



**The Role of Virtual Reality on Reducing
Anxiety During Dressing Change Duration for
Children with Burns**

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Abstract

Background: Virtual reality (VR) is a non-pharmacological technology that can enhance the care of burns for children, rather than conventional dispersion technology. VR aims to transfer users to other reality as a method of distraction that provides real-time interaction with computer-simulated entities through pseudo-natural immersion through multi-sensory simulations. Impression, engagement and navigation in the virtual world change the consciousness of pain and anxiety, producing an analgesic result.

Objective(s): (a) Determine the effect of virtual reality-based intervention on reducing anxiety for children with burn. (b) Find out association between sociodemographic variables of children and level of effect of virtual reality-based intervention techniques on anxiety.

Methodology: This study uses a quasi-experimental design, a type of research design that relies on establishing control groups that are similar to the intervention groups in terms of key pre-intervention characteristics. The total number of burn cases in the age group (6-17) included in the study for the year 2024 was approximately 305 cases. A total of 110 patients were included in the data analysis divided into two groups, namely the control group (55 patients) and the study group (55 patients) for each center, two patients were excluded from the sample due to non-compliance with the required criteria.

Results: The statistical results of anxiety rating scale for children with burn between the sample (experimental and control groups) is 83.6% of the sample at experimental group was rating 0 level (relaxed, smiling, willing and able to converse) according to anxiety rating scale, but 47.3% of the sample at control group was rating 5 level (child out of contact with reality of the threat).

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Generally loud crying, unable to listen to verbal communication, makes no effort to cope with threats. Activity involved in escape behavior. Physical restraint required) according to anxiety rating scale.

Conclusion: Measured by the anxiety scale, the experimental group showed significantly lower anxiety scores compared to the control group. The results highlight the positive influence of virtual reality on reducing anxiety during treatment, thus contributing to a more pleasant experience for the children.

Recommendations: It is recommended that hospitals and specialized centers introduce innovative technologies such as virtual reality in the treatment of burns.

Keywords: Virtual Reality, Anxiety, Dressing Change, Children, Burns.

Introduction

Children's burns are an important global health problem, with an increase in the proportion of non-lethal injuries in children. Burn injury is a common form of childhood injury, often caused by shocks and contact heat, as well as friction, electrical energy and chemical sources.^(1, 2)

Patients with severe burns require regular painful treatment, including changes in dressings to prevent infections and improve wound healing. The frequency of changes in dressing varies depending on the amount of exudate and material of dressing, so in hospital burn patients, they vary from one week to two days. Children think that changing dressing is the most problematic and uncomfortable part of hospitalization.⁽³⁾

During any phase of life cycle, burning causes physical and psychological changes associated with body image, self-esteem involvement, life style changes, and even difficult interventions such as pain, suffering, anxiety, and depression. Pain is the subjective experience of the individual, and life style changes are crucial when combined with therapeutic methods that integrate pharmacological and non-pharmacological methods.⁽⁴⁾

Virtual reality (VR) is a non-pharmacological technology that can enhance the care of burns for children, rather than conventional dispersion technology. VR aims to transfer users to other reality as a method of distraction that provides real-time interaction with computer-simulated entities through pseudo-natural

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immersion through multi-sensory simulations. Impression, engagement in the virtual world change the consciousness of pain and anxiety, producing an analgesic result. ⁽⁵⁾

Alternative hypothesis

There is a significant difference in the effect of virtual reality based intervention technique on anxiety for children with burn.

Methodology

Design of the Study

This study uses a quasi-experimental design, a type of research design that relies on establishing control groups that are similar to the intervention groups in terms of key pre-intervention characteristics. In this type of design, the researcher cannot control all the factors that affect the selection of participants or the study conditions in terms of place and time. However, in areas such as healthcare where randomized controlled trials are difficult, quasi-experimental designs are considered appropriate. This design helps determine the cause-and-effect relationship between interventions and observed outcomes by comparing outcomes after interventions to baseline conditions without interventions. The study was conducted from 16/9/2024 to 30/2/2025.

Ethical Consideration

Before starting data collection, the study received official approval from the relevant authorities, including the Faculty of Nursing at University of Baghdad. The Ethics Committee then reviewed the research protocol, questionnaire and expert panel before approving the title of the study. The researcher submitted a detailed explanation of the project, including objectives and methods, to the ministry of planning/authority of statistics &geographic information systems. To ensure the integrity of the study and the professionalism of its processes, strict ethical considerations were followed. The researcher obtained informed consent from all participating parents and children without revealing the names of the children and explained the purpose of the study in detail. Participants were reminded that they were free to decide whether to participate or not, with an emphasis on preserving their autonomy.

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Registration of a clinical trial

Registration of a clinical trial is the process of publishing detailed information about the research design and expected results of the study in a public database that is free to use for all and managed by a non-profit organization. Registration of such clinical trials is necessary to identify similar studies, which in turn avoids duplication of studies and is necessary to avoid publication bias. approval for study registration was obtained from the Iranian Registry Clinical Trials ID20241114063706N9

Intervention procedures

After obtaining informed consent from the caregivers of the children participating in the study, participants were divided into two groups: the intervention group and the control group. The intervention group received a virtual reality-based intervention in which participants wear Meta Quest 2 virtual reality headsets from Meta Quest company during dressing change sessions. This intervention allowed children to be immersed in an interactive and engaging virtual environment (e.g., a roller coaster scene), which helped distract their attention from the pain and anxiety associated with changing burn dressings. The virtual reality experience was implemented only once during a dressing change. Sessions were closely monitored to ensure children's comfort and safety throughout the intervention. The control group received no intervention during dressing changes and followed the same procedures but without the use of virtual reality. Anxiety levels were assessed using an appropriate anxiety rating scale.

Settings of The Study

The study was conducted at the Specialized Burn Center, AL-Kindi Teaching Hospital in Baghdad, and AL-Zahraa Teaching Hospital in waist. The researcher chooses these hospitals because they accept burn patients, which allows data collection to be completed within a limited time frame.

The sample of the Study

The study sample was collected from pediatric burn patients treated at the Specialized Burn Center and Al-Kindy Hospital in Baghdad and the Burn

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Center at Al-Zahraa Teaching Hospital in Waist Governorate. The total number of burn cases in the age group (6-17) included in the study for the year 2024 was approximately 305 cases. 110 patients were included in the data analysis divided into two groups, namely the control group (55 patients) and the study group (55 patients) for each center, as shown in table (2-1), two patients were excluded from the sample due to non-compliance with study procedure. The minimum sample size for this study was set at 110 patients based on the calculation of the minimum sample size by Raosoft equation using a confidence level of 80% and a margin of error of 5%.

Table (1) Distribution of study sample at setting of study

Setting of study	Experimental group	Control group
Specialized Burn Center	38	34
AL-Kindi Teaching Hospitals	10	11
AL-Zahraa Teaching Hospitals	7	10

Sampling of the study

To ensure a transparent and scientific recruitment process, the research used non-probability purposive sampling in this study is selected according to the following criteria.

Inclusion criteria:

Children will be included in this study based on certain criteria. They must be between 6 and 17 years old and have suffered burns. In addition, they must be able to collaborate and perform self-assessments to ensure the accuracy of the results. It is also important that they have no history of psychiatric disorders or mental illness, as these could affect their response to the study. In addition, they must require daily dressing changes as part of their health care routine and have the ability to communicate verbally, which will facilitate interaction throughout the research process

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Study Instrument

The questionnaire is one of the means of collecting data that contributes to achieving the results expected of the study, and researchers have developed this questionnaire to clarify the objectives and importance of the study by asking questions. The questionnaire includes two parts, including: Part I: Social Demographic and clinical Data, Part II: Anxiety Rating Scale.

Part1: Children's sociodemographic Data

This section consists of (eight) items relating to the collection of data from patients, including sex, age, residence, monthly income, hospital stay, source of fire, type of house hold measures used before hospital admission, extent of fire and duration of dressing change

Part 2: Anxiety Rating Scale

This is a comprehensive assessment tool for determining anxiety levels in children. It uses a 6-point system ranging from 0 to 5, with each level indicating an increased manifestation of anxiety. Score 0 Completely relaxed and no anxiety symptoms. score1 Mild anxiety but easily calmed. Score 2 Moderate anxiety and occasional anxiety symptoms. Score 3 Regular fear or anxiety symptoms but reasonably controlled. Score 4 Severe anxiety characterized by persistent fear, crying, and verbal protests. Score 5 Extreme anxiety characterized by panic attacks and complete defiance. The scale provides an objective way to measure and monitor anxiety levels. This scale helps professionals systematically assess anxiety levels, document behavioral responses, track changes in anxiety over time, ensure clear measurement and tracking of anxiety levels, improve understanding of emotional state, and improve communication between healthcare providers. This systematic approach to measuring anxiety helps ensure appropriate care and support for people with varying levels of anxiety. The use of the Anxiety Rating Scale in this study was approved by Abdul-Aziz Abdullah Al Kheraif. Dr. Larry Venham, the original designer of the scale, who designed it in 1980, he is now deceased.

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Language and content Validity of the study instrument

The tool was translated by a bilingual specialist from Kirkuk University and translated from English to Arabic using the forward backward translation method. The tool was then translated into English and when compared with the original version, identical results were found. The validity of the tool refers to the extent to which it measures what it is intended to measure. To ensure the usefulness of the tool, it must contain all the analytical elements, and its wording and terminology must be clear enough that they can be understood by anyone who uses it. The validity of the research tool has been verified by experts. The expert team consists of 15 experts to assess the content validity. All experts have more than eight years of experience. The content validity was assessed by six experts from University of Baghdad/ College of Nursing, one from Kufa university/ College of Nursing, two from Mosul university/ College of Nursing, one from College of Nursing/ Babylon University, three physicians from Al-Karama Teaching Hospital in Waist Government, and two from doctors at the University of Waist. To make the questionnaire more effective, experts were asked to comment on the appropriateness of the wording of each questionnaire and the relevance of the study context, and to make suggestions on each questionnaire. Expert opinions suggested that minor changes were needed in some elements of demographics. These changes were implemented based on their suggestions and the final version was prepared for research purposes.

Reliability of study instruments (Pilot study)

The level of consistency or accuracy that an instrument assesses is called reliability. Reliability of research instruments means that the responses are almost identical when given to the same people at different times. The researcher confirmed the face validity of the study instrument and applied it to the random sample of 10 children selected in the pilot study using one test method who were excluded from the original study. The researcher conducted a pilot study from 22 November 2024 to 27 November 2024 to evaluate the validity, accuracy, relevance and validity of the questionnaire. Twelve children, six boys and six girls participated in the pilot study using purposive sampling

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technique. Participants were divided into two groups: the intervention group and the control group. The intervention group received a VR-based intervention aimed at reducing pain, reducing anxiety, and improving dressing changes in children with burns. Participants wear meta quest VR headsets during dress change. while the control group received no intervention. The researcher applied one test method to examine the sample by using Cronbach's Alpha measurement, the results were (0.824) at using SPSS version 26.

Data Collection

The researcher initiated one-on-one interviews with the parents and asked for their explicit consent to participate in the study. During these interviews, the researcher clearly explained the objectives of the study. After obtaining verbal consent from the parents, the researcher assured them that all disclosed information would be kept confidential. The data collection process began after obtaining consent. It took place as planned from 28/11/2024 to 30 /12/2024. A unified two-part questionnaire in Arabic was used to collect data. The first segment included demographic and clinical data, the second component included an anxiety assessment. The first part of the questionnaire was completed based on information obtained from the patient. In the second part, anxiety levels were assessed by observing the child's behavior during dressing changes. The time it took each participant to complete the questionnaire ranged from 30 to 40 minutes.

Data Analysis Methods

In the present study, the data are analyzed through the use of Statistical Package for Social Science (SPSS) version 26. The statistical procedures which are applied for the data analysis and assessment of the results include the following:

1. Descriptive Statistical Data Analysis:

- I. Frequencies and percentages are used to calculate the description of demographic characteristics.
- II. Means and standard deviation are used to estimate the value of the data.

2. Inferential Statistical Data Analysis:

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- I. Pearson coefficient correlation (r-test) was applied for the reliability testing of the instrument.
- II. Cronbach's Alpha (α) is a statistical test used to assess the internal consistency or reliability of a set of scale or test items. It is commonly used in fields like psychology, social sciences, education, and market research to evaluate how closely related a set of items are in measuring the same underlying concept.
- III. A T-test is a statistical test used to determine if there is a significant difference between the means of two groups. It's commonly used when the data is approximately normally distributed, and it's useful in comparing two groups to see if they are different from each other in some way.
- IV. The Analysis of Variance (ANOVA) test is a statistical method used to compare the means of three or more groups to determine if there is a statistically significant difference between them. ANOVA tests whether the variability in the data can be attributed to the differences between groups or if it is due to random variation within the groups.

3.Level of Significance:

The threshold of significance is fixed at 5% level (p-value), P-value of > 0.05 indicates non-significant results, while P-value of ≤ 0.05 indicates significant results

Results of the study

Table (1): Statistical Results of the Demographic Variables for the Sample (Experimental and Control Groups) in the Study

Demographic	Estimate	Experimental Group		Control Group	
		Freq	%	Freq	%
Sex	Male	27	49.1	22	40.0
	Female	28	50.9	33	60.0
Age	6- Less than 8 years	24	43.6	11	20.0

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	8- Less than 10 years	2	3.6	2	3.6
	10- Less than 12 years	4	7.3	8	14.5
	12- Less than 14 years	3	5.5	15	27.3
	14- Less than 16 years	4	7.3	4	7.3
	16- Less than 18 years	18	32.7	15	27.3
Address	Rural	3	5.5	2	3.6
	Urban	52	94.5	53	96.4
The Monthly Family Income	Less 300,000 ID	18	32.7	23	41.8
	300,000 ID - 600,000 ID	5	9.1	14	25.5
	601,000 ID - 900,000 ID	12	21.8	6	10.9
	More than 900,000 ID	20	36.4	12	21.8
Total		55	100.0	55	100.0

F=Frequency, %= Percentage

The table (1) presents the statistical results of the demographic variables for the sample (experimental and control groups) in the study, that 50.9% (28) of the sample at experimental group and also 60.0 (33) of the sample at control group were female sex. 43.6% (24) of the sample age at experimental group between 6 – less than 8 years old but 27.3% (15) of the sample age at control group between 12 – less than 14 years old. 94.5% (52) of the sample at experimental group and also 96.4% (53) of the sample age at control group were address in urban area. 36.4% (20) of the sample monthly income at experimental group was more than 900,000 ID but 25.5% (14) of the sample monthly income at control group between 300,000 ID - 600,000 ID.

Table (2): Statistical Results of Hospitalization and Source of Burn for the Sample (Experimental and Control Groups) in the Study

	Estimate	Experimental	Control Group
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		Group			
		Freq	%	Freq	%
length of Hospital Stays	1-7 day	49	89.1	29	52.7
	8-14 day	4	7.3	19	34.5
	15-21 day	2	3.6	7	12.7
Source of burn	Hot liquids	41	74.5	18	32.7
	Electricity	2	3.6	4	7.3
	Fire	12	21.8	33	60.0
Total		55	100.0	55	100.0

F=Frequency, %= Percentage

The table (2) shows the statistical results of hospitalization and source of burn for the sample (experimental and control groups) in the study, that 89.1% (49) of the sample length of hospital stays at experimental group and 52.7% (29) of the sample length of hospital stays at control group were between 1 – 7 days. 74.5% (41) of the sample at experimental group had complained from hot liquids as a source of burn but 60.0% (33) of the sample at control group had complained from fire as a source of burn.

Table (3): Statistical Results of Anxiety Rating Scale for children with burn between the Sample (Experimental and Control Groups)

		Experimental Group		Control Group	
		Freq	%	Freq	%
1.	Rating 0	46	83.6	0	0.0
2.	Rating 1	6	10.9	0	0.0
3.	Rating 2	3	5.5	0	0.0

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4.	Rating 3	0	0.0	12	21.8
5.	Rating 4	0	0.0	17	30.9
6.	Rating 5	0	0.0	26	47.3
	Total	55	100.0	55	100.0

F=Frequency, %= Percentage

The table (3) presents the statistical results of anxiety rating scale for children with burn between the sample (experimental and control groups) that 83.6% (46) of the sample at experimental group was rating 0 level (relaxed, smiling, willing and able to converse) according to anxiety rating scale, but 47.3% (26) of the sample at control group was rating 5 level (child out of contact with reality of the threat. general loud crying, unable to listen to verbal communication, makes no effort to cope with threat. activity involved in escape behavior. Physical restraint required) according to anxiety rating scale.

Table (4): The Statistical Relationship between the Demographic Variables and Anxiety Rating Scale for Experimental Group

	Anxiety Rating Scale	
	P.value	Sign
Sex	0.580	NS
Age	0.598	NS
Address	0.008	S
Monthly Family Income	0.061	NS

Sign=Significant at P.value \leq 0.05 level, S=Significant, HS= High Significant, NS=non-significant

The table (4) shows the statistical association between the demographic variables with anxiety rating scale for experimental group. There was non-significant association between all demographic variables with anxiety rating scale results at p.value \leq 0.05 level except with address was significant association at p.value (0.008) only.

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Discussion

Table (1): Statistical Results of the Demographic Variables for the Sample (Experimental and Control Groups) in the Study

This table presents the demographic characteristics of the study sample, including the experimental and control groups. It can be seen that in both groups, more than half of the participants were female. This result is consistent with a study by consistent with a study by Hassan HS, Naif S⁽⁶⁾ who reported that female accounted for 97% (32) of sample. This result consistent a study by Mohammed AJ, Mohammed WK⁽⁷⁾ who found that female accounted for 82.4% (84) of the sample. This result agrees with a study Mohammed AQ⁽⁸⁾ who found that male accounted for 57.1% (36) of sample. This result disagrees with a study Shawq AH⁽⁹⁾ who found that male accounted for 58.3% (35) of sample. From the researcher point of view, several factors are responsible for the higher rate of burns in female. A major factor is that female are more likely to perform household activities such as cooking or handling hot liquids, as well as using hot utensils such as kettles or pots, which increases their risk of burns.

Regarding the age distribution, most of the participants in the experimental group were between 6 and 8 years old, while most of the participants in the control group were between 12 and 14 years old. This result is consistent with the study by Al-Faddyadh S, Naser S⁽¹⁰⁾ who found that 45.3% (34) of children were between 6 and 8 years old and 20.5% were between 12 and 17 years old. This result consistent with study by Mizal AK, Mohammed AQ.⁽¹¹⁾ found that 41.6%(52) of participant between 5 and 8 years of age. This result is inconsistent with the study by Hassan HS, Khadyer AY⁽¹²⁾ who found that 63.3% (19) of children were between 1 and 3 years old. According to the researcher's point of view, burns are more common in the age group of 6 to 8 years because children in this age group are less aware of the dangers posed by

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hot liquids and objects. This inattention often leads to unintentional accidents while playing or running around the house.

Regarding residence, most of the participants in both groups lived in urban areas. These results are consistent with those of a study by AL-Fayyadh S, AL-Shammary SE⁽¹³⁾ who found that 75.7% of participants in the control group, 63.5% of the placebo group shot blocker, and 63.3% of the shot blocker group lived in urban areas. This result is consistent with a study Mohammed AQ, Hatab KM⁽¹⁴⁾ who found 85.7% of participant lived in urban area. This result is consistent with a study by Najji AB, Abbood AM⁽¹⁵⁾ who found 56.1% of participants lived in urban areas, from the researcher point of view. The higher incidence of burning in urban areas is due to several reasons including the widespread use of household appliances and electronic devices, which increases the risk of electrical and burn injuries in children in urban areas. In addition, the pressure of city life can lead to neglect and inadequate supervision of children, which further increases the risk of burns.

Regarding household income, the majority of the individuals studied in control group had income range between 300,000 and 600,000 Iraqi dinars. On the other hand, the participants in the experimental group had a monthly income of more than 900,000 Iraqi dinars. This result is consistent with a study by Abd Ali AM⁽¹⁶⁾ who reported that 28% of the families earned between 300,000 and 600,000 dinars, while 29% earned more than 900,000 dinars. On the other hand, This result is not consistent with study by Mohammed AQ⁽¹⁷⁾ found that about 38.1% of the families earned less than 300,000 dinars.

Table (2): Statistical Results of Hospitalization and Source of Burn for the Sample (Experimental and Control Groups) in the Study

The table offers the statistical results of hospitalization and source of burn for the sample (experimental and control groups) in the study. Regarding the length of hospital stay of both groups, the majority of participants in the experimental and control groups stayed between 1 and 7 days. This result is consistent with a study by Delgado G, Gómez-Cia T, Moreno I⁽¹⁸⁾ who found that 41% of children stayed in the hospital between 2 and 10 days. On other hand .This result is not consistent with a study L-Fayyadh S, Bachi GE⁽¹⁹⁾ who found the 55.6% of participant stayed 5 days or less. From the researcher's point of view,

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the length of hospital stay of burn patients is influenced by psychological factors in addition to medical ones. Burn patients are often afraid of pain, surgery, the unknown and changes in their daily lives. These psychological factors may contribute to their desire to leave the hospital early, even before they have fully recovered.

Regarding the cause of burns, the majority of participants in experimental groups reported that hot liquids were the main cause of their burns. while in the control group, the majority of participant reported that fire were main causes. This result is consistent with a study by Abd Elrazik FA ⁽²⁰⁾ who found that 50% of participants in the experimental group and 80% in the control group sustained burns from hot liquids. Furthermore, this finding confirms the result of the current study for the experimental group. This result is consistent with the study by Abdeltwab SQ, Mostafa MM, Sebaee HA et al ⁽²¹⁾ confirms the result of the current study for the control group, who found that fire accounted for 46.7% of the main causes of burn. The researcher point of view Burns from hot liquids are more common because we are exposed to them every day when cooking or drinking. The rapid transfer of heat and high temperatures of liquid cause deep and severe burns.

Table (3): Statistical Results of Anxiety Rating Scale for children with burn between the Sample (Experimental and Control Groups)

The results showed a significant difference in the level of anxiety between the children with burns in the experimental and control groups, thus highlighting the positive effect of the intervention in the experimental group. In particular, the majority of children in the experimental group were relaxed and smiling. In contrast, the majority of children in the control group suffered from severe anxiety characterized by constant crying and irresponsiveness; this percentage is significantly higher than in the experimental group. These results highlight the fundamental role of the intervention in the experimental group in calming children and improving their coping skills compared to the control group, which had higher levels of anxiety. This result is consistent with a study by Kharda C, Ballard A, Dery J et al⁽²²⁾ who found that 53.3% (8 children) showed no signs of anxiety level 0). These results indicate that participants in the VR group had lower anxiety levels compared to the control group. Researcher's Perspective: Virtual reality plays an important role in providing children with a

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fun and exciting experience and helps reduce anxiety by engaging them in interactive and exciting activities. In addition, it helps avoid negative triggers associated with burns such as seeing wounds or undergoing painful medical procedures. In addition, VR stimulates the release of feel-good hormones, improves mood and reduces stress, which in turn helps calm the nervous system. In addition, it positively influences breathing patterns and leads to changes in brain activity, reducing activity in areas associated with anxiety. This makes therapy less stressful and more enjoyable for the children.

Table (4): The Statistical Relationship between the Demographic Variables with Anxiety Rating Scale for Experimental Group.

The table shows the statistical association between demographic variables such as age, gender, address and monthly household income with an anxiety rating scale for the experimental group. There was no significant association between all demographic variables and anxiety rating scale scores at the level except address where there was only a significant association at P-value (0.008). This result is not consistent with a study by Armstrong M, Olbrecht V, Klamar K⁽²³⁾ who found a significant difference between gender and anxiety at a P-value of 0.17 and a significant difference between age, address and anxiety at a P-value of 0.09. This result is inconsistent with the study by Mwinyi J, Pisanu C, Castelao E et al⁽²⁴⁾ who found a significant association between anxiety and monthly household income as monthly income was strongly associated with anxiety disorders. From the researcher's perspective, address has a significant impact on anxiety levels due to environmental and social factors such as difficulty accessing basic resources and unstable living conditions. Living in remote or poor areas may increase anxiety levels due to a lack of public services, while conditions such as noise and overcrowding negatively impact mental health. In contrast, factors such as age, gender, and family monthly income may not have the same direct impact on anxiety, as environment plays a more important role.

Conclusion

Based on the analyzed results, the present study confirms the research hypothesis that immersive intervention techniques in virtual reality significantly reduce anxiety during dressing changes in children with burns. Measured by the anxiety scale, the experimental group showed significantly

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lower anxiety scores compared to the control group. The results highlight the positive influence of virtual reality on reducing anxiety during treatment, thus contributing to a more pleasant experience for the children. In addition, the study highlighted a significant association between some demographic variables, such as address and intervention outcomes. These results underline the potential of virtual reality as a promising tool to alleviate anxiety and improve psychological well-being in children undergoing painful medical procedures, thus improving their overall recovery. This intervention offers a promising strategy to improve the quality of care and reduce the emotional burden associated with burns in children.

Recommendations

1. It is recommended that hospitals and specialized centers introduce innovative technologies such as virtual reality in the treatment of burns.
2. Regular training programs should be implemented for all nurses in burn units to ensure that they are effectively trained in the use of virtual reality technologies in healthcare.
3. To ensure a complete and accurate understanding of intervention effects and thus obtain more generalizable results, further studies with larger sample sizes from different geographical areas are needed.
4. More research is needed to assess the psychological and social benefits of virtual reality technologies and to examine their long-term impact on the overall recovery of children with burns.

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