INTISARI

Studi ini menyelidiki hubungan antara *video game* genre *first-person shooter* dengan *visually induced motion sickness* yang ditandai oleh gejala-gejala seperti mual, pusing, dan bersendawa. Penting untuk memahami mengenai dampak buruk yang dapat dimunculkan *video game* genre *first-person shooter* pada para pemainnya, mengingat betapa populernya *video game* di genre tersebut. *Video game* dengan genre *first-person shooter*, contohnya Counter-Strike, mempunyai aksi yang serba cepat dan efek visual yang dinamis. Kedua hal tersebut dapat meningkatkan *visual stress* dan memunculkan *motion sickness* pada seseorang yang rentan mengalami *motion sickness*. Studi ini mengkuantifikasikan dan mengidentifikasi elemen-elemen *gameplay* dan karakteristik yang memunculkan gejala-gejala *visually induced motion sickness*. Dengan menggunakan sesi bermain *video game* yang terkendali, pelaporan oleh partisipan dengan Simulator Sickness Questionnaire dan Fast Motion Sickness Scale, serta analisis video, data dari lima puluh partisipan dikumpulkan dan dianalisis. Selain itu, dikembangkan sebuah model *machine learning* untuk memprediksi efek bermain *video game first-person shooter* pada *motion sickness*. Model tersebut cukup berhasil memprediksi perubahan gejala *motion sickness*, tetapi akurasi prediksi oleh model tersebut kurang memuaskan, dengan memperoleh *root mean squared error* terendah di angka 22,97. Meskipun demikian, berhasil ditemukan suatu korelasi positif antara karakteristik *gameplay video game first-person shooter* dan keparahan gejala *visually induced motion sickness*. Hasil penelitian menandakan bahwa elemen-elemen *gameplay* yang umum dijumpai di *video game first-person shooter*, seperti gerakan kamera yang cepat, efek visual yang intens, dan perubahan *scenery* yang sering merupakan beberapa faktor kritis yang mempengaruhi gejala *motion sickness*. Semakin tinggi faktor-faktor tersebut, semakin tinggi pula gejala *visually induced motion sickness* yang dirasakan oleh partisipan. Akan tetapi, data yang diperoleh dari seluruh partisipan menunjukkan varians yang tinggi, bahkan data dengan faktor-faktor yang serupa. Hal tersebut menunjukkan bahwa gejala *visually induced motion sickness* mempunyai subjektivitas yang tinggi dan sulit untuk diprediksi dengan akurasi yang tinggi. Studi ini berkontribusi untuk memperluas pemahaman mengenai *visually induced motion sickness* karena bermain *video game* dan memberikan *insight* kepada pengembang dan pemain *video game* untuk dapat mengatur pengalaman bermain *video game*.

Kata kunci : Human computer interaction (HCI), Empirical studies in HCI, Computer games, Interaction paradigms, Machine learning

ABSTRACT

This research paper investigates the relationship between first-person shooter video games and visually induced motion sickness, characterized by symptoms such as nausea, dizziness, and burping. Understanding the adverse effects of first-person shooter games on the health of players is crucial, given their popularity. First-person shooter games, like Counter-Strike, are known for fast-paced action and dynamic visual effects, which may increase visual stress and induce motion sickness in susceptible individuals. This study quantifies the extent to which first-person shooter game characteristics contribute to visually induced motion sickness and identifies specific elements that exacerbate these symptoms. Using controlled gameplay sessions, participant self-reports through the Simulator Sickness Questionnaire and Fast Motion Sickness Scale, and advanced video analysis, data from fifty participants were collected and analyzed. Additionally, a machine learning model was developed to predict the effects of first-person shooter gaming on motion sickness. While the model achieved some predictive success, the final model could not predict motion sickness changes with satisfactory accuracy, obtaining a root mean squared error value of 22.97. Despite this, findings reveal positive correlations between first-person shooter game characteristics and the severity of visually induced motion sickness symptoms. The results suggest that gameplay elements such as rapid camera movements, high visual intensity, and frequent scenery changes, common in first-person shooter games, are critical factors influencing motion sickness. The more these critical factors are present in the gameplay of a first-person shooter game, the more that visually induced motion sickness symptoms felt by participants worsen. However, the data gathered show high variance across participants, even when comparing entries with similar factors. This phenomenon shows that the symptoms of visually induced motion sickness have a high degree of subjectivity to them, which makes them hard to predict accurately. This research contributes to a broader understanding of visually induced motion sickness in gaming and offers insights for game developers and players to tailor their gaming experience.

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