the elderly is falls.[1,2] Every year, one in three people aged 65 and older and one in two people aged 80 and older experience a fall.[1,2] It is essential to understand that falling is not an inevitable component of aging; aging-related impairments in cognitive, motor, and sensory abilities raise the risk of falling.[3] Modifiable risk factors are the most effective way to reduce the risk of falls.[4] When modifiable risk factors that increase the likelihood of falls in elderly individuals are examined, factors such as muscle weakness, walking and balance impairments, polypharmacy, and cognitive impairments can be identified.[4] Active exercise is one of the most effective interventions in reducing the risk of falls in the elderly.[4] Stretching, strength training, balance exercises, Otago exercises, Tai Chi, and treadmill training have been shown to reduce the risk of falls in the elderly.[5-8] Regular exercise or attempting to increase physical activity capacity can be strenuous for the elderly.[5-8] Individuals can communicate with virtual reality technology via multiple senses and receive real-time feedback.[4] Fall risk and balance levels can be improved in exercise and physical activity programs designed for older adults using virtual reality technology, encouraging a more accessible exercise habit for the elderly.[4] Nurses play a critical role in ensuring the safety of older people at risk of falling.[9,10] Nurses can prevent falls and fall-related injuries in at-risk older people by using virtual reality technology for education, exercise, and counseling on current and potential risks.[9,10]

Aim: This presentation aims to provide an overview of recent advancements by providing a brief overview of the body of research on the impact of virtual reality-based applications on falls and balance in older adults at high risk of falling.

Method: In the scope of the research, relevant publications were searched from the Cochrane Library and PubMed databases. The literature search was conducted between 2016 and 2023, and five studies were included and used for analysis.[2,10-14]

Results: Three of the included studies reported that virtual reality-based interventions could assist in reducing the number of falls, fall risk, and balance disturbances in older adults at high risk of falling. The results of other studies indicated improvements in both the experimental and control groups regarding fall and balance conditions and reported enhancements in reducing the fear of falling, increasing physical activity capacity, and improving muscle strength.

Conclusion and Recommendations: Virtual reality-based interventions have the potential to aid healthcare professionals in improving balance levels and reducing the risk of falls among older adults at high risk of falling. However, upon reviewing the existing literature, it is observed that the application of virtual reality-based exercises is seen as an alternative to traditional exercises in the examined studies, and there is insufficient data regarding the effectiveness of virtual reality-based exercises in improving fall risk and balance levels. Therefore, it is evident that more evidence is needed for virtual reality-based applications for older adults at high risk of falling.

Keywords: balance, falls, intervention, older adults, risk, virtual reality

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ORAL PRESENTATION 16

Virtual Reality Application in Chronic Wound Dressing

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Introduction: Use of virtual reality technologies; It has increased recently due to the rapid progress of hardware and software and the decrease in costs. Using virtual reality in an educational platform has benefits such as embedded learning experience, improved accessibility, self-learning with simulator guidance, and measurable performance metrics. Virtual reality application in nursing is used primarily for teaching theoretical knowledge, cognitive and procedural skills, psychomotor skills, emergency interventions and emotional areas such as empathy. In wound care, it is more advantageous to develop skills training with virtual reality application instead of using traditional lectures and video demonstrations or dressings applied on a plastic mannequin.

Purpose: In this study, studies examining approaches to chronic wound dressing related to virtual reality were compiled.

Material-Method: Literature search was carried out in “Science Direct”, “PubMed”, “Cochrane Library”, “EBSCO” databases and “Google Scholar” search engine. The keywords "virtual reality", "pressure ulcer", "nursing", "wound" were used in the study, and 3 studies that met the research criteria were examined in this review.

Results: In a study of virtual reality in wound dressing comparing the acceptance and usability of a desktop simulator and an immersive simulator, knowledge test scores were similar on both platforms after using the simulators; However, it was concluded that the user acceptance survey and system usability survey scores and realism were relatively higher in the immersive simulator (1).

It was concluded that the use of the simulator developed to simulate the steps of changing the wound dressing is more realistic, interactive and interesting than the training videos commonly used in this field. However, it was concluded that virtual reality training is more capable of

showing a cognitive path for procedural training rather than aiming to improve clinical dexterity in performing manual skills. **(2)**

In a study where a learning environment was provided with augmented reality, where three-dimensional chronic wounds could be simulated in a more real way, the pre-test results were similar in the experimental and control groups, while in the post-tests, in the experimental group where augmented reality was used, the evaluation of the wound, wound type, granulation status, color of the wound, infection status, Statistically significant differences emerged in parameters related to depth and size (other than necrotic tissue type)(3).

Result: Virtual reality applications are more realistic, interactive and interesting than training videos. Its applicability is practical. Use of virtual reality application in training nurses in chronic wound dressing; It provides effective learning by providing support in diagnosing the wound and deciding on the appropriate treatment and feedback after the application, creates a risk-free environment, and facilitates learning as it provides the opportunity to repeat the application until it is learned.

Since the decisions made when first observing the wound are of critical importance in the diagnosis phase, it is anticipated that the evaluation of chronic wounds with augmented reality will have a positive effect in the general diagnosis phase and will affect the course of treatment.

Key words: virtual reality, chronic wound, dressing

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ORAL PRESENTATION 17

Effectiveness Of Virtual Reality Technology In Improving Muscle Activities Of Children With Cerebral Palsy: A Systematic Review Of Randomized Controlled Studies

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ABSTRACT

Introduction: Cerebral palsy is a disease with muscle involvement that begins in childhood and continues throughout life, but muscle strength and tone can be improved with interventions. The most current of the pharmacological and non-invasive approaches used to develop and strengthen the motor activities of children with cerebral palsy is “Virtual Reality” technology.

Purpose: This is a systematic review of randomized controlled studies evaluating the effectiveness of virtual reality technology in improving the muscle activities of children with cerebral palsy.

Materials-Methods: The search was carried out between October and November 2023, without any year limitation, including “Pubmed”, “CINAHL”, “Medline”, “Cochrane”, “ScienceDirect”, “Ovid”, “Proquest”, “Web of Science”, “Scopus”. Made from “Springer Link” and “Ulakbim” databases. Screening MeSH terms “children or adolescents or youth or child or teenager”, “virtual reality or vr”, “cerebral palsy or cp or spastic quadriplegia or spastic quadriplegic cerebral palsy” and “motor function or muscle strength or motor skill or muscle dysfunctions” was carried out with. Thus, randomized controlled experimental studies in English or Turkish, with full text available, evaluating the effects of virtual reality-based applications on motor functions in children with cerebral palsy were included in the study.

Results: 670 studies were reached through searches. Of these, 103 studies were determined to be duplications and were removed. The number of studies suitable in terms of title and content is 126. Among these studies, the number of studies that were completed as randomized controlled trials, written in languages that met the inclusion criteria, and whose full text was available was 11. In all of the studies included in the study, it was determined that training based on virtual reality technology can increase muscle strength and tone, reduce muscle rigidity and increase the motor speed of the lower and upper extremities, is effective in maintaining balance and supports hand-eye coordination. In studies other than the randomized controlled studies included in the study, it is clearly seen that virtual reality-based applications are effective in providing muscle coordination, complex movements and balance in children with cerebral palsy. It is seen that the first dates of the studies were between 2013 and 2023. The number of samples is between 20-80. It seems that the most used parameters in the included studies are balance, muscle strength and muscle coordination.

Conclusion: It has been determined that virtual reality technology is effective in improving the balance and motor skills of children with cerebral palsy. The most frequently suggested situation in studies is that virtual reality technology becomes a method that makes a difference in nursing care by creating a standardizable and accessible prototype. It is thought that virtual reality technology will be a guide in developing different parameters in children with cerebral palsy and even in planning new research on different child and adult populations with neurological defects.

Keywords: children, virtual reality, cerebral palsy, motor function

ORAL PRESENTATION 18

Bibliometric Analysis of Studies on Nursing - Virtual Reality

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Introduction: Virtual reality is an interactive digital media environment that simulates real situations and includes visual, speech, voice recognition, and motion and touch (1). Advances in virtual technology that improve realism and dynamic interaction have also been reflected in nursing. However, no study in nursing reveals the characteristics of the studies in virtual reality.
Aim: The study aimed to map the current status of the reflections on virtual reality in the field of nursing by using bibliometric and content analysis methods indexed in the Web of Science database, which is a database containing qualified and reliable studies, to present a systematic summary to the attention of researchers, and to determine the study trends on the subject.
Method: This research, conducted using the document review data collection method, is a retrospective study. The study aimed to reach all results without any time interval limitation. Only the keyword "nursing virtual reality" was searched to prevent the data from being inseparable and complex. On 28.11.2023, 1652 results were obtained in the search made by selecting "all fields" in the Web of Science. Nine hundred forty-one publications were reached according to publication type, 379 publications according to subject areas, and 353 publications when indexed publications were selected. The data was evaluated with frequency distributions and graphical presentations of these distributions. For bibliometric analysis, the VOSviewer (V.1.6.19, 2009-2023, Van Eck and Waltman) program, which has strengths in terms of functionality, was used.
Results: Looking at the distribution of 353 works related to Nursing VR by publication years, it was determined that 77.4% (n=273) of the studies started to increase rapidly in 2019, and after, between 2019-2023, there was a maximum concentration in 2022 (n=77), 2023 (n=75) and 2021 (n=55), and it was determined that it was mainly in the type of research articles (n=276) and review articles (n=70). The authors of the publications with at least 100 or more citations are Padilha, J.M. et al. (164), Cynthia L. Fronda (151), Rebecca Smith-Coggins (13),

Tayne Ryall (118), Ann L. Butt (106) and Chen (102), the university that produces publications on this subject and receives the most citations is Miami University (7 publications, 171 citations), the country with the most citations is the USA with 122 publications and 1910 citations, and the other countries in the top three in terms of total connection power are China (32 publications) 580 citations) and South Korea (32 publications, 172 citations). The most cited publications are available for education (2–6), and the five most recent publications (1,7–10) determined increased use in practice.

Conclusion: Studies on the use of virtual reality in nursing are primarily published as articles. VR studies started to increase rapidly in 2019 and beyond. In the last three years, the most publications have been made, America, China, and South Korea have made the most cited publications, and the most cited work belongs to Padilha, JM et al. It is seen that the most cited publications are related to education, and in recent publications, there has been an increase in its use in practice.

Key Words: Nursıng Sımulatıon, Vırtual, Sımulatıon, Virtual Representation

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ORAL PRESENTATION 19

Use of Virtual Reality in Pain Management in Patients with Total Knee Arthroplasty

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Introduction: Patients undergoing total knee arthroplasty experience severe pain in the postoperative period. In order for pain management to be successful, pain should be diagnosed and the process should be managed with effective nursing care practices. Virtual reality (VR) has emerged as a promising new therapeutic approach, showing promise in the treatment of patients with a variety of diseases.[1-4]

Purpose: This review aimed to the effect of using virtual reality on pain management in patients with total knee arthroplasty.

Methods: Four databases were searched: Pubmed, OVID Medline, CINAHL, and Embase. Randomised controlled full-text published articles examining the use of VR in the pain management of patients undergoing total knee arthroplasty were included in this scoping review. Studies from the database were included between 01 January 2019 and 01 November 2023.

Results: 23 articles were found in the search made with the keywords "virtual reality", "total knee arthroplasty" and "pain". Three articles suitable for the purpose of the study were identified. In the removal of duplicates, three studies were included. Table 1 demonstrates the characteristics of the included studies. All three studies showed that VR technology reduced pain in patients undergoing total knee arthroplasty. However, in Fuchs et al. study, it was determined that VR technology was effective in reducing pain in the early postoperative period, but did not show a significant difference in long-term results.

Conclusion: This review showed that VR technology is effective in pain management in patients with total knee arthroplasty. In this direction, it may be recommended that nurses working in orthopaedics clinic use VR technology in pain management.

Keywords: Virtual reality, Total knee arthroplasty, Scoping review, Pain.

Table 1. Characteristics of included trials

Author(s)	Participants	Experimental group	Control group	Duration	Outcome
Girishan Prabhu et al., 2023 USE	TKA surgery (N=30)	VR therapy	2D-video	10 minute	VR is more effective
Gür & Basar, 2023 Türkiye	21 female TKA patients	VR application in addition to the exercise	Home exercise program	10 repetitions of each exercise twice a day, 3 days	VR is effective
Fuchs et al., 2022	TKA patients (N=55)	Conventional physiotherapy and Continuous passive motion device + VR during exercise	Conventional physiotherapy and Continuous passive motion device	1st and 2nd day after surgery	VR is effective in reducing pain in the early postoperative period

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POSTER PRESENTATION 1

The effect of virtual reality in cardiac rehabilitation: A scoping review

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Background: Cardiovascular diseases are increasing dramatically and become the leading cause of morbidity and mortality in the world. Cardiac rehabilitation (CR) is commonly used to reduce cardiovascular mortality re-hospitalisation and improve their quality of life. In recent years, virtual reality (VR) technology has been used in CR.[1-6] There needed to be more scoping reviews evaluating the effects of VR on patients with CR.

Purpose: This review aimed to evaluate the effect of the use of VR on patients with CR

Method: Four databases were searched: OVID Medline, CINAHL, PsychINFO and Embase**.** Randomised controlled studies which published full articles examined the use of VR with the target application adult population of CR patients were included in this scoping review. Studies from the database were included between 1 January 2018 and 30 September 2023.

Results: The initial search strategy identified 645 articles. In the removal of duplicates, six studies were included.[1-6] Table 1 demonstrates the characteristics of the included studies.[1-6] Three studies revealed that VR technology can increase exercise capacity for individuals undergoing CR.[2,5,6] One study showed statistically significant improvement in quality of life for the experimental group.[6] Two studies found that VR can reduce anxiety, depression and stress levels.[3,4] Silva et al. stated that after 12 weeks of VR training, the acute response of cardiac autonomic modulation improved for patients with CR compared to the first week.[1]

Conclusion: This review showed that individuals undergoing cardiac rehabilitation benefit from virtual reality.

Keywords: Virtual reality, Cardiac rehabilitation, Scoping review

Table 1 Characteristics of included trials

Author(s)	Participants	Intervention	Control	Duration	Outcome
Silva et al.[1], 2022 São Paulo	Individuals admitted to the CR program (N=28)	VR therapy with exergames three times per week	Usual therapy	12 weeks	Acute response of cardiac autonomic modulation
Jaarsma et al.[2], 2021 Sweden	Individuals diagnosed with heart failure (N=423)	Exergames like baseball, bowling, boxing, golf, and tennis were installed at home. Patients were applied to exergame 30 min, 5 days a week	Usual care	12 months	Exercise capacity
Jozwik et al.[3], 2021 Poland	Individuals diagnosed with Coronary artery disease (N=77)	VR therapy using the VR TierOne device three times per week	Relaxation training by a psychologist	3 weeks	Anxiety, depression, stress
Szczepańska-Gieracha et al.[4], 2021 Poland	Individuals diagnosed with Coronary artery disease, Anxiety and depressive symptom scores of 8 (N=32)	VR therapy using the VR TierOne device twice a week	Relaxation training by a psychologist	4 weeks	Anxiety, depression, stress
Gulick et al.[5], 2021 United States	Individuals admitted to the CR program (N=72)	Treadmill with VR walking trails, between 18 and 36 sessions	Usual care	8 weeks	Exercise capacity
García-Bravo et al.[6], 2020 Spain	Individuals diagnosed with Ischemic heart disease (N=20)	VR-based training using Microsoft XBOS One console and its Kinect 2 peripheral two times a week.	Usual physical training	12 weeks	Exercise capacity, quality of life

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POSTER PRESENTATION 2

The Place and Importance of Virtual Reality in Distance Education

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İntroduction

Virtual reality technology has undergone significant evolution from the past to the present. The foundations of this technology were laid in the 1920s, and advancements in the field of computers have triggered the progress of simulations, virtual reality, and related areas. Thanks to the contributions of various practitioners and scientists, virtual reality has rapidly grown and been utilized in various sectors. In recent years, the rapid advancement of science and technology has further fueled the growth of the virtual reality sector. Additionally, the impact of the COVID-19 pandemic has significantly increased interest in virtual reality technologies.

Purpose: The purpose of this review is to emphasize the importance of virtual reality in distance education.

Material and method: Education must rapidly adapt to technological advancements, with particular attention to the opportunities presented by virtual reality technology, especially in the context of distance learning. Students and teachers alike show increased interest in virtual environments through this education model, where they interact via the internet. The COVID-19 restrictions and the growing demand for online education have contributed to the increasing prevalence of virtual reality applications. Virtual reality plays a significant role in education, offering the potential for immersive experiences. It has the capability to convey information in new and engaging ways and has the potential to expand access to education opportunities that are normally limited by cost or physical distance.

Results: Virtual reality makes the learning experience more interactive, engaging students' sensory systems to the fullest. It aligns with the global trend of knowledge development, creating an atmosphere for universal learning, autonomous learning, and lifelong learning. In the age of the internet, integrating virtual reality into education provides learners with new forms of interaction. The virtual learning environment created with virtual reality instructional

technology has the ability to fully engage students' sensory systems through interactive methods such as observation, listening, and touch. Virtual reality applications provide a platform for collective, coordinated, and collaborative social and shared action in the context of higher education. Initially appearing game-based, virtual reality offers possibilities for diverse applications in various sectors and subjects, including economics, military, education, entertainment, and many more.

Conclusion

Virtual reality plays a significant role in education, particularly in the realm of distance learning, where this technology has the potential to provide students with more effective and engaging learning experiences. In the future, virtual reality may become even more widespread in education, offering students additional learning opportunities. Therefore, experts in the field of education should explore ways to incorporate virtual reality into learning and make efforts to broaden its accessibility to a larger student audience. Virtual reality could be a crucial component of the future of education, providing students with a more effective learning experience.

Keywords: midwifery, distance education, virtual reality

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POSTER PRESENTATION 3

Health Promotion and Virtual Reality Applications at School Age

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Introduction: Virtual reality" (VR) is a technology that takes users into different and artificial environments. This technology usually uses special glasses, headphones and sometimes hardware that can detect hand gestures[1]. These applications can also help children and young people develop positive health behaviors. **Purpose:** In this review, we examined the studies conducted in the last five years using virtual reality technology in health promotion in children. **Virtual reality applications:** In children and adolescents, learning can become more permanent in engaging environments. At school age, immersive virtual reality applications (IVR) are one of several innovative technologies that are gaining attention due to their increasing adoption as a learning tool. It is predicted that the use of VR devices will increase, especially among preschool children, who are most likely to use storybooks and two-dimensional displays (e.g. television, tablets and smartphones) for learning and entertainment[1]. There are many possible benefits of children's use of VR or IVR. On the one hand, it enables children and young people to visit realistic or fictional places, and on the other hand, it encourages them to expand their minds and imagination.[2] In this context, the effectiveness of virtual reality applications in health promotion efforts is worth investigating. When the literature on the subject was examined, a limited number of studies were found. Markowitz et al. (2018) successfully used virtual reality to teach adolescents about the consequences of climate change by allowing them to experience the underwater world[3]. In another study, provided oral and dental health education to children aged 4-6 years through VR and IVR, and reported a decrease in plaque index scores of children as a result of the study[4]. In another preliminary study published, will monitor changes in body fat mass in adolescents aged 11-17 years with obesity and overweight by applying a table tennis or football exercise program with VR application.[5] In another study conducted in children aged 6-10 years, children were given

personalized physical activity goals using virtual reality and it was concluded that children revealed their potential more as they reached their goals.[6]

Conclusion: In the findings of the studies, studies suggest that VR applications have potential benefits in supporting learning and creating behavioral change in children and adolescents. It is noteworthy that there is only one study on the use of VR in pre-school children in the studies reached. This may be thought to be due to the fact that young children seem to be quite vulnerable to manipulation while using this environment. Therefore, parental and teacher support is important in VR applications, especially in preschool. In addition, virtual reality applications may bring a series of challenges in changing behavior in children and adolescents. Therefore, VR companies should include and maintain age-related VR warnings where appropriate. More research is needed to identify children's healthy lifestyle behaviors (such as stress, anxiety, nutrition, physical activity) related to virtual reality.

Keywords: children, virtual reality, health promotion

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POSTER PRESENTATION 4

The Effects of Virtual Reality Supported Therapeutic Approaches Used in Individuals with Body Image and Self-Esteem Issues

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Introduction: One of the most evaluated characteristics of individuals is their body appearance. Individuals can reach a positive or negative evaluation of their bodies based on the opinions of others in their immediate environment, societal ideals, and their own ideals[1]. Self-esteem, defined as the ability of a healthy individual to achieve goals set under the concept of the ideal self, is closely related to an individual's self-perception and is one of the fundamental elements of healthy human psychology[2]Negative body image and low self-esteem can arise from various physical and psychosocial factors, impacting one's perception of themselves and their surroundings. Enhancing self-esteem and fostering a positive body image are essential for overall well-being.

Purpose: The aim of this compilation is to evaluate studies investigating the effectiveness of therapeutic approaches applied to individuals with distorted body image and self-esteem issues using virtual reality methods. The goal is to provide an understanding of how virtual reality technology can be used in therapeutic interventions for body image and self-esteem problems.

Virtual reality simulations, widely used as an effective technology in the field of health, allow users to simulate realistic environments through a head-mounted display, enabling them to experience various scenarios and interact with them[3]. Literature reveals that applications address body image and self-esteem concerns. Yet, challenges like technology cost, accessibility, security, and standardization gaps persist. [4–6]

Virtual reality environments can positively influence body image by offering individuals a new perspective on their bodies. Research with women experiencing body image anxiety showed

that increased use of virtual reality led to reduced concerns about body shape, weight, and eating habits. [7]

A study of 20 women diagnosed with anorexia nervosa who had high weight anxiety or shape anxiety showed that exposure to a healthy weight using virtual reality improved patients' fear of weight gain and thus increased their self-esteem [6].In another study with patients with Anorexia Nervosa, it has been shown that virtual reality-assisted therapy, which includes cognitive behavioral therapy and virtual exposure to patients' own silhouettes, provides significant improvements in fear of weight gain, body anxiety and body image disorders [8]. In a study where a similar application was conducted with women experiencing postnatal depression, virtual reality was found to increase self-esteem by positively affecting awareness, decision-making, and real-life applications in terms of general therapeutic effects[8]. A study in which a combination of three-dimensional virtual reality and hands-on gardening activities were applied to older adults showed that the program had positive effects on self-esteem and mastery [9].

Result: As a result, within the framework of the reviewed literature, it is thought that virtual reality-supported therapeutic approaches have positive effects on body image and self-esteem, and virtual reality can be used as a therapeutic application. In addition, it is important to conduct relevant studies in different sample groups experiencing problems with body image and self-esteem and to develop appropriate protocols for specific psychological conditions.

Key Words: Body Image, Self-Esteem, Virtual Reality, Therapeutic Approaches

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POSTER PRESENTATION 5

The Missing Dimension In Studies Using Virtual Reality Technology: How Much Importance Is Given To The Qualitative Research Method?

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ABSTRACT

Nowadays, training or interventions based on virtual reality technology are frequently used in studies conducted in many fields and populations. Virtual reality technology is undoubtedly the most current and technological non-pharmacological method. In the training given to children and their parents, this method is frequently encountered in cases where the aim is to gain skills, reduce pain, reduce anxiety and fear, and support cognitive skills. It is becoming the most frequently used form of education in studies in national or international literature and in postgraduate theses. Particularly, ensuring standardization in education, eliminating individual differences arising from those providing education, being practical and remotely accessible, and eliminating the barrier of place and time are among the strongest aspects of virtual reality technology. Its biggest weakness until recently has been its high economic cost. However, it has recently been accepted that it is more cost-effective than classical, modular or web-based training in terms of providing sustainable and standard training and intervention. With this development, training based on virtual reality technology has become widespread. Training is often given based on virtual reality technology for sick children, parents, sick adults, caregivers, healthy adults, students, in-service training for all professional groups, and in situations where it cannot be repeated, such as earthquakes. It is a very important point in choosing virtual reality technology that it provides a complete auditory and visual atmosphere of the event. In addition, in the light of the studies conducted, it has been determined that it is a method that increases motivation. Therefore, training based on virtual reality technology is frequently given in many areas and its effectiveness is evaluated. However, the most important gap on the subject is that while this technology is evaluated only in its educational activity, it is insufficient to obtain the

opinions of the participants through interviews. Especially in the national literature, it is clearly seen that the effectiveness of training based on virtual reality technology is evaluated only with scale scores. However, virtual reality technology experience must be asked and evaluated by the participants. Participants should read between the lines. Participants' experiences, opinions and suggestions regarding technology will shed light on new studies. In the scans, it is seen that the qualitative dimension is not included in any of the theses regarding virtual reality technology prepared in our national thesis center. The situation is similar in the national literature. However, it can be seen that there are many studies like this in the international literature in the last year. The strengths of virtual reality technology have been identified through numerous qualitative studies in psychotic patients, stroke patients, pregnant women, nursing students, and healthcare professionals.

Keywords: virtual reality, virtual reality technology, qualitative study, qualitative Research method

POSTER PRESENTATION 6

Innovative Approaches in Successful Aging

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Introduction:

The World Health Organisation describes the individuals aged 65 years and over as the 'Elderly'. The definition of elderly is not limited to calendar, and biologic age, however, currently definitions for **social, economic, physiological, psychological and societal older age** have also been made. Although the definitions of older age and the symptoms and deficiencies that occur are different, they are basically the processes which **ACCELERATE THE AGING PROCESS** of the individual who loses their motivation for life and with the effort of adapting themselves to the definition of elderly that they have described in their mind.

The life expectancy was 65.1 years worldwide, and 65 years in Türkiye in 1990, however, the rate is predicted to reach to 88 years in the world, and 78 years in Türkiye by 2050. The world population seems to gradually get older with the increasing age and decreasing birth rate. By 2050, one fifth of the world population and one sixth of people in Türkiye will be elderly individuals.

Purpose

The increase of the life expectancy, slowing down of the population growth rate, and the scientific and technologic developments increase the average age. We have defined all these definitions of aging as **'Barriers to Successful Aging'.** Our duty is to focus on **'successful aging'** and studies that will ensure successful aging.

Although it is yet impossible to reverse aging with the current technology for the elderly as described in the risk group of **'Barriers to Successful Aging'** in our project, the aim is to establish "**DAY CARE ACTIVITY AND HOBBY HOMES FOR ELDERLY**" for performing innovative activities and practices for slowing down the social and societal aging.

The data of the Turkish Statistical Institute were investigated, and the literature was screened and a qualitative study was planned with the obtained data.

The establishment of "**DAY CARE ACTIVITY AND HOBBY HOMES FOR ELDERLY**" has been planned. These daytime activity and hobby homes should include household activities, science and art activities, sightseeing and travel activities, and activities to protect existing health and increase cognitive capacity. Elderly individuals must also be integrated into the society with an increasing rate of the use of smart phones, and we aim to create the individual-specific reminders for medicine taking hours on smart phones, home works with visual design with colors and virtual games(color painting, puzzle, crosswords to improve the hand skill, etc).

Conclusion

Participation to social environment and an improvement in the sense of togetherness, and improvement in the societal communication skills will be enabled with face to face and group activities.

Performing the activities of daily living (ADL) and instrumental activities of daily living (IADL) of the elderly will increase with the increase of hope for the future and enthusiasm to participate in life.

Key Words: Elderly, Successful Aging, Activities of Daily Living, Instrumental Activities of Daily Living, Cognitive

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POSTER PRESENTATION 7

Investigation of Psychosocial Support of Virtual Reality Applications in Children with Type 1 Diabetes

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Abstract

Objective: To examine the psychosocial support provided by virtual reality technology among children with type 1 diabetes (T1D)

Virtual reality is a system that allows to experience and interact with a computer-generated environment. It aims to provide the user with the feeling of "being there" by making the user experience the computer-generated world as if it were real. Especially in cases such as anxiety, fear and phobia, it can help people cope with mental health problems with its features such as re-enacting events and diverting attention.[1]

In recent years, the use of virtual reality for medical and psychiatric purposes has increased. Although it was initially a form of entertainment, it has been used in various fields such as surgical procedures, education and treatment of psychiatric disorders.[2] Virtual reality applications have proven successful in managing anxiety disorders and reducing pain. A study demonstrated the effectiveness of virtual reality glasses in alleviating pain and anxiety during splinting in children aged 6-12 years.[3]

Diabetes is an endocrine and metabolic disease characterised by insufficient insulin secretion of the pancreas.[4] While T1D accounts for 5-10% of the known diabetes cases worldwide, it shows a similar increasing trend in Turkey.[5] In addition to being a physical disorder, it also affects the patient psychosocially. Being chronic, difficulties in treatment management, daily injections, blood glucose measurements dietary restrictions, future anxiety, affecting social relations and complication risks cause psychosocial effects and decrease in quality of life. It can be particularly challenging for children and the acceptance process is difficult.[6] An unexpected diagnosis of diabetes in children may cause changes in lifestyles and

affect social relationships. Children diagnosed with T1D should be handled with physical and psychosocial integrity.[4] In 2022, the International Paediatric and Adolescent Diabetes Association declared that psychosocial factors are the most important factors affecting the care and management of diabetes.[7] In a study, it was found that school absenteeism of children with diabetes was higher than their healthy peers.[8] In another study, it was found that the school achievement of T1D children was lower than healthy children.[9] The incidence of depressive symptoms in children and adolescents with T1D is twice as high as in the general population.[10]

In a study focused on children with Type 1 Diabetes (T1D), an interactive virtual teddy bear was created to educate and manage the condition through play. The virtual tasks included checking the bear's blood glucose and administering insulin, aiming to foster a "just like me" mindset for the children. Results showed that virtual reality usage significantly reduced anxiety related to T1D management, resulting in a notable decrease in fear of the disease. Moreover, children exhibited improved communication with friends as they gained better recognition and management skills for the condition.[11]

Results

Virtual reality applications facilitate coping with diabetes and diabetes management in children. It positively affects their interactions with their peers.[11] As a result, it is recommended that virtual reality applications be included in pediatric diabetes clinics from a psychosocial perspective.

Keywords: Type 1 diabetes, Virtual reality, Child, Psychosocial

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POSTER PRESENTATION 8

Virtual Reality Application Examples in Disabled Individuals

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ABSTRACT

Introduction: While 16% of the population in the world is reported as disabled, this rate is 6.9% in our country.[1,2] While some disabled individuals can continue their lives independently according to the level of disability, some disabled individuals continue their lives with support from caregivers. In modern times, new methods have begun to be included in the lives of disabled people to make life easier and increase the quality of life with technological developments, and one of the most discussed among them today is virtual reality applications. With the integration of virtual reality technology into the lives of people with disabilities, the effects and benefits of this integration have started to be evaluated with scientific studies data.[3-7]

Objective: The aim of this review is to give information about virtual reality application examples in disabled individuals.

Results: When the studies were examined; It is seen that virtual reality applications in disabled individuals focus on removing the existing limitations in the lives of individuals and facilitating life. In the study of Don et al.(2019), in which they applied virtual reality exercise games to high school students with mental and developmental disabilities, it is reported that the physical activity intensity and activity duration of the participating students increased with this application. In another study that draws attention to the achievements of virtual reality applications, as a result of the evaluation of the effectiveness of virtual reality in teaching pedestrian skills to children with mental disabilities, it was stated that all participants were able to learn, maintain and generalize pedestrian skills to the real environment, and it was emphasized that education with virtual reality applications is interesting and fun.[4] In the study

of Aydın (2023), which is thought to contribute to supporting the existence of disabled people in social life; physically disabled individuals were able to experience museum travel with virtual reality glasses, and the participants expressed satisfaction with this application in terms of being able to do activities alone, being free, and increasing accessibility. In another study conducted with adults with physical disabilities and evaluating the effect of virtual reality games on psychological well-being and upper extremity performance, it is reported that virtual reality games have a potential in the realization of the monitored parameters.[6] In addition, in a systematic review evaluating the use of virtual reality as a support tool in the treatment of people with intellectual and multiple disabilities, it is emphasized that virtual reality may have a great potential to be effective in the treatment of people with intellectual and multiple disabilities.[7]

Conclusion: Today, in the light of technological developments, it is seen that the number of scientific studies evaluating virtual reality applications with disabled individuals is increasing. In the studies, it is stated that the data obtained generally make positive contributions. In the changing and developing world, it is predicted that new technological applications, especially virtual reality, will emerge that will make disabled individuals freer and more accessible, and these applications will be evaluated with more scientific studies data.

Key Words: Disabled, Virtual Reality, Application Example.

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POSTER PRESENTATION 9

Development and Implementation of Multi-Skill Haptic Assisted Virtual Reality Simulation for Nursing Students: Pre-Study

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Introduction: Virtual reality and haptic system applications will enable students to learn interactively by applying knowledge in a safe environment. Virtual reality is a simulation that uses a computer-built three-dimensional twin of the real world. [1-3] Virtual input units that will enable the transfer of instruments and tools used in nursing skills training to the computer environment will be developed and integrated into the system. Thus, the users' experience using the system will create a perception of reality. [1-6] On the other hand, the haptic system will develop modules with sensors that respond to the tactile sensations that users wear on their fingertips, thus allowing the user to experience the skill. [2,4,7]

Purpose: The project is to increase objectivity in clinical decision-making and skill assessment of nursing students by using domestic haptic-assisted virtual reality simulation, unlike imported products used in nursing education.

Materials-Methods: It was planned as research, product development and experimental design. The project is scheduled to consist of three main phases. In the first stage, the researchers will write scenarios after determining the goals and objectives with the project team. The virtual reality education environment, which constitutes the virtual twin of the natural world, will be prepared. Finally, the haptic virtual environment developed to increase the sense of reality will be integrated. In the second stage, Training scenarios developed by researchers and expert opinion will be constructed in a virtual reality training environment. The necessary software link will be established between the models and sensor systems created in the previous stage

for the Unity game engine. Then, the relevant scenario steps will be performed using the gamification method. In the scenario developed for the project, vital signs, aspiration, nasogastric catheter application, oxygen therapy, physical assessment, and subcutaneous injection are applied, respectively.

In the third stage, the Experimental design of the research will be carried out. Within the scope of the Nursing Fundamentals course, all students will perform skill practices with task trainers, which is the traditional method in the laboratory environment. Group assignments will be made by randomization. According to the scenario, the application group will perform the skill application for the second time with the haptic-assisted virtual reality application. In contrast, the control group will again complete the application with the traditional method. Before and after the applications, data collection forms introductory features, pre-post-test information [8-9], Nursing Anxiety and Self-Confidence with Clinical Decision Making [10], presence testing, and testing will be obtained. The IBM Statistical Package for the Social Sciences Version 29 package program [11] will be used for the statistical analysis of the data. The $p<0.05$ level will be considered a significant difference in statistical decisions.

Conclusion: The study is carried out within the scope of TÜBİTAK 1001, and it is thought that the development of a haptic-supported virtual reality simulation that provides multi-skill tactile feedback, in other words, haptic-supported virtual reality simulation, with the application to be developed, will meet many requirements regarding virtual simulation in our country.

Keywords: Nursing, virtual reality, skills training, clinical decision-making, haptic

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POSTER PRESENTATION 10

Examination of Thesis Studies Comparing Virtual Reality Technologies in Midwifery and Nursing Undergraduate Education in Türkiye

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Introduction: Education, training and teaching-learning processes have evolved in line with the rapidly increasing information flow of the age, individuals' demand for freedom of learning and efforts to improve their abilities.(1,2) Individuals' desire to progress according to their own learning pace has led to the emergence of alternative education opportunities. In this context, virtual reality-based environments also hold an important place among alternative education options.(2,3) In this research which is based on this information, it is aimed to increase the place of virtual reality in education and the sensitivity to the subject by examining the master's and doctoral theses on virtual reality training in the field of midwifery and nursing in Turkey in terms of content.

Aim: In this study, it is aimed to increase awareness on the subject by examining thesis studies on training created with virtual reality technology in the field of midwifery and nursing in Turkey and their effects on students.

Material and Method: The study is of retrospective descriptive type and document analysis technique was used. The documents were accessed through the Council of Higher Education National Thesis Center. (4)The universe of the research consisted of 78 theses that were scanned with the keyword "virtual reality" and filtered on the subjects "Midwifery" and "Nursing" and accessed through the National Thesis Center of the Council of Higher Education. The sample consists of 12 theses (2 master's theses and 10 doctoral theses) that meet the inclusion criteria and were completed and approved between 2015-2023. (5–13)Postgraduate theses that contain at least one of the words "student", "education" and "teaching" in the research title and whose publication language is English and/or Turkish are included. Theses without access permission (n=2) were not included. The data was collected with the Thesis Evaluation Form prepared in line with the literature. In the form, thesis type, department, research type, education and

teaching method used, evaluation criteria and result information were questioned. Quantitative analysis method was used to analyze the data regarding the theses in the research.

Results: 16% (n=2) of the theses included in the study were master's theses and 84% (n=10) were doctoral theses, and it was determined that they were conducted in a randomized controlled manner at 7 different universities between 2015 and 2023. Of these, 84% (n=10) are experimental and 16% (n=2) are semi-experimental. 75% (n=9) of the research was conducted in the Department of Nursing, 8.3% (n=1) in the Department of Women's Health and Diseases, and 16.7% (n=2) in the Department of Midwifery. It was observed that more than one technology was used together in theses.

Conclusion: It is thought that virtual reality technology is very effective in teaching practices in the field of midwifery and nursing, but it needs to be included in education and more studies need to be done.

Key Words: Midwifery, Nursing, Virtual reality, Education, Thesis

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POSTER PRESENTATION 11

The Place of Virtual Reality Applications in Health Care of Elderly Individuals

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ABSTRACT

Introduction: Old age is a natural and special period in which physiological, sociological, psychological, and economic changes are experienced. During this period, some health problems and care needs may occur with the decrease and loss of some functions. The care needs that occur are met by the elderly individuals theirselves or caregivers.[1,2] Today, the integration of new methods that emerged because of technological developments into ongoing maintenance practices has begun to be studied, and their effects and contributions are being investigated. While virtual reality applications are considered the newest among these methods, the place of elderly individuals in health care practices is discussed.

Objective: The aim of this review is to raise awareness about virtual reality-based applications in the health care of elderly individuals.

Results: When the studies were examined; It has been observed that virtual reality applications in the health care of elderly individuals aim to increase the quality of life of the elderly. In the study of Liao et al. (2020), it is reported that there is an improvement in cognitive functions with the application of virtual reality-based physical and cognitive training in elderly individuals. In the study of Dockx et al. (2017), which aims to reduce the risk of falling in elderly individuals, it is stated that a positive attitude towards fall prevention exercises has developed with virtual reality applications. In another study, it was stated that there was a positive change in the independence levels of parameters such as self-care and social perception of the participating elderly.[5] In the meta-analysis study, in which the effect of virtual reality-based games on the cognitive status, mobility and emotions of the elderly was evaluated in the post-stroke period, it was reported that cognitive performance, mobility and emotions were

positively affected.[6] In addition, in the study of Yuan et al. (2022), in which they examined the restorative effects of the virtual reality forest experience on elderly individuals during the covid-19 pandemic process, it is stated that there are positive psychological effects in the elderly after the experience, positive affect increases, negative affect decreases, and stress decreases. In a study conducted in Taiwan evaluating the usefulness and acceptance of virtual reality applications in the elderly, it is reported that there is a positive perception for the use of virtual reality in supporting active aging, and that virtual reality application is defined as an easy, useful, and enjoyable experience by the elderly.[8]

Conclusion: As can be seen, in the studies carried out, it is aimed to provide gains in the physical and mental areas of elderly individuals with virtual reality-based applications, to create positive effects in social areas by increasing independence, and to increase the quality of life of individuals. In the future, in the light of technological developments, it is thought that approaches that will strengthen the quality-of-care practices and their positive impact on life will be accepted, and there will be an increase in the number of scientific studies on this subject to evaluate the effects of new practices.

Keys Words: Elderly, Virtual Reality, Health Care.

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POSTER PRESENTATION 12

Virtual Reality Reminiscence Therapy

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The advancement of technology and the rapid increase in the elderly population are important topics in today's world. With the rapid increase in the elderly population, the integration of technology into psychosocial interventions in the treatment and care of psychological disorders related to old age has come to the fore in recent years.[1] Reminiscence therapy is one of the most common psychosocial interventions that use memories to protect and improve the mental health of older individuals.[2] The aim of this review is to provide information about the use of virtual reality reminiscence therapy in elderly individuals.[3] Reminiscence therapy was first developed by Butler as a psychological intervention for the elderly. Butler (1963) defined remembrance as a part of the normal life review process brought about by the awareness of death and saw the use of the past as a mechanism that helps reduce fear and anxiety in preparing the individual for death.[4] Reminiscence therapy, which first emerged as a nursing and elderly care practice; It can be applied to healthy elderly people, elderly people with cognitive impairment or depressed elderly people in non-residential institutions such as nursing homes, rest homes and elderly centers, and by psychiatric nurses in hospitals.[5] In reminiscence therapy, elderly individuals are tried to evoke feelings of nostalgia and comfort by talking about the past. The focus is on reviving memories by frequently bringing together familiar objects for the elderly person (such as pictures, movies, music, fabrics, knitting, food smells, perfume).[6,7] According to researches; Reminiscence therapy has been found to have an impact on various areas such as depression, self-esteem, self-acceptance, self-integrity, morale, anxiety, life satisfaction, physical activity, well-being, cognitive level, health status and quality of life.[7,8,9] One of the recent technological developments is virtual reality. With virtual reality, users are exposed to computer-created environments that feel real. Controllable environments similar to real life are created with the person's feeling of existing in the created virtual environment. In these controlled environments, the person is enabled to interact with the environment.[10,11] With the use of virtual reality in reminiscence therapy, it is possible for older adults to see again loved and lost individuals such as spouses and friends, and to remember the house they lived in, the institution they worked

for, their favorite movies, music, and foods. Studies have demonstrated the potential of virtual reality as a powerful mnemonic tool to improve the well-being of older adults.[12,13] Although it is a relatively new method, dating back to the 1990s, it is seen that the number of studies in this field is increasing day by day and its use in the treatment and care of different psychological disorders (alzheimer's, dementia, post-traumatic stress disorder, phobias, autism, obsessive-compulsive disorder, attention deficit hyperactivity disorder) is rapidly becoming widespread.[14,15] In conclusion; Psychiatric nurses, who often work with elderly individuals in the field of mental health, can keep up with developing technology and integrate virtual reality reminiscence therapy applications into medical treatments and play an active role in improving the patient's well-being.

Key words: virtual reality, reminiscence therapy, elderly, nursing

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POSTER PRESENTATION 13

A New Concept on Human Psychology: The Uncanny Valley

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Purpose: The aim of the study is to convey information in line with the relevant literature about the concept of the uncanny valley, which can affect individuals psychologically.

The first use of the concept of the uncanny valley dates back to ancient times. Masahiro Mori, Professor of Robotics, has written an article in which he envisions how humans would react to robots that act and look very human-like. In particular, he hypothesized that a person's normal response to a human-like robot would suddenly change from empathy to aversive affect as the robot approached a more human-like appearance. This frightening descent is called the "uncanny valley"[1]. When robots become too similar to humans, their liking decreases and instead their impact on humans turns into negative reactions such as dislike, spookiness or uncanniness[2]. Mori (1970) gave examples of various types of moving and still human-like images in his article. Mori suggested that such characters become spooky, frightening, repulsive, and "uncanny" instead of being cute when they approach a more realistic resemblance to humans. However, the assumption remains that if the similarity is perfected, such images will become indistinguishable from humans and therefore arouse as much interest and sympathy as an ordinary person [3]. Although this effect is frequently mentioned in robotics, it is not limited to robots. The uncanny valley effect also applies to any human-like object, such as dolls, masks, facial caricatures, avatars in virtual reality, and characters in computer graphic films [4].

The uncanny valley hypothesis has its roots in the 1906 article "On the Psychology of the Uncanny" by Ernst Anton Jentsch, a German physician. Jentsch (1906) discussed the fear created by automatons (that behave as if they were alive) and wax figures (that appear as if they were alive). Jentsch suggested that this uneasiness actually stemmed from the uncertainty of “whether the object was alive or not”[3]. Over the past decade, the number of empirical studies

on human-robot relations and the determinants of robot acceptance has gradually increased [5]. While some researchers are investigating the effects of the uncanny valley effect on human-robot interaction and computer-graphic animation, others are investigating its biological and social origins[1]. Human responses to artificial agents are thought to involve a neural evaluation based on a fundamental principle of sensory coding in response to a specific combination of features (human-likeness in non-human agents)[2].

Result: While the first article published on the concept of the uncanny valley received almost no attention in the following years, the concept of the uncanny valley has recently begun to attract rapid attention in robotics and other scientific circles. It can now be said that as technology develops and researchers produce human-like robots, the interest in this mysterious valley is expected to increase even more [2]. It is thought that there is a need for more research on the subject, especially addressing its impact on individuals' psychological states.

Key Words: Uncanny Valley, Psychology, Virtual Reality

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POSTER PRESENTATION 14

The effect of virtual reality in pulmonary rehabilitation: A scoping review

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Background: Chronic obstructive pulmonary disease (COPD) is a progressive lung disease and has been recognized as the third leading cause of death globally. Pulmonary rehabilitation (PR). In recent years, virtual reality (VR) technology has been used in PR.[1-5] There needed to be more scoping reviews evaluating the effect of the use of VR in PR program of patients with COPD

Purpose: This review aimed to evaluate the effect of the use of VR in PR program of patients with COPD

Method: Four databases were searched: OVID Medline, CINAHL, PsychINFO and Embase**.** Randomised controlled studies which published full articles examined the use of VR with the target application adult population with COPD of PR patients were included in this scoping review. Studies from the database were included between 1 January 2018 and 30 October 2023.

Results: The initial search strategy identified 764 articles. In the removal of duplicates, five studies were included.[1-5] Table 1 represents the characteristics of the included studies.[1-5] Four studies revealed that VR technology can increase exercise capacity for individuals undergoing PR.[2-5] One study showed that VR reduce anxiety, depression and stress levels.[2] Two studies found that VR enhance pulmonary function.[1,2]

Conclusion: This review demostrated that VR programs could be used to enhance the therapeutic effect of PR in COPD patients.

Keywords: Virtual reality, Pulmonary rehabilitation, Scoping review

Table 1 Characteristics of included trials

Author(s)	Participants	Intervention	Control	Duration	Outcome
Xie et al. [1]2021. China	COPD (N=60)	VR technology combined with lung rehabilitation training for 20 min	Standard PR program	8 weeks	Exercise capacity , lung function
Rutkowski et al.[2]2021 Poland	COPD (N=50)	The Xbox 360 and Kinect motion sensor were used to carry out VR training for 20 min five times per week	Standard PR program	2 weeks	Lung ventilation, depressive, anxiety symptoms and stress levels
Rutkowski et al.[3]2020 Poland	COPD (N=106)	(1)Endurance exercise training and VR training 15–30 min, five times per week (2) VR training 15-30 min, five times per week	Standard PR program	2 weeks	Exercise capacity
Rutkowski et al.[4]2019 Poland	COPD (N=68)	The VR rehabilitation program used a Xbox 360 console, along with the Kinect motion sensor, once a day.	Standard PR program	2 weeks	Exercise tolerance, lung ventilation, dyspnea
Sutanto et al.[5]2019 Indonesia	COPD (N=20)	a program (yoga, strength training, aerobic exercise) using the Wii Fit system 30 min three times per week	Standard PR program	6 weeks	Exercise tolerance, lung ventilation, dyspnea

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