THE ROLE OF VR GAMES TO MINIMIZE THE OBESITY OF VIDEO GAMERS

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ABSTRACT

Video games have become something very famous all over the world, in the past, there were only a few gamers, and becoming a gamer was something very odd to do but these days the number of gamers is increasing as it reached 2.8 billion gamers in 2021. Games are a tool for entertainment where you can spend long hours without noticing and it canlead to addiction most of the time which leads us to the main problem caused by video games which is obesity. The main cause of obesity is eating too much food and moving too little and that is what will happen when you spend a lot of time on video games. And as we all know getting an obese body will not be the only problem because obesity also causes a lot of other diseases such as heart diseases, stroke, asthma, and more.

To solve this problem there are some recommended solutions to follow that can end this problem such as VR games which requires body movement, changing your lifestyle because a healthy lifestyle will prevent your body from diseases, educational programs that contain some physical activities for the kids in schools and finally mobile apps that motivate people to do physical activities in return of offering a prize or some amount of money.

Keywords: VR Games, Obesity, Video Gamers.

INTRODUCTION

In the past people used to play games that requires a lot of body movementunlike today's games, that's why obesity wasn't something normal to hear about.

We can't say that video games are the main reason for obesity, but we can assume that video games are one of the important reasons nowadays that lead obesity to increase, as we mentioned before that sitting for long hours without moving a muscle will cause obesity and the number of obese peopleis increasing as well as the number of gamers. In 2016 around 13% of people above 18 years old suffered from obesity and the number increased in 2020, it became 30% of people above 18 years old are suffering from obesity, and39 million children under the age of 5 were considered obese in 2020, the most three countries with obese people are Nauru, Cook Island, and Palau [1,2,3].

Table 1 top three countries with obese people

country	Percentage of Adults that are obese
Nauru	61.0%
Cook Island	55.9%
Palau	55.3%

A study found out that 4.03% of gamers are obese, and the number of gamers is increasing as well all over the world with no specific age as anyoneis becoming a gamer no matter how old they are, which lead us to the mainproblem which is gamers obesity [4,5].

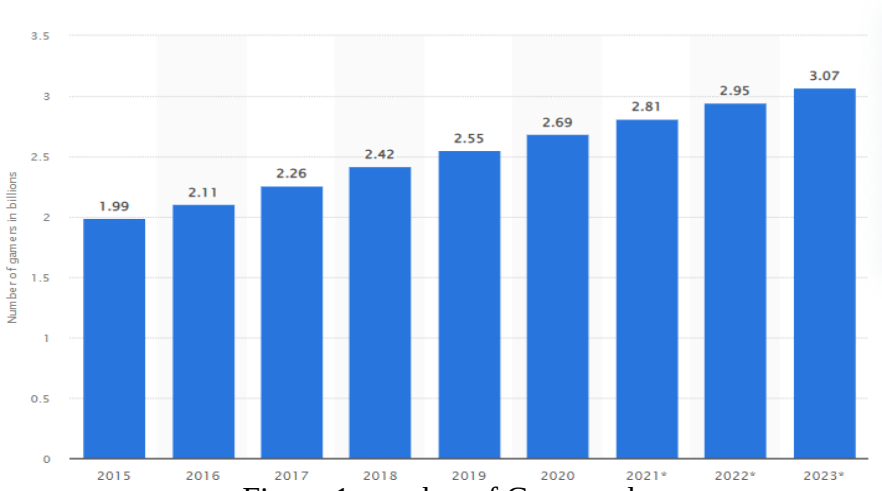

Figure 1: number of Gamers chart

so, we can notice that the number is increasing passing the time which is a major problem facing every person and we need to spread awareness aboutthe problem to everyone especially the kids because it's easy to teach themat a Younge age what's wrong and what's to do and why is this problem interesting? Because most gamers are lazy to do any physical activities, they will prefer sitting and playing for long hours rather than doing some exercisesand that's what makes them in danger of getting an obese body [6,7,8].

Finding solutions that are fun anduseful at the same time is very important to encourage people tofollow these solutions and every person will prefer a different solution that they find the easiest to do and there are many suggested solutions to fight the problem of gamers obesity [9].

Related work

Obesity is widely recognized as a serious public health problem and is of great interest in health sciences. In addition to proprietaryresearch using traditional scientificmethods, research in this area often discusses prevention, treatment, and quality of life for obese people through new methods such as SLR and ML. This section summarizes some relevant studies in preparation for comparison with current studies and outlines the current literature addressing obesity from different perspectives [10].

Simmonds et al.conducted a systematic review later combined with meta-analysis to examine whether BMI and similar measures used to calculate childhood obesity could also predict adult obesity. Their review supported the conclusion that teenage obesity is a notable public health crisis because it often continues into adulthood [11,12,13,14,15]. Accordingly, acting to reduce teen obesity can also reduce adult obesity. Early action is one of the most suitable approaches because once children have become overweight, this trend often persists through their adolescence and adulthood.

VR Games

The first solution is VR gaming, it's interesting to solve a problem but have fun at the same time, VR gaming or virtual reality gaming is all about realistic and immersive simulation of a three- dimensional environment. So, playing VR games will make you feel as if you are a real character in the actual game which will leadus to the solution of our problem "obesity".

VR games require a lot of body movement so why not replace them with normal video games asanybody of any age can play VR games, Exercising using VR is a trick to lose weight. VR can help people improve their physical and mental health. you do certain gestures and actions in VR that make your body sweat and your calories burn eventually leading toa decrease in your body's weight.

There are many games that youcan enjoy playing and benefit from it as an exercise for your body at the same time such as a game called Takken which is a fighting game where you will choose a character of a fighter tofight another character which I personally tried before and I find it interesting, I felt so energetic while playing it as If I was really at an arena, another game I found interesting is called just dance where you choose one of the songs and then you have to follow the dance steps shown on the screen and you can play it with another player in that way you will be more motivated and comparative.

Figure 2. VR Gaming

This technic was suggested in UAE university as they create a VR Game called EMEL whichrefers to Enjoy, Move, Educate and Lose weight, to play this gameyou have to wear VR glasses, special shoes, and a shirt toobserve heart rate and the game lasts for 45 min, so this technic was suggested to preventand educate children about obesity. This EMEL game is available nowin the Australian pavilion in Expo 2020. So, many countries are using VR games to fight obesity starting fromchildren such as Peru and UK because Video games are especially attractive to children. it'san interesting way to teach them that physical activity is important.

Educational programs in schools

Childhood obesity is a serious health threat, and schools are avital way to reach children and their families to reduce risks and promote health," said lead author Jeannette Ickovics. Schools play a critical role in fighting obesity so teaching children at a young age about how dangerous obesity is, will help to decrease the number ofobese people especially since most of the gamers are young people. Every person spends atleast 6 hours at school for 12 to 13years and this is enough for any person to be affected by somethingwhether it is good or bad.

therefore, offering health promotion activities in schools may equalize health disparities by providing access to a healthy environment for most people at a young age. In addition, health behaviors, including physical activity and nutrition, are related to academic achievement.

So, schools can make competition based on physical activities where students can play games that requires a lot of body movement like running marathon, any kind of ball games or bike races in return to give them a prize at the end of the competition, this way will encourage them to play physical games instead of playing online games.

Figure 3. Physical Activity program

Another thing that schools can do to fight obesity is that measure thestudent weight from time to time and offer a special diet for the student based on their health condition so if there were any students that suffer from obesity will benefit from the nutrition program by following the right dietand to motivate the student to reach the healthy weight, the school should offer a prize for the student who reached the healthy weight.

Change lifestyle

Your lifestyle is an important element that can affect your healthbased on if it is healthy or not.Gamers spend a lot of time playingvideo games so they will prefer to eat fast food because it needs less effort to get rather than cook something healthy and as we all know that fast food contains a lot offat which will cause obesity as it willcause a lot of other diseases. Following a healthy and balanced diet help prevent obesity if you areoverweight or otherwise at risk. What should you eat in a healthy diet?

Fruits and vegetables are very important to strengthen your health as well as to lose weight, did you know that different fruit andvegetable colors contain different types of vitamins? For example, the red color ones like strawberries and red beans are packed with vitamin C and vitamin A, Yellow andorange fruits, and vegetables, suchas carrots, peaches, are also loaded with vitamin C, vitamin A, and potassium. They can also boost the immune system and enhance vision so replacing a bowlof chips or cookies with a bowl full of colorful fruits and vegetables is a recommended tip to do in your healthy diet. You should drink plenty of water every day to keep your body hydrated is very necessary as it prevents your body from diseases,will help you to refresh your mind, itwill brighten your skin and it makesyou feel full so you will not need toeat more food so try to put a reminder to drink 8 glasses of waterevery day [44,45,46,47]. Every game has a warning for the player about how can the gameaffect their health if they continuedplaying without stopping so try to set a reminder from time to time for you to stop playing and try to stretch your muscles as well as tryto walk around the house, that waywill not be enough to cover the exercising time but it will at least make your muscles a bit relaxed and it will reduce the chance ofoverweight your body. There is calories limit each day andit is different based on your age

Table 2. Total calories from fat each day

Age	Percentage total calories each day from fat
Kids and teens	25% to 35%
Toddlers from 1 to 3 years	30% to 40%
Healthy adult	20% to 35%

Low-fat food also is very importantin your diet so you should avoid food that contains a lot of fat such as fast food especially fried ones, red meat, and processed meat, and sugary food such as cookiesand chocolate [47,48,49].

Mobile Applications

Technology has become a very essential part of our life, and mobile is a part of technology thatwe use in our daily life, no one nowadays can stay a minute eventhe kids are using mobile these days so why not find a solution to fight obesity through using mobile? Many apps encourage people and even kids to fight obesity [50,51,52,53,54].

Exercising is very good for your physical and mental health, it can protect your body from getting diseases and the most important thing it keeps your body fit which is the main thing in exercising anditt helps you to avoid getting depressed as it can refresh your mind, you know how hard to motivate someone to do exercises so many apps can solve this problem such as sweatcoin, Sweatcoin pays you with cryptocurrency for walking. The basic app is free, but there is a limited step daily [41,42,55,56,57,58]. Every 2,000 steps, it converts into their currency, which may be used for various rewards. One disadvantage of this app is that it requires you to walk outsidebecause it uses GPS. It doesn't connect to any fitness trackers and instead relies on your phone's GPS and accelerometer. It also uses an algorithm to ensure that you are walking rather than driving, thus a speed limit will be enforced. Gift cards are among the featured rewards, but supply islimited. They highlight the opportunity to exchange 20,000 Sweatcoins for $1,000 in cash [18,19,37,38,39,40]. And from the user's view, manypeople benefit from the app and get motivated to do exercises more often. In 2019, there were 68.7 million smartphone owners in the United States who used at least one health or fitness app at last once per month. Number of health andfitness app users in the United States from 2018 to 2022 (in millions).

Table 3. App fitness users [33,34,35,36,59,60,61,62,63].

year	Number of fitness app users
2018	62.7
2019	68.7
2020	87.4
2021	84
2022	86.3

There [29,30,31,32] are many other mobile apps that you can use to strengthen your ability to follow a healthy diet such as Water Drink Reminder that am currently using, it send you notifications to remind you to drink water, you have to enter your sleeping time and your weight so it can measure the amount of water your body needs based on your weight and to set the reminder timing based on your sleeping hours. So, as we use our mobile every day, we can benefit from it by downloading useful apps rather than spending time playing gameson the phone [17,20,21,22,23].

METHODOLOGY

Obesity is a major problem that we are facing these days because the number of people who are obese is huge, why is the specification ofgamers obese? Because games have spread like a virus all over the world and we all know that games are so attractive so playing for hours will make you lazier, passing the time all of this will cause obesity so to connect gamers with obesity when the number of gamers increases so will the obese people [65,66,67]. I looked up at the number of people who are suffering from obesity passing the years as well as the number of gamers, so I used some graphs to understand the problem better and to comparehow the numbers are increasing every year.

I tried to find easy and interesting solutions for this problem so I have read many articles about the problem to analyze how serious is the problem first then I search for the possible solutions that can suit people of all ages because the problem targets everyone from kids to elderly [68,69,70,71,72,73,74].

I found the solutions based on people experiences and what I mean by experiment is people thattried the solution and it worked so all the solutions that I mentioned are actually being used starting bythe first solution the VR games which I found it the most interesting solution for people at all ages especially that the problem am discussing is about gamers and what motivated me tolook up more for this solution is that it's being used in the UAE in Expo 2020 and the idea

was recommended by the UAE university students [16,21,25,26,27,28], the second solution is also used in many schools and I personally experienced that in my school where they gave rewards for the students who won in competitionsthat requires physical movement and also for the student who followed the doctor instructions about their diet, third solution which is the easiest and the most common solution, as we all know eating healthy will for sure keep your body in shape and will protectyou from getting ill, last solution is the mobile apps I found it very useful and I have read people's review about it if they benefited from it. So, all the pieces of information that I have gathered were based on articles I have readand on people's experiences.

CONCLUSION

as our world is developing each day and as we rely on technology more and more, laziness will also be a part of our life and people willprefer to find ways to have fun rather than work because we will prefer to use the easy way to get done with our work to save time for having fun later and that's the big issue we are suffering from right now and if we didn't commit to the solution it will get bigger and it will be harder to get rid of it.

Obesity has been always aproblem facing us and it still tillthese days and if we got back to the main reason, we would find thateating too much and moving too little is what cause obesity, that's why gamers are in danger of getting obese as I mentioned before that playing games will make you lose track of time by just sitting and even some peoplecontinue playing while eating.

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