

Abstract

Title: Problematics of kinetosis origin in virtual neurorehabilitation

Aim: The aim of this diploma thesis is to acquaint the reader with theoretical background of the origin of cybersickness during the exposure of the user to virtual reality, describe the mental and physical effects and therapeutical use of virtual reality in various diagnoses. Experimental part of this thesis is focused on evaluating the rate of cybersickness occurrence during the therapy in various diagnoses and the influence of secondary factors on the amount of cybersickness.

Methods: This diploma thesis is processed in the form of a literary review. The PubMed, Scopus and Web of Science databases were used to search for studies. Total of 500 titles were indentified, this number decreased to 438 after removing the duplicates. After reading the abstracts, another 395 titles were removed. Out of 43 titles, remaining to be assessed in the fulltext form, 29 another titles were removed. Final number of titles, included in this literary review, is 14 titles, which met the critereria for inclusion.

Results: Out of the 14 studies, included in the experimental part of this research and meeting the inclusion criteria, 7 out of 14 groups total had the highest *Simulator Sickness Questionnaire – Disorientation* (SSQ_D) subscale value in comparison with other *Simulator Sickness Questionnaire* (SSQ) subscales. 3 groups had the highest *Simulator Sickness Questionnaire – Oculomotor* (SSQ_O) subscale values and 1 group had the highest *Simulator Sickness Questionnaire – Nausea* (SSQ_N) subscale value. None of the studies confirmed correlation between age and gender, however most of the studies didn't take these factors into consideration because of their negligible impact, if taken into account separately. The same goes for the potential influence of the headset, as it is only one of many potential cybersickness factors. In the question of the most commonly treated diagnosis, cognitive impairment and stroke diagnosis were the most common.

Keywords: Virtual reality, kinetosis, cybersickness, simulator sickness