Chapter **152**

Computer-related Illnesses and Facebook Syndrome: What are they and How do We Tackle them?

Vitull K Gupta, Sonia Arora, Meghna Gupta

The history of computers goes as far back as 1642 when Black Pascal invented a mechanical calculator. First International Business Machines (IBM) personal computer was born in 1981 costing about US$ 10,000.00 and since then the development has been so fast that now very powerful computers are available at affordable costs. Along with benefits of living in the modern digital world of computer technology, man are confronted with newer health challenges and problems. Computer-related illnesses (CRIs) could just be the beginning of serious health concerns.[1] In India, CRI is not treated as an occupational hazard unlike in developed countries such as the United States, Canada, Australia and United Kingdom where CRIs are compensated. India being forerunner in cyber world, there is an urgent need to understand the dynamics of these problems and prevent them from assuming epidemic proportions.[2]

Computer-related illnesses include:
Physical illnesses
- Occupational overuse syndrome (OOS)/repeated stress/strain injuries (RSI)
- Computer vision syndrome (CVS)
- Text neck (TN)
- Infertility

Sociability and interpersonal relations
- Dehumanization and other psychological impacts
- Information anxiety
- Job stress
- Familial problems
- Academic problems
- Occupational problems

PHYSICAL ILLNESSES

Occupational Overuse Syndrome/Repeated Stress/Strain Injuries[3]

This is an umbrella term for a range of conditions, which cause discomfort or persistent pain in muscles, joints, tendons, nerves and soft tissues. Several other terms are used interchangeably with OOS/RSI. Hales reported that about 22% of computer workers have musculoskeletal problems.[4]

Factors Leading to OOS/RSI
- Awkward or constricted postures
- Repetitive movement
- Prolonged muscle tension
- Forceful holding or movement
- Poor ergonomics

- Poor work practices
- Psychosocial factors
- Cold temperatures of air conditioners

Symptoms
- Recurring myalgias or soreness in shoulders, neck, upper back or hands and wrists
- Tingling sensation in fingers and/or wrists, numbness, coldness or loss of sensation
- Loss of grip strength, and inability to hold things, wear clothes and weakness
- Muscles of arms and shoulder feel hard, swollen, tender and wiry when palpated
- Pain or numbness while lying in bed that is often mistakenly attributed by people to awkward sleep positions.

Types of OOS/RSI[5]

Type I RSI: Presence of typical objective signs and symptoms.

Type II RSI: Absence of typical objective signs and symptoms (nonspecific pain syndrome).

Work-related upper limb disorder (WRULD):[6] It is not a specific disease, but a group of conditions affecting upper limbs discussed under OOS/RSI.

Type I WRULD: It refers to specific, localized and clearly defined syndromes. It includes:
- Tenosynovitis (including De Quervain's syndrome)
- Trigger finger or thumb
- Rotator cuff syndrome
- Thoracic outlet syndrome
- Carpal tunnel syndrome
- Cramp of the hand (Writer's cramp)
- Epicondylitis (Tennis/Golfer's elbow)
- Bursitis
- Synovitis
- Cervical radiculopathy.
  This is the largest group and is relatively easy to diagnose and treat.

Type II WRULD: It refers to nontraumatic upper limb pain of unclear cause and without a definitive diagnosis.

Diagnosis
These disorders are difficult to diagnose because there is no clear biomedical etiology[7] or available specific clinical or objective tests

especially in absence of objective abnormal signs and symptoms. Standardized clinical assessment includes a thorough medical and occupational history, complete physical examination, cervical screening, postural analysis and active range of motion assessment of the upper extremity.[8]

Treatment

Once a diagnosis of OOS/RSI has been made and the specific condition has been identified, appropriate treatment requires a therapeutic intervention tailored to fit the individual treatment program by a multidisciplinary approach involving patient and a number of medical professionals.

Treatment may include:
- Rest from activities
- Changing work practices
- Postural correction
- Physiotherapy
- Pain relieving and anti-inflammatory medications
- Steroid injections
- Exercise and stretching
- Relaxation exercises
- Additional treatments that may be recommended include massage and acupuncture
- Cognitive behavioral therapy (CBT), coping strategies and psychological support.

Prevention

Occupational overuse syndrome (OOS)/RSI is best prevented in its early stages before it becomes difficult to control. Intervention may need to be multidisciplinary including:
- Ergonomic workstations
- Maintaining correct posture and avoiding prolonged, repetitive activity
- Regular exercise and maintaining general fitness.

Computer Vision Syndrome[9-11]

Computer vision syndrome describes a group of ophthalmic symptoms and problems that result from prolonged computer use.

Common Symptoms
- Tired, irritation, burning or itchy, watery or dry eyes
- Blurred or double vision
- Headache, heaviness of eyelids or forehead
- Photophobia, difficulty in focusing
- Trouble shifting focus between monitor and paper documents
- Color fringes or afterimages.
  Prevalence of CVS ranges from 25% to 93%.[12] Study by Sheedy suggests that 1 out of 6 patients requiring eye examinations have a computer-related eye problem.[13]

Etiology

Etiology of CVS is multifactorial involving environmental, personal or a combination of both.[14]

Diagnosis

Computer vision syndrome can be diagnosed through a comprehensive history, general physical examination and thorough eye examination.

Treatment[15]

A primary care provider should lead and coordinate the multisystemic evaluation of patients with CVS including ergonomic factors. Special lens designs, powers or coatings may help to maximize visual abilities and comfort. Vision therapy (visual training) and eye exercises help.

For dry eye, consciously blink, topical lubricants, punctal occlusion or punctal plug insertion may be needed.

Text Neck[16]

The phrase "Text Neck" was coined by Florida chiropractor, exercise physiologist and entrepreneur Dean Fishman. Frequent prolonged forward flexion of neck and head causes changes in cervical spine, curve, supporting ligaments, tendons, musculature and bony segments, eventually causing natural curvature of the neck to reverse, potentially leading to early spinal arthritis, disc degeneration, headaches and up to a 30% decrease in lung capacity. Children are most at risk because their heads are larger in relation to their body size than adults.

Treatment

If left untreated, TN can result in serious permanent damage. Prevention and treatment principles are the same as discussed for OOS/RSI.

Infertility

Presently, more and more computers and laptops are being used leading to serious health risks including testicular damage, or reduced spermatogenesis and infertility. It is due to increased temperatures in the groin region,[17] which is due to leg positioning to support a laptop on the thighs, heat generated by laptop and direct contact between the thigh and testicles while working on computer for extended period.

Prevention

It can be prevented by proper leg positioning, methods of reducing heat conduction or fans, which may reduce the effects of extended periods of laptop use.

SOCIABILITY AND INTERPERSONAL RELATIONS[18-20]

While computers have revolutionized every aspect of life, there has been mounting concern in the literature regarding the impact of computers on sociability and quality of life.

Dehumanization and Other Psychological Impacts

Many people feel a loss of identity, a dehumanization effect because of computerization eliminating the human element that was present in the noncomputerized systems. People are encouraged to work and shop from their living rooms causing unfortunate psychological effects, such as depression and loneliness.

Information Anxiety

Information anxiety can take several forms, such as frustration with our inability to keep up with the amount of data present in our lives, frustration with the quality of information available on the web, guilt associated with not being better informed, or being informed too late and anxiety from information overload (too many online sources).

Job Stress

An increase in workload and/or responsibilities has trigger job stress especially for those who are not proficient with computers, but who must work with them.

Familial Problems

Marriages, dating relationships, parent-child relationships, and close friendships have been noted to be seriously disrupted by "net binges".[21] Marriages appear to be the most affected as internet use interferes with responsibilities and obligations at home, and it is typically the spouse who takes on these neglected chores and often

feels like a "cyber widow" and "cyber affairs" are causing rise in divorce cases.[22]

Academic Problems

Computers and internet have been touted as a premiere educational tool. However, one survey revealed that 86% of responding teachers, librarians and computer coordinators believe that internet usage by children does not improve performance.[23] Another study[21] found that 58% of students reported a decline in study habits, a significant drop in grades, missed classes or being placed on probation due to excessive internet use.

Occupational Problems

Computer and internet misuse among employees is a serious concern among managers. One survey from the nation's top 1,000 companies revealed that 55% of executives believed that time surfing the internet for non-business purposes is undermining their employees' effectiveness on the job.

Treatment and Prevention

Treatment and prevention are same as for Facebook syndrome.

FACEBOOK SYNDROME

What is Facebook?

Facebook is a social networking service and website launched in February 2004, owned and operated by Facebook, Inc. founded by Mark Zuckerberg with his college roommates and fellow students. The name "Facebook" stems from the colloquial name for the book given to students at the start of the academic year by some university administrations in the United States to help students get to know each other. As of May 2012, Facebook has over 900 million active users, more than half of them using Facebook on a mobile device with 46.3 million members from India.[24]

What is Facebook Addiction Syndrome or Facebook Addiction Disorder?

Facebook addiction syndrome/Facebook addiction disorder (FAS/FAD) is a part of internet addiction disorder (IAD). Internet addiction disorder was originally proposed as a disorder in a satirical hoax by Ivan Goldberg in 1995. Over the past decade, the concept of IDA has grown in terms of acceptance as a legitimate clinical disorder often requiring treatment. However, known academic authorities take stances in either supporting or opposing the existence of IAD. A debate over whether to include "Internet Addiction" as a diagnosis in Diagnostic and Statistical Manual of Mental Disorders-V (DSM-V) may conclude in the May 2013 edition of the DSM.

Addiction

The term "addiction" is not used in the DSM-IV; rather the terms "substance dependence" and "substance abuse" are used.[25] Internet addiction disorder may be broadly defined as "...the inability of individuals to control their internet use, resulting in marked distress and/or functional impairment in daily life."[26] Conceptually, the diagnosis of IAD is a compulsive-impulsive spectrum disorder that involves online and/or offline computer usage, and consists of at least three subtypes: (1) excessive gaming, (2) sexual preoccupations and (3) e-mail/text messaging.[27] E-mailing/texting has been predominantly used in social networking and among social networks. Facebook is by far the most popular.

Evidence of FAD/FAS/IAD

To date, the scientific literature addressing the addictive qualities of social networks on the internet is scarce. Some of the most interesting research on IAD has been published in South Korea where IAD is considered one of its most serious public health issues.[28]

Scientists have found that compulsive internet use can produce morphological changes in the structure of the brain with reductions in the sizes of dorsolateral prefrontal cortex, rostral anterior cingulate cortex, supplementary motor area and parts of cerebellum in internet addicted students as compared to students deemed "not addicted".[29]

Diagnosis

In the literature, addiction has involved six core components adapted from the DSM-IV text revision (TR) criteria[30] and the International Classification of Diseases-10 (ICD-10) criteria for a dependence syndrome,[31] including (1) tolerance, (2) withdrawal, (3) increased use, (4) loss of control, (5) extended recovery periods, (6) sacrificing social, occupational and recreational activities, and (7) continued use despite of negative consequences. In order to be diagnosed with social networking sites (SNSs) addiction or FAS/FAD, at least three (preferably more) of the above mentioned criteria should be met in the same 12-month period and they must cause significant impairment to the individual.[30]

FAS/FAD–New Psychological Scale[32]

The new psychometric tool reflecting each of the six abovementioned elements of addiction is called the Bergen Facebook Addiction Scale (BFAS). It includes six basic criteria with participants asked to give one of the following five responses to each one: (1) very rarely, (2) rarely, (3) sometimes, (4) often, and (5) very often.
1. You spend a lot of time thinking about Facebook or planning how to use it.
2. You feel an urge to use Facebook more and more.
3. You use Facebook in order to forget about personal problems.
4. You have tried to cut down on the use of Facebook without success.
5. You become restless or troubled if you are prohibited from using Facebook.
6. You use Facebook so much that it has had a negative impact on your job/studies.

Andreassen and colleagues[32] suggested that scoring "often" or "very often" on at least four of the six items may suggest that the respondent is addicted to Facebook.

Facebook Depression[33,34]

Researchers have proposed a new phenomenon called "Facebook depression", defined as depression that develops when preteens and teens spend a great deal of time on social media sites, such as Facebook, and then begin to exhibit classic symptoms of depression.

Prevention and Correction of FAS/FAD or IAD

FAD/FAS or IAD are not medically approved terms and unfortunately, there is currently no standardized treatment for FAS/FAD or IAD. Unlike other addictions, the goal of IAD/FAS/FAD treatment cannot be total abstinence from using the internet *per se* since the latter is an integral element of today's professional and leisure culture.
Corrective strategies include:
- Content-control software
- Counseling
- Cognitive behavioral therapy
  Following are the simple strategies to manage and treat FAD/FAS:
- Recognize the signs of a Facebook addiction.
- Start questioning what you are doing on Facebook.
- Write down exactly how much time you spend on each site.
- Decide what is of value on Facebook.
- Give yourself a set time of the day to visit.
- Try giving up Facebook for a specific event to see how you fare.
- Turn off email notifications.

- Target solutions to enable smarter, brighter usage of Facebook in the future.
- Be careful of the race to have as many friends as possible.
- Avoid being a Facebook automaton. Every time you feel like saying "I'll Facebook you", check yourself and rephrase that with "I'll see you", or "I'll call you". And mean it; it settles the catch-up time straight away.
- Meditate as soon as the thought of Facebook arises.

Unfortunately, internet addiction is resistant to treatment, entails significant risks[35] and has high relapse rates. Moreover, it also makes comorbid disorders less responsive to therapy.[36]

CONCLUSION

Computers have the greatest impact on our lives becoming an epitome of modern times, being used in every aspect of life. This has also ushered in a new genre of computer-related occupational health problems. India being the forerunner in the cyber world, there is an urgent need to understand the dynamics of these problems and prevent them from assuming epidemic proportions. It is easier to prevent computer-related injuries than to cure them. Certainly maladaptive use of internet has resulted in impairment of individual's psychological well-being, academic failure and reduced work performance resulting in an entity "IDA". Facebook syndrome is a part of IAD, which refers to the SNS addiction of which Facebook is the most popular. Is IAD/FAD/FAS really a "21st century epidemic"? Is IAD developing into a grave public health crisis? Is internet dehumanizing us? Current research regarding the impact of internet use on mental health and human life is inconclusive. It leaves everyone free to speculate about dread or wonderful consequences of the growth of the internet. Unfortunately, evidence-based treatment for problematic internet use is not well-established and existing sources of help are not yet widely available; a fact that is not likely to change while funding for mental health services is on the chopping block. This should be accompanied by rapid development of uniform diagnostic criteria and a vigorous research effort aimed at understanding the nature of this condition.

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