

# The Impact of Online Game Addiction on Eye Fatigue in 2020 High School Students in Sibolga City

Rumiris Simatupang

S1 Nursing Study Program, STIKes Nauli Husada Sibolga  
Jln Kader Manik No 02 Kelurahan Aek Muara Pinang Sibolga Selatan

---

**ARTICLE INFO****Keywords:**

Addiction, Online Games, Students, Eye Fatigue

---

**ABSTRACT**

The very rapid development of technology today has resulted in major changes for society, especially teenagers and students. The development of traditional games has become modern games with the existence of an internet network called Online Games. Data in Indonesia states The number of school-age children in 2017 (10.1%) are addicted to Online Games, in Korea 2.4% and 10.2% aged between nine and thirty-nine years, in China 13.7% and in America there are 1.5% to 8.2% who experience addiction<sup>3</sup>. Based on the initial survey, it was found that almost all high school students have a cellphone / smartphone device that can access games. This study aims to determine whether there is an impact of online game addiction on eye fatigue in high school students in Sibolga City. This research is a descriptive analytic study. The population in this study were high school students in Sibolga City. Sampling was stratified random sampling. The tool used is a questionnaire.

---

**E-mail:**

[rumirissimatupang2@gmail.com](mailto:rumirissimatupang2@gmail.com)

Copyright © 2020 Science Midwifery.

---

## 1. Introduction

The very rapid development of technology today has resulted in major changes for society, especially teenagers and students. The development of traditional games into modern games with the existence of an internet network called Game Online<sup>1</sup>.

Banyaseems like internet cafes that provide computers and sophisticated mobile phone facilities that are owned by the community today which are equipped with game facilities that make it easier for people including students to access online games easily. This is what makes people spend time playing games even to the point of addiction. Various sources say that playing games for a long enough time often results in people being unable to distinguish illusions from reality and can interfere with visual conditions<sup>3</sup>.

Nyoman Angga Santoso (2018) in his research states that the results of descriptive statistics show that the number of male respondents is 90.3% and 9.7% female respondents, with time playing online games for > 5 hours / day without pauses experiencing a decrease in vision. Test results *Chi-square* obtained a P value of 0.001 (P < 0.05), so it can be concluded that there is a significant relationship between playing duration *online game* with visual impairments.

PeDecreased visual acuity that occurs due to prolonged viewing of the monitor screen causes the frequency of blinking to decrease, causing symptoms of dryness in the eyes. To overcome this problem, make it a habit to stop activities while resting the eyes.

Giri's research results in 2013 which stated, as many as 81.4% of respondents who played Playstation games for more than 10 hours / week resulted in a decrease in visual acuity<sup>6</sup>.

Institute National for Safety and Health at Work in the United States said 90% of computer users within the period ≥ 3 hours / day, complained about visual disturbances. Meanwhile, in India 23% of the cases of eye fatigue caused by computer use<sup>19</sup>.

In today's digital era, the times are increasingly sophisticated, online games have become part of the lifestyle of children, adolescents to adults. The danger of online gaming addiction to the eyes is as if the eyes are forced to staring at the smartphone screen or a computer for a long time, this will make the eyes easily tired, redden and will even cause farsightedness accompanied by headaches so that the organs in the eye will quickly be damaged.

Almost all high school students in the city of Sibolga own a smartphone and from the preliminary survey students said the smartphone they had was mostly used for playing online games. In addition, the large number of internet cafes that are open for twenty-four hours at affordable prices have resulted in students becoming addicted to playing games.

# Science Midwifery

Journal Homepage: [www.midwifery.iocspublisher.org](http://www.midwifery.iocspublisher.org)

## 2. Research methods

### 2.1 Research design

The design in this study used a quantitative approach with descriptive analytic research that aims to determine the impact of online game addiction on eye fatigue of high school students in Sibolga.

### 2.2 Time and Place of Research

This research was conducted in Sibolga City from August to September 2020

### 2.3 Population and Sample

The population in this study were all high school students in Sibolga as many as 2937 students. The sample size was calculated using the Slovin13 formula as many as 353 students. The sample in this study was taken by stratified random sampling on a population that has levels / classes.

### 2.4 Data collection procedures

The data collection procedure was carried out through primary and secondary data which are relevant to the research needs.

### 2.5 Data analysis

Data were analyzed descriptively to determine the frequency distribution and percentage of each research variable and analyzed with the Chi Square statistical test, with a significance level of value (0.05). Data analysis was carried out with the help of SPSS software.

### 2.6 Research Process

The research process carried out is as follows:

- a. Internal meeting with research team
- b. Testing instruments / questionnaires (validity and reliability)
- c. Enter into a contract with the school to collect data.
- d. Collecting data through a questionnaire.
- e. Make a recapitulation of data collection results

## 3. Results and Discussion

Addiction to playing games in high school students in the city of Sibolga can be seen from the research results presented in the following table:

### 3.1 Respondent Characteristics

The characteristics of the respondents in this study were seen by gender and class of respondents, as shown in the table below:

**Table 1.**  
Distribution of frequency of respondents by gender

Gender	Percentage	Frequency
Man	346	98.0
Women	7	2.0
<b>Class</b>		
10	187	53.0
11	113	32.0
12	53	15.0
<b>Total</b>	353	100.0

From table 1 it is known that 98.0% of respondents are male and more respondents are in grade 10 as much as 53%.

# Science Midwifery

Journal Homepage: [www.midwifery.iocspublisher.org](http://www.midwifery.iocspublisher.org)

### 3.2 GameOnline Addiction Rate

**Table 2.**

The frequency distribution of respondents based on the level of online game addiction

<b>Level Kaddiction Game Online</b>	<b>Frequency</b>	<b>Percentage (%)</b>
Addiction	331	93.8
Not Addicted	22	6.3
<b>Total</b>	<b>353</b>	<b>100.0</b>

Based on table 2, the research results show that the majority of students experience online game addiction as much as 93.8%.

### 3.3 Eye Strain (Astenopia)

**Table 3.**

Frequency distribution of respondents based on the incidence of astenopia among students

<b>Kincident Astenopia</b>	<b>Frequency</b>	<b>Percentage (%)</b>
Light	45	12.7
Weight	308	87.3
<b>Total</b>	<b>353</b>	<b>100.0</b>

Based on the research results in table 3, it is known that the majority of respondents experienced severe eye strain as much as 87.3%.

### 3.4 Impact of Online Game Addiction on Eye Strain

**Table 4**

Frequency distribution

<b>Game On line</b>	<b>Eye Strain</b>				<b>Total</b>	<b>Pvalue</b>
	<b>Light</b>		<b>Weight</b>			
Addiction	25	7.0	306	86.7	331	93.8
Not Addicted	20	5.7	2	0.6	22	6.2
<b>Total</b>	<b>45</b>	<b>12.7</b>	<b>308</b>	<b>87.3</b>	<b>353</b>	<b>100</b>

BeBased on Table 4, it is known that the majority of respondents who are addicted to online games experience severe astenopia by 93.8%. From the results of the chi-square test, it is known that the value of P-value = 0.000 ( $p < 0.005$ ) means that there is a significant impact between online game addiction and eye strain in high school students in Sibolga City.

### 3.5 Discussion

The results showed The gender of high school students in Sibolga City who play online games, the majority of respondents are male, as much as 98%. This is in line with research conducted by Pratiwidi Surakarta, which found that more men like to play online games.

According to Rini (2011) 15, along with the very fast development of internet technology, online games are also experiencing a development in popularity in various circles at this time regardless of age and gender, from adults to children, many are found playing online games, one of which is popular among schoolchildren who are mostly male. One of the bad effects of online games on children is on health, especially eye health, which can cause eye fatigue. Because boys who are dominant play online games and often spend time in internet cafes, have a more dominant impact on eye health. According to Erin16, in his research, children who continue to play online games for a long time are at risk of causing headaches, blurred vision,

The results of research conducted by researchers on high school students in the city of Sibolga show that there is a significant impact between online game addiction and eye fatigue. where the number of respondents who are addicted to online games in the city of Sibolga is 93.8% with severe astenopia of 86.7%. These results are consistent with the research conducted by

# Science Midwifery

Journal Homepage: [www.midwifery.iocspublisher.org](http://www.midwifery.iocspublisher.org)

Feprinca with the results of the research of eighty (80) subjects studied, 53.8% who played games experienced addiction to playing online games<sup>17</sup>.

Playing games for too long using a computer or smartphone that produces the speed of magnetic light which can cause macular damage to the eyes. This radioactive emission will continue to be active for 20 years. Damage to the eyes is not immediate, but gradual. 19

## 4. Conclusion

Based on the results of research on high school students in the city of Sibolga, the results of the chi-square test showed that  $p\text{-value} = 0.000 < 0.05$ , it can be concluded that there is a significant impact between online game addiction and eye fatigue. It is hoped that students You can limit yourself to playing online games by filling your spare time with useful things such as doing family work or reading books and doing positive activities.

## 5. Reference

- [1] Coralia F. 2013. *Peran Komunikasi Orangtua dan Anak Dalam Penanganan Kegemaran Bermain Game Online*. Bandung: Universitas Islam Bandung; hal.74-86. [SKRIPSI].
- [2] Putro T, Nurjanah. 2013. *Perilaku Adiksi Pada Pemain Game Online di Dinustech Semarang dan Dampaknya Terhadap Kesehatan*. VISIKES-Vol.12/No.2.
- [3] Gaol TL. 2012. *Hubungan Kecemasan Game Online dengan Prestasi Akademik Mahasiswa di Fakultas Teknik Universitas Indonesia*. [skripsi]. Depok:
- [4] Putri, Gloria Setyvani. 2018. *WHO Resmi Tetapkan Kecanduan Game Sebagai Gangguan Mental*. Diambil dari situs <https://sains.kompas.com/read/2018/06/19/192900123/who-resmi-tetapkan-kecanduan-game-sebagai-gangguan-mental>
- [5] Giri, Dharmadi. 2013. *Gambaran Ketajaman Penglihatan Berdasarkan Intensitas Bermain Game pada Siswa Laki-Laki Sekolah Menengah Pertama Di Wilayah Kerja Puskesmas Gianyar*. Bali: Fakultas Kedokteran Universitas Udayana.[Skripsi].
- [6] Guno DC. 2018. *Gambaran Perilaku Kecanduan Game Online Pada Anak Usia Sekolah Di Wilayah Kecamatan Magetan*. Diambil dari <http://eprints.ums.ac.id/60199/1/NASKAH%20PUBLIKASI.pdf>
- [7] Kemenkes RI. 2018. *Bermain Game Online: Mengisi Waktu Luang, Bersenang-senang atau Ketergantungan*.
- [8] Denteria. 2013. *Efektivitas Teknik Manajemen Diri untuk Mengurangi Kecanduan Online Game*. Repositori.Upi.edu;
- [9] Sanditaria W, dkk .2013. *Adiksi Bermain Game Online Pada Anak Usia Sekolah di Warung Internet Penyedia Game Online*. Bandung: Universitas Padjadjaran. Jatinagor Sumedang:[skripsi].
- [10] Darwin.M. 2016. *Cara Mencegah Kecanduan Game Online* <https://www.kompasiana.com/darwinmulya/580cebc2927e613e2a8c4b42/cara-mencegah-kecanduan-game-online-pada-pelajar>
- [11] Notoatmodjo, S. 2010. *Metodologi Penelitian Kesehatan*. Jakarta : Rineka Cipta.
- [12] Rini A. 2011. *Menanggulangi Kecanduan Game On-Line*. Jakarta: Pustaka Mina.
- [13] Erin, S. 2012. *Gangguan dan Penyakit akibat Kemajuan Teknologi Masa Kini*. Di akses pada 05 Maret 2012 dari situs <http://sharingdisini.com/2012/10/29/gangguan-dan-penyakit-akibatkemajuan-teknologi-masa-kini/>
- [14] Feprinca,D. 2014. *Hubungan Motivasi. Bermain Game Online pada Masa. Dewasa Awal Terhadap Perilaku*
- [15] Surhayanto FX, Safari E. 2013. *Asthenopia Pada Pekerja Wanita di Call Centere-X*. Badan Litbangkes Dinas Kesehatan. Jakarta Utara.
- [16] Subitha, M. 2013. *Pengaruh Komputer Terhadap Kesehatan Mata*. Jakarta: Universitas Guna Dharma.
- [17] Reddy SC, dkk. 2013. *Computer Vision Syndrom a Study of Knowledge and Practices in University Student*. Nepal J Ophthalmol.