The HORIZON

VOLUME 2, ISSUE 03, MARCH 2024

- Want To Pull An All-Nighter? Think Again
- The Big Bang Theory: Illuminating the Cosmic Tapestry of our Universe
- Future of Medicine: Stem Cell Therapy
- Influence of Social Media on Mental Health

DEAN'S DESK

DEAN OF FACULTY OF INTERNATIONAL STUDENTS
DR. ALEKSANDER ALEKSANDEROVICH STENKO

Dear students, we at Grodno State Medical University strive to provide students with top-quality education, but that's not it. GRSMU is also a hub for Scientific, Cultural, and Sports related activities. We wholeheartedly acknowledge that International students are an integral part of our university, and we take immense pride in that. Grodno State Medical University is glad to work with students from different countries and provide them with a stage to represent their nation and culture.

GRSMU celebrates its uniqueness in diversity, for in its true essence our university is a junction where students from various backgrounds and cultures come together as one big family. GRSMU has always encouraged students to explore further and beyond in every field they try their hands at. I hope that you like the novel concept of 'The Horizon' - a magazine that serves as a platform for the students to voice their opinions, share their takes and present their points of view.

'**The Horizon**' is a medium of extended communication where we can learn a lot from one another.
I highly appreciate this initiative and personally support it. I look forward to reading the interesting blogs written by you.

WELCOME TO THE HORIZON

DR. MEHUL H. SADADIWALA, FOUNDER, CLASS OF 2023

"We all have fascinating stories to share!" For the longest time, I have had this idea of starting a magazine. But not just any conventional magazine, one that shall serve as a platform for the students and alumni of International faculty at Grodno State Medical University to share their stories. A platform that enables students to share their takes on various curricular and extracurricular aspects of medicine. Thus, the idea of '**The Horizon'**, came to life.

'The Horizon' will be a creative intersection where students can freely give commentaries about Lifestyle, Culture, Productivity tips, and more. Throughout the years, many individuals at GrSMU have inculcated valuable skills and gained experience with a fair share of success in various disciplines. Maybe you run a successful YouTube channel or an educational website, or maybe you are a successful student-researcher or an educator, and so much more. 'The Horizon' enables students to share their personal experiences. The insights that you share will encourage other students to take further strides and explore future possibilities.

'The Horizon' is supported directly by the Dean of the International Faculty, and it will operate under the supervision of the International Students' Scientific Committee. Students from 1st to 6th year, and even graduates, can submit their blogs to this magazine. The articles should directly or indirectly revolve around student life to share knowledge and the collective growth of students.

For inquiries and submissions.
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EDITOR'S DESK

As passion and curiosity for knowledge are key to expanding the horizons of our minds, I would like to express my appreciation to the International Students Scientific Society for granting me the opportunity to bring all the colors of our brilliant students to light.

Acting as the Editor-in-Chief from January to March 2024, I am honored and delighted to guide all our authors' hard work in providing our readers with the finest insights on the most fascinating subject matter. I invite all members to share your insights and discussions this new year as we explore the future of Horizon Magazine together.

AROOSHA IBRAHIM
EDITOR-IN-CHIEF (JAN-MAR, 2024)

MITCHELL MARTHA ARUFINU,
EDITOR-IN-CHIEF (JAN-MAR, 2024)

Scientific articles have always caught my eye because of their informative and world evolving capabilities. For a successful research article to be born, alot of minds have to come together such as those of researchers, authors, editors, media experts, and everyone else interested in the progress of science and technology. I strongly appreciate the dedication and diligent work everyone has been doing, I would love to be a contributor to this amazing Horizon family. I am enthusiastic to lend an audience to every genre to have a platform of inclusivity.

I'm honoured to be taking the mantle of editor-in-chief of the Horizon for 2024 and I am looking forward to upholding our journal's aims and goals

And a message to our dearest readers, we would like to invite you all, students and alumni, to share with us the blogs that directly or indirectly revolve around student life, to share knowledge and experiences that has had an impact on your growth within and outside the bounds of our university.

Concluding, let us alter the limitations of our individual efforts and collectively explore limitless Horizons.

Cover Credits
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THE HORIZON
MARCH, 2024

WANT TO PULL AN ALL-NIGHTER? THINK AGAIN

This blog is about the health effects of all-nighters, offering tips and highlighting the importance of maintaining a healthy sleep schedule.

WRITTEN BY
CHAMATHI DE SILVA
CLASS OF 2024

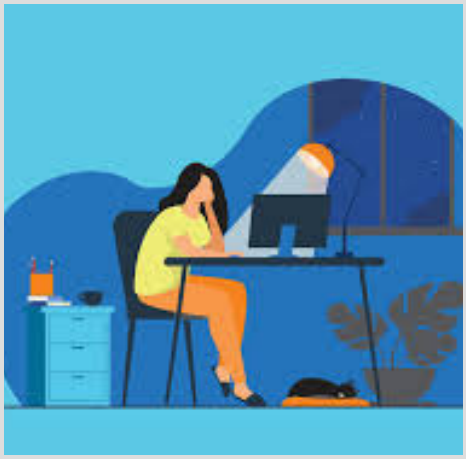
INTRODUCTION

We, as medical students have a lot of material to study as well as a large number of exams to undertake. Staying up at night to put in some last minute studying before the exam next day is something you and I have done at least once in our days at the university. Have you thought what effects it has on the body and the mind? Is it effective to study like this? Do we do well on the exams? It is true that this is necessary to cram as much information as possible before the exam but the effectiveness of this endeavor is to be seriously doubted.

WHAT IS AN 'ALL-NIGHTER'?

An All-nighter is staying awake all night and then going through the next day as you normally would. In medical terms, this can be considered as going without sleep for 24 hours or more and is called Total Sleep Deprivation.

This is a staple of student life, be it for the sake of cramming for an exam or just staying up to have fun with friends or even to binge your favorite show.



IS IT WORTH IT?

The day after staying up late is rather hard for all of us. It is common to feel tired and sleepy. We tend to lack the energy and enthusiasm we would have had if we had slept properly. But sometimes these effects are little to bear in comparison with the accomplishments we achieve such as getting a good grade for the exam.

The most immediate negative influence of sleep deprivation is on a person's cognitive thinking. You may to put more effort to remember small details and have trouble keeping up with your peers. It can also impair our capacity to judge situations and make decisions. Due to these factors, pulling all-nighters on the regular will not be of much help for those students who face hardships in learning new things and since they have to continue learning the day after pulling an all-nighter as well.

The increase in lack of sleep can lead to a person having a volatile mood. It can also affect the ability of a person to gauge the emotional responses of others and respond in accordance
to the situation.

Muscle repair and energy regeneration both occur during sleep. Lethargy and low energy levels can be a result of sleep deprivation.

Also studies have shown sensitization of people to feelings of pain, temperature without sleep over a long period of time increases drastically.

Immune system can be affected by continued sleep deprivation resulting in inflammation and may increase the risk of chronic illnesses.

In the long term, sleep deprivation increases you risk of developing high blood pressure, heart diseases, type 2 diabetes and obesity as well as can have a major impact of your mental health.

Also it can encourage poor sleeping habits which over time, could impact your overall health and even be a cause of insomnia.

IS IT A GOOD IDEA TO OCCASIONALLY PULL AN ALL-NIGHTER?

In reality, there are some unavoidable cases where we will have to go without sleep once in a while and it may be the best course of action in the moment.

However, continuous practice of sleep deprivation is not recommended. The risks of it are too high for the minimal rewards and the consequences take too much of our time to deal with. So it is recommended to avoid all-nighters as much as possible.

TIPS TO PULL AN ALL-NIGHTER

1. Use of caffeine; in the short-term it can give a boost of alertness if you struggle to stay awake. But be careful not to have too much as it can disrupt your sleep schedule and the maximum recommended amount is no more than 400 mg per day which is about 4 cups of coffee.

2. Light exposure; exposure to light promotes alertness, so keep bright lights on when you work an all-nighter. Then try to get some sunlight to help stay awake through the next day.

3. Take a nap; a light nap during the daytime after pulling an all-nighter my help you feel more alert. Aim for 10 to 20 minutes nap. A 30 minute nap will make you feel groggy upon waking up.

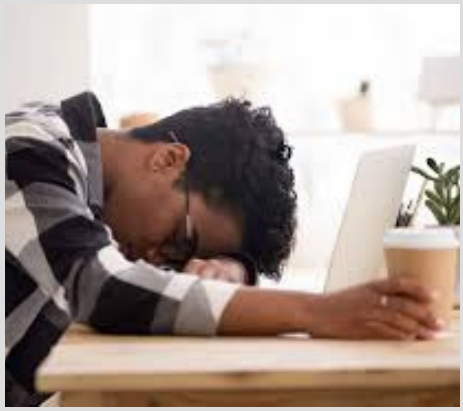
4. Eat healthy food; if you feel tempted to snack junk foods or candy when sleep deprived try to eat a good meal as junk food and candy can make you feel more sleepy and throw off your metabolism.

CONCLUSION

Although we sometimes need to pull an all-nighter, it is best to have a proper sleep schedule and to have a healthy amount of sleep.

Each person needs a different amount of sleep in accordance with their personal wellbeing.

Always prioritize your sleep and try to go to sleep and wake up at nearly the same time every day. If you have any trouble with sleep, it is recommended to visit a physician for medical help.



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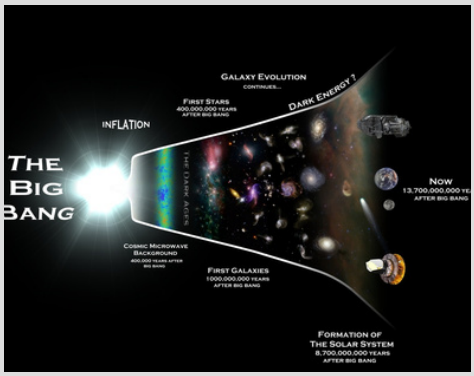
THE BIG BANG THEORY: ILLUMINATING THE COSMIC TAPESTRY OF OUR UNIVERSE

This blog is about exploring the Big Bang, cosmic history, dark matter, dark energy, and connecting cosmic phenomena to medical insights.

WRITTEN BY
AROOSHA IBRAHIM
CLASS OF 2024

INTRODUCTION

In the vast tapestry of the cosmos, the Big Bang stands as the defining moment that set the stage for the universe we inhabit today. As aspiring medical professionals immersed in the pursuit of knowledge, understanding the origins of our universe can offer valuable insights into the fundamental forces governing existence.



THE COSMIC OVERTURE

The journey into the universe's history begins with a bang—a spectacular event known as the Big Bang. Approximately 13.8 billion years ago, the universe emerged from an incredibly hot and dense state. This cataclysmic explosion marked the birth of space, time, and all the matter we observe around us.

EVIDENTIAL THREADS

The evidence supporting the Big Bang theory is woven into the very fabric of our universe. Cosmic Microwave Background (CMB) radiation, discovered in 1964, is a crucial piece of this cosmic puzzle. This faint glow permeating the universe serves as a relic from the early moments post-Big Bang, providing astronomers with a glimpse into the universe's infancy.

EXPANSIONARY SYMPHONY

One of the most profound aspects of the Big Bang theory is the concept of cosmic expansion. Imagine the universe as an ever-expanding balloon, with galaxies moving away from each other as the balloon inflates. Edwin Hubble's observations in the early 20th century revealed that galaxies are, indeed, hurtling away from us, supporting the idea of an expanding universe.

PRIMORDIAL NUCLEOSYNTHESIS

As the universe expanded and cooled, a crucial event known as primordial nucleosynthesis occurred.

This process, which unfolded within the first few minutes after the Big Bang, forged the primordial elements essential for the formation of stars, galaxies, and, eventually, the building blocks of life.

INFLATIONARY EPOCH

To address certain cosmic puzzles, scientists proposed the concept of cosmic inflation—an epoch of extremely rapid expansion in the universe's first moments.

Though still a theoretical framework, inflation elegantly explains the uniformity of the CMB and the large-scale structure observed in our cosmos.

DARK MATTER AND DARK ENERGY

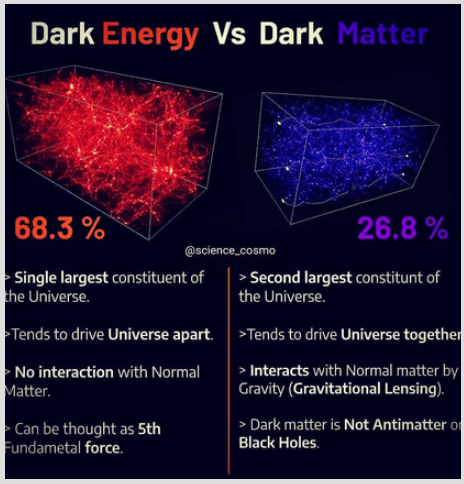
While the visible matter we encounter daily constitutes only a small fraction of the universe, dark matter and dark energy remain enigmatic players on the cosmic stage.

Imagine the universe is like a giant puzzle, but some pieces are invisible.

Dark matter is like an invisible force that helps hold the puzzle together, even though we can't see it.

Dark energy, on the other hand, is like a mysterious energy that's making the universe expand and grow, like when you blow up a balloon.

So, even though we can't see them, dark matter and dark energy are like the hidden superheroes of the universe!



CONNECTING THE COSMIC DOTS

As medical scholars, drawing parallels between the vast universe and the complexities of human biology is a fascinating endeavor.

Consider the early universe as a biological embryo, evolving and developing through distinct phases. Just as embryonic development follows a precise sequence, the universe unfolded in a regulated manner, governed by the laws of physics.

THE COSMIC WEB

Analogous to the neural networks within our brains, the cosmic web is a colossal structure composed of galaxies and dark matter filaments interconnected across the universe.

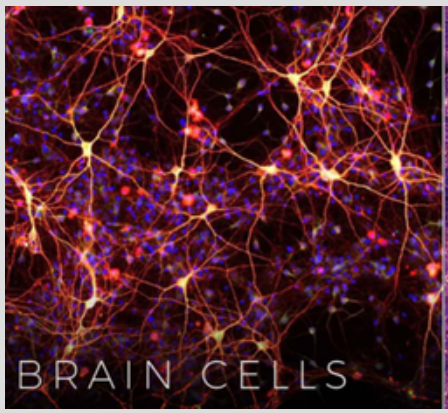
This network reflects the underlying gravitational forces shaping the cosmos, similar to the complex signaling pathways orchestrating the functions within our bodies.

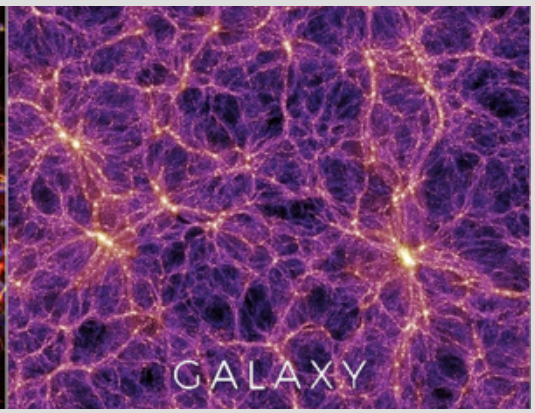
MEDICAL INSIGHTS FROM ASTROPHYSICS

Surprisingly, the quest to understand the universe's origin has provided valuable insights applicable to medicine. Technologies developed for observing distant galaxies have led to advancements in medical imaging, such as high-resolution MRI scans, offering us detailed views into the human body's inner workings.

CONCLUSION

The Big Bang theory stands as a cornerstone in our understanding of the universe's evolution, unraveling the cosmic tapestry with each piece of evidence discovered. As future healthcare professionals, recognizing the interrelation of astronomical principles and medical knowledge enriches our appreciation for the vastness of the cosmos and the complex nature of life.





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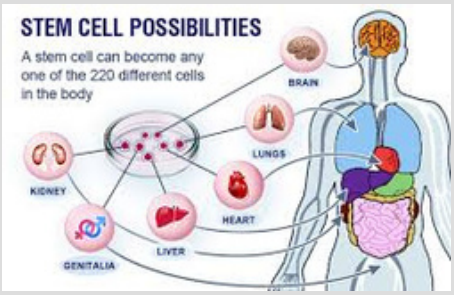
FUTURE OF MEDICINE : STEM CELL THERAPY

This blog helps us understand the importance of stem cell therapy , it's procedures and reasons to why it's still not acceptable in some clinical practices.

WRITTEN BY
PALLAVI VIVEKANAND KOLHAR
CLASS OF 2025

WHAT IS STEM CELL?

Stem cell is the raw material of our body from which specialized cells are generated Under suitable environment in a laboratory or body, stem cells generate to develop daughter cells. These cells become specialised cells or new stem cells like erythrocytes, cardiomyocytes, osteocytes etc.Such stem cells are used in experiments focused on better understanding of a disease and creating new treatments for it.

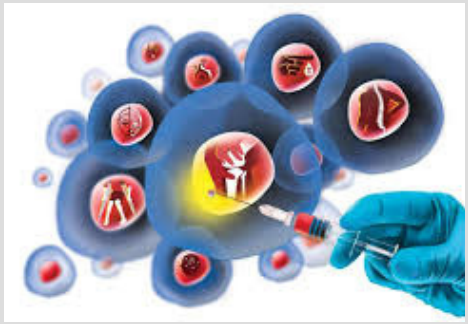


KNOW ABOUT STEM CELL THERAPY AND HOW TO IMPLEMENT?

Stem cell therapy also called regenerative therapy or medicine , promotes injury repair to tissues using stem cells or its precursors . Researchers grow them in laboratory and are manipulated to specialised cell types. Such specialised cells can be transferred into a person's body for improvement .

ARE STEM CELLS USED IN TREATING ANY DISEASES ?

Yes , doctors have carried out stem cell transplants also known as bone marrow transplants .They replace damaged cells by chemotherapy.They also help to form a path for donor's immune system to fight blood related cancer such as leukaemia, neuroblastoma or any other disease .Such transplants utilise adult stem cells or cells from the umbilical cord blood . Degenerative diseases in various organs are the main goal of stem cell therapy. Neurodegenerative diseases such as musculoskeletal diseases like osteoarthritis and Alzheimdiseases of blood cells for an example leukemia are the conditions that have benefited from advancements in stem cell therapy. One of the challenging parts of this process is to transfer or to implant stem cells into various clinical advancing practices. Controlling its differentiation potential is difficult . Frequently its potential for continuous differentiation growth will make such cells tumorigenic in nature .



WHAT IS THE POTENTIAL HARM UTILISING STEM CELLS OF EMBRYONIC ?

Embryonic stem cells are derived from epiblast tissue of the blastocyst. Embryonic stem cells may develop irregularly or become specialised in different cell types spontaneously . They might also activate an immune response in which recipient body attacks stem cells acting as a foreign antigen or simply it might fail to function expectedly. Researchers are still discovering the method or a way for embryonic stem cells to become a particular specialised stem cell.

THERAPEUTIC CLONING AND WHAT BENEFITS MIGHT IT OFFER?

Therapeutic cloning also referred to as somatic nuclear transfer which determines a technique to develop a number of functional stem cells independent of afertilized egg . In this procedure a donor's nucleus is extracted from a non fertilized egg. That nucleus comprises of the genetic material. It is then injected into an egg while switching the nucleus which was earlier extracted this process is called nuclear transfer. The egg is then allowed to differentiate and soon becomes a blastocyst and this process makes a way to a queue of stem cells which are genetically identical in nature to the donor cell in an essence of a clone. Some researchers understand that stem cells which are usually formed from therapeutic cloning may give some benefits over those from the fertilized eggs because a clone cell has less rates or chances to be rejected when once transplanted to the donor this allows researchers to evaluate how exactly a disease develops.

Rising evidence demonstrated stem cell therapy The US clinical trial by using a 3D guided catheter system to provide a heart with muscular stem cells and it was performed in 2009 after one year of follow up it showed significant improvement in NEW YORK HEARTASSOCIATION (NYHA) scores. Injection of endomyocardial cells potential cardiopoietic stem cell to the patient with preclinical heart failure showed same results in NYHA with 6 min walk and increase of cardiac parameters or function measured by ECG.

STRATEGY USED

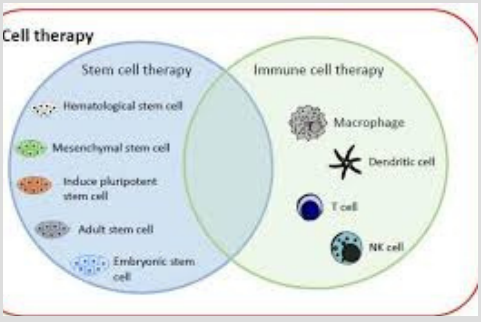
Strategy to enhance cell survival post transplantation Hypoxic condition aid genetic modification. Such strategies aim to resolve the issue of cell survival , differentiation which includes preconditioning with ways like hypoxia , drugs , growth factors , genetic modification like enhancing expression of specific growth factors , pro survival anti apoptotic genes of stem cell before transplantation of cells.

MECHANISM

Mechanism is activating hypoxic inducible factor which comprises of alpha and beta subunit ; it's a master regulator and facilitates response to low oxygen level . Another way to upgrade cell survival is to genetically modify the cell before transplantation . The neural stem cell is modified to overexpress neurotrophic genes such as brain derived neurotrophic factor , GDNF , VEGF . They also immunomodulatory response , increase the expression of antioxidant and survival genes such as BCL-2. Hypoxic preconditioning and genetically manipulated neuron stem cell transplantation characterize a therapeutic strategy for neural disorders. Stem cells of Human umbilical cord provided some improvement in cognitive function in Alzheimer disease.

CONCLUSION

In conclusion decades of investigation resulted that stem cell therapy potentiates to be a solution for disease that were once considered to be not curable . In today's time patients are frequently undergoing cell transplants for diseases like blood leukemia, tutor such as lymphoma, many immune deficiencies, neurodegenerative and metabolic diseases. Even though there are explored details as of now on the therapeutic uses of stem cells in vitro and in vivo, clinical , experimental finding better methods to control cells for division and differentiation process of such cells and also the methods of administration incorporating cells in different diseases has been a challenge. On the other flipped side of coin , in healthcare systems stem cell therapy is still to be researched on and reflected on as a research area toward rather than a treatment choice showing that such systems are still not reliable in this method. Hence, future efforts should be determined on removing numerous challenges in clinics and in the administration. A large step towards such goals would need a large population for clinical trials.



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INFLUENCE OF SOCIAL MEDIA ON MENTAL HEALTH

This blog helps us understand the pros and cons of social media on our mental health and gives us advise on how to utilize social media to our advantage.

WRITTEN BY

OSO JESUTOFUNMI EUNICE

CLASS OF 2028

SOCIAL MEDIA PLATFORMS

Social media platforms has become an important part of our day to day lives; as a means of communication with family and friends, accept invites to events, and join online groups to meet people who share your interests. They have paved a way for communicating with people all over the world, and many other benefits. Social media is like two sides of a coin. It has both a positive impact and a negative impact. Research has shown that social media can cause depression, anxiety and even loneliness.

THE EFFECT OF FILTERS

Filters are a popular feature on social media platforms that allow users to alter pictures and videos by applying various effects to them. They can improve the visual appeal of social media posts, but they can also have a negative influence on one's mental health. The major one is false beauty standards. This due to the smoothening out of the skin, brightening of eyes, and even altering of facial characteristics. Thus affecting people's self esteem and making them feel inadequate, especially when people compare themselves to highly manicured photos on social media.

In addition the filters might add to the pressure to meet specific beauty standards. The usage of filters might provide an idealized representation of one's life, projecting an appearance of perfection that cannot be attained. This can also cause low self esteem, especially for sensitive people.

FACE TO FACE INTERACTIONS

Social media platforms can provide a way of connection and communication, particularly for people who have few face-to-face encounters. It enables people to retain relationships with friends and relatives who are geographically separated and it can lessen the feeling of isolation. However, excessive usage of social media might lead to less face-to-face and physical engagement. When social media is used too much, this may reduce possibilities for in-person contacts, which are critical for developing and maintaining meaningful connections. The lack of face-to-face interaction can lead to one feeling isolated which can have a severe influence on mental health.

CYBER BULLYING:

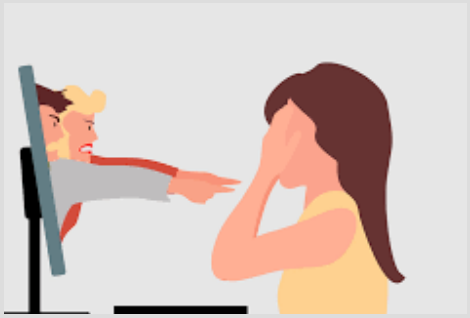
Social media sites can become an environment for cyberbullying. The degree of anonymity and distance given by onlineplatforms might encourage people to engage in inappropriate conduct, such as spreading rumors, making slanderous comments, or revealing private information without consent. Cyberbullying can have serious negative consequences for one's mental health, including increased anxiety, sadness, and even suicide thoughts.

FEAR OF BEING LEFT OUT

This is a major issue in today's world. Social media platforms frequently display reels of people's lives, highlighting interesting events, accomplishments, and experiences. The frequent exposure to all this content can cause feelings of envy, inadequacy, and anxiety of being left out on the experiences that others appear to have, as people compare their own lives to the supposedly exciting and fulfilling lifestyles they observe on social media. It might result in a persistent need for validation, also fear of being excluded or not fitting into the social or cultural trend. This can be detrimental to one's selfesteem and general wellbeing. Also, it can result in an obsessive need to constantly check for constant updates, worried that one will miss out on key information or experiences. Social media overconsumption can disrupt in-person relationships and activities, this would result in a reduced feeling of contentment and genuine connection with others.

PROS & CONS:

Impacts of social media on mental health | BMC Psychology | Full Text (biomedcentral.com) Social Media and Mental Health: Benefits, Risks, and Opportunities for Research and Practice - PMC (nih.gov) The Effects of Social Media on Mental Health 5 - Penn Medicine Lancaster General Health



CONCLUSION

In conclusion, the effect of social media on one's mental health is a complex topic. Social media platforms have provided numerous benefits, but they also have their downside. A major concern is the potential for social comparison, this can lead to a person feeling low about themselves and even depression. The incessant exposure to meticulously edited images and posts can create unrealistic expectations and can create a wrong image of reality. Also, the overuse of social platforms can contribute to feelings of loneliness and isolation. It can lead to the constant need for validation. Moreover, social media platforms can be breeding grounds for cyberbullying, this can bring about suicidal thoughts.Apart from that it provides a sense of community and support. It allows people who share similar interests or experiences to be able to connect with each other. It can also serve as a platform for raising awareness about mental health issues and promoting positive discussions. In order to reduce the potential negative effect that social media has on people's mental health, it is important to practice healthy social media habits. This includes setting boundaries on how a person uses their social media platforms and how long they use them, being mindful of one's emotional responses to social media content and seeking support and professional help if necessary.

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