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Clinical and Functional Evaluation of the Effectiveness of Dacryocystorhinostomy in Dry Eye Syndrome

Abstract

This study evaluated the clinical and functional effectiveness of dacryocystorhinostomy (DCR) in patients with dry eye syndrome (DES). One hundred patients with DES who underwent DCR received comprehensive ophthalmological examination before and after surgery, including tear break-up time (Norn test), Schirmer I test, DES severity grading, subjective symptom scores, and conjunctival hyperemia assessment. After DCR, statistically significant improvements were observed across all parameters ($p < .001$): tear film stability increased by 86% (Norn test: 5.9 ± 0.9 to 11.0 ± 1.5 s), tear secretion doubled (Schirmer I: 6.9 ± 1.0 to 13.8 ± 1.8 mm), DES severity decreased by 46%, subjective complaints decreased by 79%, and conjunctival hyperemia decreased by 78%. DCR significantly improves tear film stability, tear production, and ocular surface condition in patients with DES. Restoration of lacrimal drainage positively influences tear system function and should be considered an integral component of comprehensive DES management.

Keywords: *dry eye syndrome, dacryocystorhinostomy, tear film stability, Schirmer test, Norn test, nasolacrimal duct obstruction, ocular surface*

Introduction

Dry eye disease (DED), also referred to as dry eye syndrome (DES), is one of the most prevalent and clinically significant conditions in modern ophthalmology. According to the Tear Film and Ocular Surface Society Dry Eye Workshop II (TFOS DEWS II), dry eye is a multifactorial disease of the ocular surface characterized by a loss of homeostasis of the tear film, accompanied by ocular symptoms, in which tear film instability and hyperosmolarity, ocular surface inflammation and damage, and neurosensory abnormalities are etiological factors (Craig et al., 2017a). The recently updated TFOS DEWS III report further refined this definition, emphasizing that dry eye is a disease entity rather than a syndrome, with clearly identifiable diagnostic features and disease progression (Craig et al., 2025).

The prevalence of DED varies considerably depending on diagnostic criteria, population characteristics, and geographic region. Population-based estimates utilizing symptom-based criteria report prevalence rates ranging from 5% to 50%, while studies relying on clinical signs alone have documented rates as high as 75% in certain cohorts (Stapleton et al., 2017). Conservative estimates suggest that 10–20% of the population over 40 years of age experience moderate to severe symptoms and/or seek treatment for DED (Britten-Jones et al., 2024). There is an increasing trend in prevalence among younger adults attributable to contact lens wear, prolonged digital device use, and environmental factors (Craig et al., 2023). The high prevalence, chronic progressive nature, and substantial negative impact on patients' quality of life underscore the clinical and socioeconomic significance of this condition (Almulhim, 2024).

The pathophysiology of DES involves a complex interplay of mechanisms, including tear film instability, hyperosmolarity, inflammation of the ocular surface, epithelial damage to the cornea and conjunctiva, and neurosensory disturbances (Bron et al., 2017).

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These pathological changes manifest as subjective symptoms—dryness, burning, foreign body sensation, photophobia, and visual instability—as well as objective signs of ocular surface damage, collectively reducing visual function and quality of life (National Library of Medicine, 2024).

Despite significant advances in understanding DES pathogenesis, comprehensive management remains subject to ongoing debate. Conventional treatment strategies primarily focus on conservative approaches, including artificial tear replacement, anti-inflammatory therapy, and management of meibomian gland dysfunction (Jones et al., 2017). However, in a substantial proportion of patients, conservative measures alone prove insufficient, necessitating exploration of additional pathogenetically justified therapeutic modalities (Danchenko et al., 2025).

Of particular relevance is the role of the lacrimal drainage system in the pathogenesis and perpetuation of DES. Nasolacrimal duct obstruction (NLDO) is the most common disorder of the lacrimal system, leading to tear stagnation, altered tear composition, and disruption of tear film homeostasis (Perez et al., 2023). Recent research has demonstrated that patients with primary acquired nasolacrimal duct obstruction (PANDO) exhibit significantly decreased tear film stability, with approximately 29.1% meeting diagnostic criteria for concurrent dry eye disease (Yu et al., 2024). Prolonged stasis of tears disrupts the ocular surface microenvironment by facilitating microbial proliferation and enhancing inflammatory reactions (Wang et al., 2025). Furthermore, obstruction of tear outflow alters tear inflammatory cytokine profiles, contributing to the chronification of ocular surface pathology (Lee & Kim, 2014).

Dacryocystorhinostomy (DCR) is the established surgical treatment for NLDO, with reported anatomical success rates of 90–98.8% and functional success rates of 81.9–95% (Lee et al., 2017; Patel & Malhotra, 2023). The procedure creates a functional pathway from the canaliculi into the nasal cavity, bypassing the obstructed nasolacrimal duct and restoring physiological tear drainage (Choe et al., 2026). While DCR is primarily indicated for epiphora relief, emerging evidence suggests that restoration of lacrimal drainage may also positively influence tear film dynamics and ocular surface health (Jin et al., 2022). However, data regarding the specific effects of DCR on DES remain limited, and some studies have reported the emergence or exacerbation of dry eye symptoms following successful DCR in 15–27.3% of patients (Kang et al., 2021; Kim et al., 2023).

Given this ambiguity, there is a clear need for systematic clinical and functional evaluation of the effects of DCR on DES parameters. The present study was designed to quantitatively and qualitatively assess the impact of dacryocystorhinostomy on the principal clinical and functional indicators of dry eye syndrome.

Methods

Study Design and Participants

This prospective interventional study included 100 patients diagnosed with dry eye syndrome and concurrent nasolacrimal duct obstruction who underwent dacryocystorhinostomy at the Department of General Surgery, Fergana Institute of Public Health. Comprehensive ophthalmological evaluation was performed in both the preoperative and postoperative periods.

Inclusion criteria encompassed patients with confirmed NLDO requiring DCR who also met diagnostic criteria for DES based on the TFOS DEWS II guidelines (Craig et al., 2017a), defined as the presence of both subjective symptoms and at least one positive objective test (tear break-up time < 10 s and/or Schirmer I test < 10 mm). Patients with secondary causes of lacrimal obstruction (trauma, neoplasm, prior surgery), autoimmune conditions (Sjögren's syndrome), active ocular infection, history of refractive surgery, or concurrent use of topical medications known to affect tear production were excluded.

Measures

The clinical and functional evaluation protocol included the following standardized assessments performed preoperatively and at the designated postoperative follow-up interval. Tear film stability was assessed using the Norn test (fluorescein tear break-up time [TBUT], measured in seconds), with values below 10 s considered indicative of tear film instability (Bron et al., 2003). Tear production

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was assessed using the Schirmer I test without anesthesia, measured in millimeters of wetting after 5 minutes, with values below 10 mm indicating aqueous tear deficiency (Lemp et al., 2011). DES severity was graded on a standardized point scale (0–4) based on the totality of clinical and functional signs, incorporating elements from the TFOS DEWS II severity classification (Craig et al., 2017a). Subjective symptoms (burning, dryness, foreign body sensation, photophobia) were evaluated using a standardized scoring scale (0–4). Conjunctival condition, including degree of hyperemia, was graded on a standardized point scale (0–4).

Procedure

All patients underwent standard external dacryocystorhinostomy. The procedure involved creation of a bony osteotomy in the lacrimal fossa with anastomosis of the lacrimal sac mucosa to the nasal mucosa, establishing a direct drainage pathway from the canaliculi to the nasal cavity, thereby bypassing the obstructed nasolacrimal duct (Choe et al., 2026). Silicone tube intubation was performed in cases where clinically indicated.

Data Analysis

Statistical processing was performed using variational statistics. Results are presented as mean values ± standard error of the mean (M ± SEM). The significance of differences between preoperative and postoperative parameters was evaluated using paired t-tests. Percentage improvement was calculated as the absolute change divided by the preoperative value, multiplied by 100. Differences were considered statistically significant at $p < .001$.

Results

Statistically significant improvements were observed across all measured parameters following DCR (see Table 1). The results demonstrate consistent, clinically meaningful changes in both objective functional parameters and subjective patient-reported outcomes.

Table 1.
Comparative Clinical and Functional Parameters
Before and After Dacryocystorhinostomy (N = 100)

Parameter	Pre-DCR	Post-DCR	Δ	% Change	P
Norn test (TBUT), s	5.9 ± 0.9	11.0 ± 1.5	+5.1	86	< .001
Schirmer I test, mm	6.9 ± 1.0	13.8 ± 1.8	+6.9	100	< .001
DES severity	2.6 ± 0.5	1.4 ± 0.5	–1.2	46	< .001
Subjective complaints	3.3 ± 0.6	0.7 ± 0.5	–2.6	79	< .001
Conjunctival hyperemia	2.3 ± 0.5	0.5 ± 0.5	–1.8	78	< .001

Note. Values are M ± SEM. DES severity, subjective complaints, and hyperemia scored 0–4. TBUT = tear break-up time; DES = dry eye syndrome. All comparisons: paired t-test, ***p < .001.

Tear Film Stability

The Norn test demonstrated a significant increase from a preoperative mean of 5.9 ± 0.9 s to a postoperative mean of 11.0 ± 1.5 s, an 86% improvement ($p < .001$). Postoperative values exceeded the clinically accepted threshold of 10 s for normal tear film stability (Bron et al., 2003), indicating substantial functional restoration.

Tear Production

The Schirmer I test increased from 6.9 ± 1.0 mm to 13.8 ± 1.8 mm, representing a 100% improvement ($p < .001$). Postoperative values exceeded the diagnostic threshold of 10 mm, indicating normalization of tear production.

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DES Severity and Subjective Complaints

The composite DES severity score decreased from 2.6 ± 0.5 to 1.4 ± 0.5 (46% improvement; $p < .001$), reflecting a transition from moderate-to-severe to mild DES. Subjective complaints decreased from 3.3 ± 0.6 to 0.7 ± 0.5 (79% reduction; $p < .001$), indicating near-complete symptom resolution.

Conjunctival Hyperemia

Conjunctival hyperemia decreased from 2.3 ± 0.5 to 0.5 ± 0.5 (78% reduction; $p < .001$), reflecting marked resolution of ocular surface inflammation.

Discussion

The results of this study demonstrate that dacryocystorhinostomy produces statistically and clinically significant improvements across all assessed parameters of dry eye syndrome, including tear film stability, tear production, disease severity, subjective symptoms, and conjunctival inflammation. These findings support the hypothesis that surgical restoration of lacrimal drainage has a multifaceted positive influence on the tear system and ocular surface in patients with concurrent DES and NLDO.

Tear Film Stability and the Role of Lacrimal Drainage

The 86% improvement in TBUT is of particular clinical significance. The preoperative mean of 5.9 s was well below the 10-s diagnostic threshold established by the TFOS DEWS II (Craig et al., 2017a), confirming significant tear film instability. Postoperatively, the mean of 11.0 s exceeded this threshold, indicating functional restoration. This finding is consistent with the pathophysiological model proposed by Yu et al. (2024), who demonstrated that PANDO patients exhibit significantly decreased tear film stability compared to controls, with non-invasive keratograph break-up time values inversely correlating with the duration of epiphora. The restoration of physiological tear drainage likely reduces tear stagnation, thereby normalizing tear turnover and composition across the lipid, aqueous, and mucin layers.

Furthermore, improvement in tear film stability may be related to changes in tear inflammatory mediators following DCR. Lee and Kim (2014) reported significant alterations in tear cytokine profiles following endoscopic DCR for PANDO, with decreases in pro-inflammatory cytokines known to destabilize the tear film. The reduction in the inflammatory burden on the ocular surface likely contributes to improved tear film integrity.

Restoration of Tear Production

The doubling of Schirmer I test values is a striking finding that warrants detailed interpretation. In the context of NLDO, tear stagnation creates a negative feedback loop whereby chronic ocular surface irritation stimulates reflex tearing, but the stagnant tears fail to adequately hydrate the surface due to altered composition and impaired distribution (Ji et al., 2023). DCR breaks this cycle by restoring normal tear flow dynamics. The normalization of Schirmer values may also reflect a reduction in compensatory reflex tearing secondary to chronic ocular surface irritation.

Park et al. (2019) similarly observed significant changes in tear film lipid layer thickness following silicone tube intubation for NLDO, demonstrating that restoration of lacrimal drainage is associated with improved tear film composition, including the critical lipid layer that retards evaporation. These compositional changes complement the volumetric improvements reflected in the Schirmer test values.

Reduction in DES Severity and Subjective Symptoms

The 46% reduction in DES severity and 79% decrease in subjective complaints collectively demonstrate that DCR improves both objective disease status and patient-perceived outcomes. The magnitude of subjective improvement exceeding objective severity reduction is noteworthy and may reflect the particular sensitivity of symptom perception to changes in tear dynamics. Craig et al. (2017a) emphasized that symptom burden in DES does not always correlate linearly with objective signs, as neurosensory mechanisms modulate symptom perception independently of measurable ocular surface parameters.

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Kang et al. (2021) investigated the relationship between DCR outcomes and dry eye symptoms, reporting that DES occurred after successful endoscopic DCR in 27.3% of patients who did not have DES preoperatively, suggesting that lacrimal surgery can unmask subclinical dry eye. In contrast, our study population comprised patients with established DES, in whom DCR consistently improved symptoms. This distinction underscores the importance of preoperative DES assessment and patient selection.

Kim et al. (2023) reported that approximately 15% of patients who underwent endoscopic DCR for PANDO combined with pre-existing dry eye developed significant postoperative dry eye symptoms, with shorter duration of preoperative epiphora being a risk factor. These findings highlight the complex interplay between lacrimal drainage restoration and tear film homeostasis.

Anti-Inflammatory Effects of Lacrimal Drainage Restoration

The 78% reduction in conjunctival hyperemia represents a substantial decrease in ocular surface inflammation. Chronic NLDO is associated with persistent low-grade inflammation of the lacrimal sac and surrounding tissues, characterized by inflammatory infiltration, fibrotic changes, and elevated tear cytokine levels (Wang et al., 2025). Stagnation of tear fluid creates a reservoir for bacterial proliferation and inflammatory mediator accumulation (Tucker et al., 1997). Recent single-cell transcriptomic analysis of nasolacrimal duct tissue revealed that immune cells, particularly CD4+ T cells, constitute over 70% of the cellular population in the obstructed duct, driving a CD4+ T cell–MIF–fibroblast pathway that promotes progressive fibrosis and sustained inflammation (Wang et al., 2025). By surgically bypassing the obstructed duct, DCR effectively interrupts this pathological cascade.

These anti-inflammatory effects are further supported by Lee and Kim (2014), who demonstrated significant reductions in tear-borne inflammatory cytokines, including interleukin-1β and tumor necrosis factor-α, following successful endoscopic DCR. The convergence of clinical improvement and biochemical evidence provides robust support for the anti-inflammatory mechanism of DCR in the context of DES.

Comparison With Existing Literature

Our results are broadly consistent with and extend the existing literature. External DCR achieves anatomical success rates of 90–98.8% and functional success rates of 81.9–95% (Lee et al., 2017; Sobel et al., 2019). The present study contributes a novel dimension by demonstrating that DCR benefits extend beyond epiphora relief to encompass measurable DES improvement.

Our findings contrast with studies reporting adverse DES effects after DCR. The discrepancy may be reconciled by considering that in the Kang et al. (2021) and Kim et al. (2023) studies, DES was unmasked in patients without pre-existing dry eye, whereas in our study, patients with established DES benefited from restored tear drainage. This supports the concept that NLDO symptoms can mask underlying dry eye, and DCR may either improve or reveal DES depending on baseline ocular surface status (Yu et al., 2024).

The dacryocystectomy literature provides additional insight. Rossi et al. (2024) found that dacryocystectomy, which eliminates drainage entirely, may benefit patients with severe DES by increasing the lacrimal meniscus. This observation further underscores the complexity of the tear drainage–DES relationship and supports a patient-specific approach to lacrimal surgery.

Clinical Implications

These findings support the integration of DCR into the comprehensive management strategy for patients with concurrent DES and NLDO. The results emphasize the importance of thorough preoperative assessment of dry eye status in all patients presenting with lacrimal obstruction and provide evidence-based justification for considering DCR as a therapeutic intervention with benefits extending beyond epiphora relief. These implications align with the TFOS DEWS II Management and Therapy Report, which emphasized identifying and treating underlying causes of tear film dysfunction (Jones et al., 2017).

Limitations and Future Directions

Several limitations should be acknowledged. The study lacked a control group of patients with NLDO but without DES. The specific postoperative follow-up interval and its duration were not

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standardized, and longer-term follow-up would be valuable. The study did not incorporate advanced diagnostic measures such as tear osmolarity, meibography, or OSDI scoring. The absence of blinding in symptom assessment introduces potential bias, and the single-center design may limit generalizability.

Future research should address these limitations through multicenter, randomized controlled trials with longer follow-up periods. Incorporation of tear cytokine analysis, tear osmolarity measurements, confocal microscopy of corneal nerves, and validated patient-reported outcome measures such as the OSDI would enhance mechanistic understanding. Comparative studies evaluating external versus endoscopic DCR in the context of DES outcomes would also be clinically valuable.

Conclusion

This study demonstrates that dacryocystorhinostomy produces statistically significant and clinically meaningful improvements across all assessed parameters of dry eye syndrome in patients with concurrent nasolacrimal duct obstruction. Restoration of lacrimal drainage leads to enhanced tear film stability, normalized tear production, reduced disease severity, substantial alleviation of subjective symptoms, and marked resolution of ocular surface inflammation. These findings support DCR as an effective surgical intervention that positively modulates tear system function and ocular surface condition, warranting its inclusion as an integral component of comprehensive DES management in appropriately selected patients.

Declaration of Competing Interests

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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Pathological Internet Addiction and Psychopathological Symptoms

Abstract

The Internet has become a widely used communication tool today due to its features such as providing access to information in a short time and enabling rapid communication. In addition to the convenience it brings to human life, the way it is used by some users so as to delay daily life activities or negatively affect them has drawn attention to the negative effects of the Internet on human life. Especially over the last 20 years, we have been confronted with various types of addictions such as internet addiction and online gaming addiction, which particularly affect children and young people and are commonly associated with them. Although steps are being taken to address addictions related to internet, online gaming, and social media use collectively referred to as digital addiction there are almost no holistic and systematic interventions in which the family is actively involved in the process. Although the Internet originally emerged for the purpose of information sharing and communication, it has been identified that adolescents and young adults are particularly at risk due to problematic and excessive use of the internet.

In this article, the pathological aspects of internet addiction are explained. The psychopathological symptoms of internet addiction are presented, and scientific studies are analyzed. We hope that the article will contribute to more effective identification of the onset of internet addiction and to its treatment.

Keywords: *internet addiction, pathological internet addiction, psychopathological symptoms, behavioral disorders, neuropsychological changes, personality psychology*

Introduction

Relevance and aim of the study

The relevance of studying internet addiction in adolescence is determined by the rapid growth of digital technologies and their deep integration into the everyday life of modern society. Adolescence is a critical stage of psychological and personality development, during which basic behavioral patterns, mechanisms of emotional regulation, and social interaction are formed. Under conditions of constant and uncontrolled access to the internet, adolescents face an increased risk of developing maladaptive forms of behavior, including compulsive and pathological internet use, which may negatively affect their psychological well-being, academic performance, and interpersonal relationships.

The aim of this study is to generalize contemporary scientific views on internet addiction among adolescents, to analyze its psychological and psychopathological manifestations, and to identify the main risk factors and consequences of this phenomenon for mental and personal development during adolescence.

Events of the adolescent period have a strong influence on human development and may determine attitudes and behavior later in life. During adolescence, the risk of emotional crises is increased, often accompanied by mood changes and periods of anxiety-depressive behavior, with which some adolescents attempt to cope through withdrawal into themselves, avoidance of extensive social contacts, aggressive reactions, and addictive behavior. Adolescents during this period are extremely vulnerable and sensitive, and the internet may attract them as a form of emotional release. Over time, this can lead to addiction (Shaffer et al., 2000).

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Internet addiction is a behavioral problem that has gained increasing scientific recognition over the past decade, and some researchers argue that it is an "epidemic of the 21st century" (Pies, 2009). Internet addiction is a complex area of study, given the lack of consensus regarding its definition, reported symptoms, diagnosis, and etiology. Indeed, it has not been established whether it can properly be called an addiction (Widyanto & Griffiths, 2006).

From the perspective of classical psychology and psychiatry, internet addiction is a relatively new phenomenon (Griffiths, 2000). The literature uses interchangeable terms such as "compulsive internet use," "problematic internet use," "pathological internet use" and "internet addiction.". Psychologist Mark Griffiths, one of the most widely recognized authorities in the field of addictive behavior, is the author of the most frequently cited definition. Internet addiction is a non-chemical behavioral addiction that involves human–machine interaction (computer and internet) (Beard, 2005). At the same time, the World Health Organization (WHO)and the American Psychiatric Association (APA) do not recognize internet addiction as a disorder, with the exception of Internet Gaming Disorder (IGD) in the Diagnostic and Statistical Manual of Mental Disorders (APA, 2022).

Methods

In the study of internet addiction in adolescence, modern research employs comprehensive methodological approaches. The most commonly used methods include clinical-psychological interviews, standardized psychodiagnostic questionnaires (such as K. Young's Internet Addiction Test and scales of problematic internet use), as well as observation and self-report methods. In a number of studies, neurobiological methods are applied, including functional magnetic resonance imaging (fMRI), which allows researchers to examine the functional characteristics of brain networks. In addition, correlational, comparative, and longitudinal research designs are used to identify relationships between internet-addictive behavior, emotional disturbances, and socio-demographic characteristics of adolescents.

Compulsive internet use, problematic internet use and pathological internet use

Compulsive Internet Use (CIU) refers to an inadequate relationship with the tool, including loss of control over use, use for mood modification, and withdrawal symptoms (Anderson et al., 2017). Problematic Internet Use (PIU) is addictive behavior and may include excessive or poorly controlled preoccupations, urges, or behaviors related to computer use and Internet access that lead to impairment or distress (Aboujaoude, 2010). Some researchers further develop this definition, suggesting that PIU is a behavioral version of a substance use disorder while others suggest that it is either an impulse control disorder or a subtype of obsessive-compulsive disorder? although empirical evidence for these classifications is lacking (Tereshchenko & Kasparov, 2019).

The term "pathological internet use" duplicates the definition of problematic internet use (PIU); however, conceptually it is modeled as an impulse control disorder and classified as a taxonomy of behavioral addiction related in nature to pathological gambling (Block, 2008). Pathological Internet use includes the following criteria of addictive behavior: uncontrolled Internet surfing, online gambling, and dependence on virtual interpersonal relationships.

A study conducted by researchers from the University College London (UCL) shows that brain changes have been identified in adolescents with internet addiction that may lead to additional addictive behaviors and tendencies. In the article published in the journal PLOS Mental Health, the researchers reviewed 12 studies involving 237 young people aged 10–19 who had been diagnosed with internet addiction between 2013 and 2023. Internet addiction is defined as an individual's inability to resist internet use, resulting in negative effects on psychological health as well as social, academic, and professional life. In the studies, functional magnetic resonance imaging (fMRI) was used to examine how different brain regions interact with each other in participants with internet addiction. Brain activity was examined both during rest and while completing a task. The effects of internet addiction were observed across multiple neural networks. In brain regions that are activated during rest, there was a mixture of increased and decreased activity. In brain regions associated with active thinking, an overall decrease in functional connectivity was observed. The lead author of the

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study, master's student Max Chang states: "Adolescence is a critical developmental stage during which individuals undergo significant changes in biology, cognition, and personality. During this period, the brain is highly sensitive to impulses related to internet addiction. The findings of our study indicate that this may lead to negative behavioral and developmental changes in adolescent individuals. For example, they may have difficulty maintaining relationships and social activities, may lie about their online activities, or may experience irregular sleep patterns" (Shaw & Black 2008).

With smartphones and laptops becoming more accessible, internet addiction has become a growing global problem. Previous studies have shown that people in the United Kingdom spend more than 24 hours online each week and that more than half of survey respondents are addicted to the internet. The senior author of the study, Irene Lee from the UCL Great Ormond Street Institute of Child Health, addresses the issue as follows: There is no doubt that the internet has certain advantages. However, it becomes a problem when it starts to affect our daily lives. We advise young people to set reasonable time limits for daily internet use and to be aware of the psychological and social effects of spending excessive time online.

Clinicians may recommend treatments targeting specific brain regions or psychotherapy or family therapy aimed at the core symptoms of internet addiction. More importantly, parental education about internet addiction may be another way to prevent addiction from a public health perspective. Parents who are aware of the early signs and onset of internet addiction will be able to address screen time and impulsivity more effectively and minimize risk factors associated with internet addiction. The use of fMRI scans to investigate internet addiction is currently limited, and studies involve small adolescent samples. In addition, participants were predominantly selected from Asian countries. Future research should also include findings from Western samples in order to provide more comprehensive information about treatment interventions.

Internet addiction, in the view of K.Young, is a multidimensional phenomenon that includes:

– manifestations of escapism — escape into virtual reality by individuals with low self-esteem, anxiety, a tendency toward depression, feelings of insecurity, loneliness, or lack of understanding by close ones, burdened by their work, studies, or social environment;

– novelty seeking; a desire for constant sensory stimulation;

– emotional attachment — the opportunity to express oneself, to be empathically understood and accepted, to relieve acute emotional distress related to real-life difficulties, and to receive support and approval;

– pleasure from feeling like a 'virtuoso' in the use of computers and specialized search or communication programs" (Young, 1998).

Psychopathological symptoms of internet addiction

R. Davis proposed a cognitive-behavioral model of pathological Internet use. He identified two forms of internet addiction, which he designated as specific pathological internet use and generalized pathological internet use (Davis, 2001). Thus, all the analyzed definitions are similar and reveal the concept of internet addiction through generalized features (psychopathological symptoms) (Young, 2000).

Psychopathological symptoms of internet addiction include:

– salience (the respondent is likely to feel preoccupied with the Internet, hide their behavior from others, and may demonstrate a loss of interest in other activities and/or relationships in favor of spending more solitary time online);

– excessive use (the respondent exhibits excessive online behavior and compulsive use and periodically cannot control the amount of time spent online, which they may conceal from others);

– neglect of work (academic or work performance and productivity are likely to be compromised due to the amount of time spent on the Internet);

– anticipation (the respondent is likely to think about being online when not at the computer and feels a need to use the Internet when offline);

– loss of control (the respondent finds it difficult to manage their time online and often remains online longer than intended).

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In recent years, many studies have been conducted in different countries on the prevalence of internet addiction and the socio-demographic characteristics of this phenomenon. Some studies are longitudinal or comparative and include multiple samples. Thus, Kibitov A. O., Trusova A. V., and Egorov A. Yu., in the article internet addiction: Clinical, biological, genetic, and psychological aspects, note: "Overall, neurobiological studies of internet addiction show similarities in its neural mechanisms with substance use disorders. Nevertheless, many unclear issues remain related to the description of precise socio-psychological as well as medico-biological patterns of this disorder, which would allow the determination of effective methods for its therapy" (Kibitov et al., 2019).

A consensus of opinions among researchers, both in Russia and abroad, has not yet been identified. In this regard, the following points expressed by Kibitov A. O. et al. appear important- First, internet addiction is detected predominantly among the younger segment of the population - older adolescents and young adults. It is generally accepted that a risk factor for the development of internet addiction is specific features of central nervous system functioning that have a high level of genetic control and manifest as a distinctive psychological pattern. With the possibility of unlimited Internet use, individuals endowed with such features quickly transition to painful and pathological use – forming internet addiction as a disease.

Second, unlike chemical addictions (alcohol or drug dependence), there are no possibilities for legislative regulation or restriction of Internet access for the younger population. The strategy of reducing the supply of psychoactive substances, successfully used in state anti-alcohol and anti-drug policies, is not applicable in the case of internet addiction. This fact gives maximum importance to preventive measures in work with adolescents and young people. It is important to determine which features of the emotional-volitional sphere of adolescents are associated with a tendency toward internet-addictive behavior, as well as to formulate the main directions of preventive and corrective psychological assistance for individuals with identified internet addiction.

Results

The results of numerous national and international studies indicate that internet addiction in adolescence is a multifactorial and heterogeneous phenomenon. Adolescents exhibiting signs of problematic or pathological internet use more frequently demonstrate symptoms of anxiety, depression, emotional instability, social isolation, and low self-esteem. Pronounced impairments in self-control are observed, accompanied by difficulties in regulating the amount of time spent online and a loss of interest in offline activities. Neuropsychological and neuroimaging studies reveal alterations in the functioning of brain networks associated with cognitive control, reward processing, and emotional regulation. Adolescents with internet addiction show reduced functional connectivity in brain regions responsible for executive functions and goal-directed behavior, as well as an imbalance between impulsivity-related systems and control mechanisms.

The social consequences of internet addiction manifest in deteriorating family and interpersonal relationships, decreased academic motivation and performance, and disturbances in sleep–wake patterns. Overall, the findings confirm that internet addiction has a negative impact on adolescents' psychological, social, and cognitive development and may act as a risk factor for the development of other addictive and psychopathological disorders.

Discussion

The discussion of the obtained data leads to the conclusion that internet addiction in adolescence should not be viewed as an isolated behavioral disorder, but rather as a complex psychosocial phenomenon closely associated with individual personality traits, emotional functioning, and social environmental conditions. The absence of a unified diagnostic approach and the lack of official recognition of internet addiction as an independent disorder complicate both clinical diagnosis and the development of effective prevention and intervention strategies. Early prevention aimed at developing self-regulation skills, fostering a critical attitude toward digital content, and maintaining

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a healthy balance between online and offline activities is of particular importance. In this context, family upbringing, parental psychoeducation, and the involvement of educational institutions play a crucial role. Promising directions for future research include the study of cultural and socio-economic factors of internet addiction, as well as the development and empirical validation of psychotherapeutic and preventive programs adapted to the adolescent population.

The first step that should be taken in cases of pathological internet addiction is to consult a psychologist. The psychologist identifies the factors contributing to internet addiction in the individual and helps resolve them. If there is a severe psychiatric condition, pharmacological treatment may also be required. However, approaches targeting unconscious conflicts and impulse control are generally more effective. Taking internet addiction seriously is, of course, the most important attitude, as it can lead to dangerous and permanent problems if it grows and is left without intervention.

Keeping children and adolescents away from the internet and games can be difficult for families; however, restricting this time without punishing the child will be beneficial for them. When imposing limitations, establishing a healthy relationship with the child without engaging in power struggles is very important at this point. For the treatment of internet addiction, the individual's relationship with technology is examined and the behaviors they exhibit are evaluated. A discussion is held to address the possibility that spending time obsessively with devices such as smartphones, tablets, and computers may be harmful to the individual. A person who becomes aware of the situation may, through the information they acquire, develop the motivation to overcome this addiction. Treatment can be implemented by introducing restrictions and regulations that break this cycle of addiction and by applying therapeutic interventions deemed necessary for the individual.

Some parental control applications may be used in treatment, and the family and the child/adolescent may participate in therapy together. During this process, it is the responsibility of families to display behaviors that serve as positive role models for children and adolescents and to observe whether the child's internet use is harmful. Family education is of great importance. Parents should be enabled to act as role models for their children by using the internet and computers effectively and beneficially. If the family lacks sufficient knowledge about the appropriate use of the internet and other technological materials, counseling should be provided to the family and rules should be taught. In educational institutions, alongside media literacy, instruction should be given on how to use the internet effectively and beneficially.

Individuals who use the internet in a healthy manner integrate their face-to-face lives with their virtual lives; they talk to their real-life family members and friends about their online experiences; they participate in the online environment with their real identities, interests, and skills; they also meet in real life with people they communicate with online; and they maintain relationships with people they know in the real world through e-mail or chat platforms as well.

Conclusion

Internet addiction and related disorders develop slowly and insidiously. Since completely removing the Internet from an individual's life is not possible under today's conditions and since treatment is quite difficult, preventive measures are of great importance. Because internet addiction can be concealed or may not be perceived as a significant problem, in all cases brought to child and adolescent psychiatry clinics, patterns of Internet, mobile phone, tablet, and gaming use should be questioned from early childhood onward, and intervention should be carried out if risk factors are identified. In advanced cases, the prognosis is poor. Pathological Internet use is associated with high levels of emotional loneliness and weak romantic and friendship relationships. In addition, some studies have shown that the Internet can increase individuals' levels of shyness and loneliness by keeping them away from social activities, reduce family relationships, and decrease the size of individuals' local social environments.

Although there are studies conducted in Azerbaijan and other countries on prevalence, risk factors, psychosocial characteristics, epidemiology, and partly neurobiology, the number of studies

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related to treatment is insufficient. More research is needed on the treatment of technological addictions. If more information can be provided, more sound steps can be taken in determining the etiology and in identifying preventive and therapeutic methods.

Declaration of Competing Interests

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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Stress and Anxiety Disorders in Our Daily Lives, and Their Management

Abstract

Higher nervous activity is highly dependent on both external environmental conditions and the internal state of the organism. Inadequate nutrition, lack of regular rest, general illnesses, and physical inactivity can impair the cerebral cortex, its functions, and higher nervous activity. Short-term processing of a large volume of information or excessive mental and emotional stress has a significant impact on a person's higher nervous activity. Physical activity and strengthening the body help maintain and enhance health. These factors increase the organism's work capacity and improve defense and adaptation reactions. Physical exercises not only prevent diseases but also play an important role in the treatment of various illnesses. A person's physical health depends on their mental state, the ability to control emotions, eliminating emotional dissatisfaction, and forming harmonious relationships among people of different temperaments within a group. It is the duty of a cultured person to learn how to influence the functions of the body using all available means, including their feelings, emotions, and thoughts. Factors that harm health include infections, excessive cooling or heating of the body, improper nutrition, lack of physical activity, injuries, consumption of alcoholic beverages, smoking, poisoning, and various types of radiation (ultraviolet and X-rays). Excessive mental and physical labor, industrial and household noise, insufficient sleep, and poor rest can also lead to the deterioration of a person's health.

Keywords: *nervous system, emotions, anxiety disorders, depression, higher nervous activity*

Introduction

Human beings emerged through a process of evolution that lasted millions of years. With the development of their consciousness and the creation of tools, humans separated from the animal world and became social beings. Throughout the course of historical development, humans acquired a number of unique adaptations. The advancement of science has made it possible to uncover previously unknown secrets of nature and to intervene in hidden processes occurring within the human body. In the organism, which constitutes a complete unity, the nervous system plays a crucial role in ensuring the coordinated functioning of different organ systems. Through the activity of the nervous system, the organism establishes a connection with the external environment. A number of complex functions of the human nervous system distinguish humans from animals. Human conscious activity, the changes made in nature, social interactions, and achievements in science are all the result of complex processes occurring in the brain. The nervous system coordinates the work of all organs in the body: "commands" are sent from the brain to the working organs, and information about their functioning is received back from the organs. Certain physiological observations can also be conducted on humans. During changes occurring in the organism, weak electrical currents are generated in some organs. These currents vary depending on the condition of the organism. By recording these currents, the functions of certain organs are studied and changes occurring in them are identified (for example, the bioelectrical currents of the brain are recorded using an electroencephalograph device) (Mammadova, 2015). The importance of the nervous system in the life of living beings is immense.

Salivation, the secretion of gastric juice and sweat, changes in the diameter of blood vessels, and withdrawing our hand when touching a hot object—all these reflexes occur with the participation of the nervous system (Mammadova, 2019).

Methods

All the functions of our body depend on the nerves. The brain, spinal cord, and nerves work only in coordination. Human consciousness, feelings, speech, vision, and hearing are carried out with the help of the nerves (Huseynov, 1998). In response to a stimulus, the activity of many organ systems undergoes coordinated reflex changes. Such harmonized reflex activity arises as a result of the interaction between excitation and inhibition processes in the central nervous system. The excitation of neurons leads to the occurrence or strengthening of certain reflex reactions, while the inhibition of neurons causes other reflexes to weaken or completely cease (Tsuzmer, 1987). Humans are not only biological but also social beings. Every individual is a member of society. People cannot live without communication; they form families and communities. Therefore, each individual's psyche is shaped under the influence of society, its moral norms, ethical laws, and rules of behavior. Conversely, the psychology of each individual also exerts a certain influence on social thinking. The strength of this influence depends on many factors and on the characteristics of the individual. Based on various needs, specific mental states arise in a person, including personal perceptions, images, concepts, feelings, thoughts, and emotions (Eybatov, 2012). The concept of higher nervous activity includes all nervous processes that form the basis of human behavior. The brain constitutes the foundation of higher nervous activity. The ability of animals to perceive patterns between objects and events and to use this knowledge in new conditions is called intelligent activity; in animals, this occurs through analyzers (the first signaling system), whereas humans also use speech (the second signaling system) for this purpose. The fundamental principles of higher nervous activity explain the natural physiological mechanism of the joint functioning of the first and second signaling systems and also make it possible to determine how high achievement in the learning process can be attained (Najafov, 1989). The ability to present and transmit one's attitude toward objects and events to others through words and images is called thinking. Thinking includes operations such as analysis, synthesis, comparison, abstraction, and generalization. The emotional manifestations experienced by a person in connection with changes in their attitude toward themselves and the surrounding world are called emotions (from Latin *emoveo* – to excite, to agitate). By their nature, emotions can be positive (joy, satisfaction, pleasure, admiration, etc.) or negative (anger, hatred, fear, sorrow, grief, sadness, etc.). During all emotions, the nervous system becomes activated, and the amount of biologically active substances in the blood increases. At this time, the organism mobilizes its strength.

Each emotion is accompanied by expressive movements. A person's emotional state can be determined by changes in posture and gait, gestures, facial expressions, intonation, and the speed of speech. Expressive movements are the language of emotions; they do not require translation and reduce the tension created by emotions (Mammadov, 2019). A person not only perceives the surrounding world but also influences it. They have their own attitude toward all objects and events. While reading a book, listening to music, answering a lesson, or communicating with friends, a person may feel joy, sadness, grief, or excitement. The changes that occur during similar emotions are the same in all people. Therefore, expressions such as "I was scared to death," "my hair stood on end," "I was trembling," or "my heart almost stopped from joy" are familiar to everyone. Such reactions that occur during emotions have great physiological significance. They mobilize the body's strength and prepare it either to accomplish a task successfully or to protect itself. Several years ago, scientists photographed a series of facial expressions showing people who were joyful, sad, frightened, angry, and surprised. These photographs were then shown to children in many countries around the world. It was found that regardless of nationality, traditions, or upbringing, children accurately identified the emotional states of the people in the photographs. By observing the expression of feelings, we understand what others are experiencing, and their state also affects us: we sympathize, feel compassion, and share their sorrow. At times, however, we may be unable to restrain our expressive

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movements and "control our feelings." Qualities such as willpower and self-control are acquired through education and self-education and indicate a person's high level of culture (Tsuzmer, 1987).

Results

One of the most important characteristics of personality is a person's beliefs, ideas, and goals. This also includes the individual themself, the people around them, and society as a whole. Volitional traits occupy an important place in a person's character (Eybatov, 2023). Factors present in both the internal and external environment surrounding a person, which gradually exert a toxic effect on the organism, cause stress. The theory of stress was developed in 1936 by the Canadian scientist Hans Selye. The word "stress" means tension. According to H. Selye, all negative factors affecting the organism can lead to stress. He studied in detail the functional relationship between the adrenal glands, the pituitary gland, and the hypothalamus. He demonstrated that when the impact of harmful factors on the body is prolonged, the secretion of hormones (glucocorticoids) by the adrenal glands into the bloodstream becomes depleted, resulting in severe stress (Aliyev, 2005). Stress, often described as a disease of modern society, is in fact a part of everyday life. Factors that cause stress include fear, illness, fatigue, noise, conflicts, air pollution, and sudden temperature changes. The combination of psychological and physiological reactions given by the organism to frightening and dangerous situations encountered in life is called anxiety. When a person's life is in danger, feelings of fear and anxiety arise in every individual. However, if excessive fear and anxiety occur in response to a situation, or if these feelings arise without a real basis, such conditions are called anxiety disorders. Their types include:

- Generalized anxiety disorder (constant worry about one's own health or the health of relatives, persistent concern about financial status, unfounded fears about safety, etc.);
- Social phobia (fear of eating in public, speaking in front of others, asking questions, etc.);
- Agoraphobia (fear of leaving home, being in public places, going to shopping centers, or being in crowded, narrow, or enclosed spaces);
- Panic disorder (recurring panic attacks accompanied by symptoms such as rapid heartbeat, shortness of breath, suffocation, dizziness, chest pain, numbness in hands and feet, sweating, a sense of unreality, fear of losing consciousness, and fear of death) (Mammadov,2019).

Furthermore, stress and sleep quality are interrelated, and each affects the other in a bidirectional manner (Park, 2021). A recent systematic review concluded that even low amounts of physical activity in a week can reduce the risk of developing depression by up to 18% compared to no activity (Pearce, 2022).

Currently, one of the most widespread mental disorders among people is depression. Depression is accompanied by symptoms such as low mood, hopelessness, sadness, insomnia, loss of appetite, anxiety, fatigue, feelings of worthlessness, and intrusive thoughts. Social, biological, and psychological factors contribute to depression, and it can occur at any age. Its duration may vary from several months to several years. It occurs approximately twice as often in women as in men and is characterized by persistent mood disturbance, melancholy and agitation, slowing of thinking and speech, and motor inhibition. When the condition becomes severe, individuals tend to blame themselves and develop a pessimistic outlook on the future (Paliyev, 1985). The fundamental principles of higher nervous activity not only explain the natural physiological mechanisms of the joint functioning of the first and second signaling systems but also make it possible to determine how high achievement can be attained in the learning process (Najafov, 1989). It has been established that the level of adrenaline increases in the blood of people experiencing negative emotions. This disrupts the functioning of many internal organs, including the liver, kidneys, and stomach. Therefore, during stress, grief, receiving bad news, or intense excitement, appetite often decreases. It should be noted that even ancient thinkers and physicians were aware of the harm of overeating during negative emotional states. For example, Hippocrates recommended that excited athletes eat 2–3 hours after exercise. The famous scholar, physician, and philosopher Ibn Sina stated that eating and drinking are beneficial only when the body is calm (Mikhaylov, 1991).

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Discussion

The nervous and endocrine systems coordinate the functioning of all organs. The nervous system regulates processes through electrochemical signals—nerve impulses (Khan, 2018). In humans, the maximum transmission speed of nerve impulses reaches up to 120 m/s (Khan, 2014). Behavior manifests itself as a result of the interaction between mental and psychological processes. This becomes possible through learned and hereditarily reinforced reflex reactions and habits. A person grows and develops under the control of two programs—biological and social. The social program refers to the formation of personality under the influence of the external environment and the people surrounding the individual (Aliyev, 2007). Despite there negative effects, greater public awareness is required to highlight these direct links (Wezyk, 2024). The effectiveness of lifestyle interventions on mental health is known (Walburg, 2023). A healthy lifestyle effectively reduces despression and anxiety (Wong, 2022). Mental disorders are among the conditions that place a high burden on healthcare (Santomauro, 2021) and remain among the primary causes of disease burden worldwide. However, there is no evidence of a decrease in this burden compared to previous decades. Given that depression and anxiety are more prevalent among women, the specific impact of livestyle interventions on these disorders in women has been understudied (Farhane-Medina, 2022). Health is one of the primary and most important needs that determines a person's ability to work and ensures the harmonious development of their personality. Health is not only the absence of physical defects and disease but also a state of complete physical, mental, and social well-being. In other words, it includes the physical and psychological condition perceived through a person's feelings, as well as their emotional state (Salimov, 2014). The environment in which a person lives and works also influences their behavior and mood. Conflicts occurring in the family, at school, or at work can cause unfavorable changes in a person's psyche. Such individuals may become harsh and rude, or withdrawn, reserved, and overly sensitive. Unfavorable environmental factors can disrupt higher nervous activity both in the short term and in the long term. These disturbances are not always associated with damage to nerve cells. One of the factors causing excessive functional strain on the nervous system is interpersonal conflict, which may lead to states of anxiety. In such cases, the processes of excitation and inhibition in the cerebral cortex are disrupted, which in turn impairs the formation of conditioned reflexes and leads to memory weakening and insomnia. The central part of the analyzers constitutes the higher division and is located in the cerebral cortex. Here, the incoming excitation undergoes fine and precise analysis, resulting in sensation and perception (Baku State University, 2007).

Conclusion

In summary, it becomes clear that when harmful factors affect the organism over a prolonged period, the synthesis of hormones secreted by the pituitary gland, adrenal glands, and hypothalamus is depleted. This leads to functional disruptions due to severe mental stress, and in many cases, treatment becomes difficult. How can health be preserved in such situations? The best results can be achieved through physical exercise, physical education, spending time outdoors, water and sun baths, and maintaining a healthy lifestyle. For children, the foundation of health and physical development should be laid from birth until school age through morning exercises, active games, and walks. During the school years, in addition to morning exercises, health can be maintained through hiking, training in various sports, and other physical activities. These practices positively influence the development of the nervous system and enhance the body's resistance to diseases. Following these measures improves work capacity and ensures that protective adaptive responses function normally. Sometimes, if the causes of disrupted processes are eliminated, the processes themselves can recover. For this, simply changing the environment and getting adequate rest is sufficient.

If a person is truly a personality, they remain steadfast, relying on their inner confidence even in the most difficult life trials, defending and protecting themselves. The ability to show dedication or commitment to something is a feature of personality, through which knowledge, skills, capabilities,

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and desires are revealed. In other words, if the society surrounding a child does not teach them to be upright, cultured, and virtuous, the child may pass these deficiencies to the next generation.

Everything discussed so far about human psyche relates to personality. Personality is a unique individual distinguished by physical, physiological, and psychological qualities. A person is not born a personality but becomes one through life experiences. The inner world of a personality is shaped through interactions with other people. One of the essential traits of personality is stability (consistency). A person with personality can maintain their life goals and relationships even under severe life challenges. Interaction with others, building personal relationships, self-awareness, and self-evaluation are crucial stages in personality formation. Establishing friendships, showing genuine interest in the work of others and the collective, and upholding principles should all be linked with mutual responsibility and accountability.

Declaration of Competing Interests

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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On Non-Specific Ulcerative Colitis (Ulcerative Colitis, Uc)

Abstract

This article addresses the clinical course and therapeutic approaches to non-specific ulcerative colitis (UC), a chronic inflammatory disorder of the colon characterized by relapsing–remitting mucosal inflammation. Despite advances in therapy, achieving sustained remission remains a major clinical challenge. The multifactorial nature of UC—including genetic, immune, environmental, and microbiota-related factors—results in heterogeneous clinical presentations, complicating diagnosis and differentiation from other inflammatory bowel diseases such as Crohn's disease. The authors present clinical and therapeutic data from patients evaluated between 2001 and 2025, utilizing diagnostic methods such as computed tomography and colonoscopy. Colonoscopy remains the gold standard, enabling direct visualization and histopathological confirmation. Optimization of treatment strategies, particularly through the integration of immunomodulatory agents, is essential for prolonging remission and reducing relapse rates. While oral administration is standard, combined oral and rectal delivery may improve outcomes, especially in distal disease. Local administration via microenemas with oil-based preparations allows targeted delivery to inflamed mucosa, potentially enhancing healing and minimizing systemic effects. This approach may be especially beneficial during seasonal exacerbation periods. In conclusion, individualized multimodal therapy combining systemic and topical immunomodulation appears effective in extending remission and preventing relapse in UC patients.

Keywords: *ulcerative colitis, immunomodulators, oral administration, rectal administration, microenema therapy, inflammatory bowel disease*

Introduction

Colitis, defined as inflammation of the large intestine, represents a highly prevalent group of gastrointestinal disorders with diverse etiologies and clinical manifestations. These conditions may arise from multiple causes, including dietary (alimentary) factors, intestinal dysbiosis, and the inappropriate or unsystematic use of pharmacological agents—particularly antibiotics—each associated with distinct clinical features and therapeutic strategies (Kobayashi et al., 2020; Lichtenstein et al., 2020).

Colitis comprises a heterogeneous spectrum of diseases; however, among these, Ulcerative Colitis (UC) warrants particular attention due to its chronic, relapsing nature and complex pathogenesis. Based on our long-term clinical observations, UC represents a distinct nosological entity requiring focused investigation and tailored management approaches.

The etiological heterogeneity of UC contributes to its clinical variability and often leads to patient management across multiple medical disciplines, including internal medicine, infectious and parasitic disease units, gastroenterology departments, and even surgical clinics. This multidisciplinary involvement reflects both the systemic nature of the disease and the challenges associated with its diagnosis and treatment (Ordás et al., 2012; Ungaro et al., 2017).

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Historically, since the mid-20th century, management strategies for UC have evolved considerably. In the former Soviet Union, particularly at the Moscow Proctology Institute, treatment approaches were predominantly surgical, reflecting limited understanding of the disease's immunopathogenesis at the time (Bunin, 1972). Conservative therapies were also employed, including blood transfusions, immunomodulatory agents such as methyluracil and pentoxyl, and vitamin supplementation. During remission periods, patients were typically managed with dietary modifications and vitamin therapy.

The difficulty in achieving effective and sustained treatment outcomes in UC is multifactorial. One of the key contributing factors is the involvement of the central nervous system in modulating disease activity through the gut–brain axis, which is increasingly recognized as a significant component in inflammatory bowel diseases (Carabotti et al., 2015). Additionally, several predisposing and exacerbating factors have been identified, including improper nutrition, increased gastric acidity (hyperacid gastritis), biliary tract diseases such as cholangitis, and parasitic infections (Torres et al., 2017; Kaplan, 2015).

Epidemiologically, UC most commonly manifests in young adults, typically between the second and fourth decades of life, although it may occur at any age (Ungaro et al., 2017).

Between 2001 and 2025, among 110 patients presenting to a therapeutic clinic with a preliminary diagnosis of gastroenterocolitis, 30 patients were ultimately diagnosed with ulcerative colitis. The diagnosis was established based on a combination of detailed anamnesis, clinical examination, colonoscopic evaluation, and computed tomography findings, consistent with current diagnostic standards (Magro et al., 2020).

Clinical Characteristics, Diagnostic Findings, and Therapeutic Considerations

Among the 30 patients diagnosed with Ulcerative Colitis, 18 were female (aged 20–25 years) and 12 were male (aged 22–30 years). A significant proportion of patients reported exposure to psychological stress as a precipitating factor, consistent with current evidence highlighting the role of the gut–brain axis in inflammatory bowel diseases (IBD) (Carabotti et al., 2015; Gracie et al., 2018). Additionally, intestinal dysbiosis was identified in nearly all patients, further supporting its role in disease pathogenesis (Ni et al., 2017).

Table 1
Clinical Characteristics, Diagnostic Findings, and Contributing Factors of Patients Diagnosed with Ulcerative Colitis (n = 30)

Parameter / Characteristic	Number of Patients (n = 30)	Details / Notes
Gender	18 Female	Ages 20–25 years
	12 Male	Ages 22–30 years
Exposure to psychological stress	Majority	Reported as a precipitating factor, supporting gut–brain axis involvement (Carabotti et al., 2015; Gracie et al., 2018)
Intestinal dysbiosis	Nearly all	Supports role in disease pathogenesis (Ni et al., 2017)
Diagnosis confirmation	30	Based on anamnesis, clinical examination, colonoscopy, and CT findings (Magro et al., 2020)

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Note. The changes observed in the CT scans further corroborated the colonoscopic findings. Hemoglobin (Hb) levels were found to be low in nearly all patients, which represents a key clinical feature of the disease.

Clinical observations and laboratory investigations—particularly the frequent presence of anemia—suggest that the disease onset often occurs earlier than clinical presentation, with most patients seeking medical attention at relatively advanced stages. The predominant clinical manifestations included sudden-onset abdominal pain, often associated with prior emotional stress, bloody and mucous diarrhea, tenesmus (incomplete evacuation), anal discomfort, and borborygmi localized to the right iliac region. These findings are consistent with the typical symptomatology described in moderate-to-severe UC (Ungaro et al., 2017; Kobayashi et al., 2020).

Radiological and endoscopic assessments revealed important insights into disease extent. Notably, computed tomography findings indicated that inflammation was not confined solely to the colon but also involved segments of the small intestine. Although UC is classically defined as a colonic disease, increasing evidence suggests that backwash ileitis and extracolonic involvement may occur, raising considerations for broader classifications such as enterocolitis in selected cases (Magro et al., 2020).

Colonoscopy, performed in all patients, provided direct visualization of mucosal pathology. The findings included mucosal irritation and hyperemia, with the presence of superficial ulcers characterized by smooth margins and mucous coatings. In some cases, erosions representing early stages of ulcer formation were also observed. Specifically:

- In 16 patients, one or multiple superficial ulcers were identified in the intestinal mucosa
- In 8 patients, four or more erosions were detected
- In 6 patients, diffuse mucosal hyperemia consistent with an “irritable bowel-like” appearance was observed

These morphological features correspond to established endoscopic criteria for UC, including continuous mucosal inflammation, friability, and ulceration (Magro et al., 2020; Harbord et al., 2017).

An important clinical challenge identified in this cohort was the variability and non-specificity of presenting complaints, which frequently led patients to seek care across different specialties, thereby delaying accurate diagnosis. Among the studied patients:

- 12 initially consulted rheumatologists due to joint pain and received treatment for presumed rheumatologic conditions
- 10 were evaluated and treated by gastroenterologists and hepatologists prior to definitive diagnosis

This observation aligns with current knowledge that UC is associated with extraintestinal manifestations, particularly musculoskeletal (arthralgia, arthritis) and hepatobiliary involvement (e.g., primary sclerosing cholangitis), which may obscure the underlying diagnosis (Feuerstein et al., 2019).

Notably, when patient history (anamnesis) is carefully evaluated, a consistent pattern emerges, characterized by the coexistence of joint pain and abdominal or hepatobiliary discomfort. Some clinicians also consider the potential role of prior atypical intestinal infections in the etiopathogenesis of UC. While this remains a hypothesis, it is plausible that ascending or descending infectious processes may contribute to microbiota disruption, leading to dysbiosis and subsequent immune dysregulation—factors increasingly recognized in IBD pathogenesis (Ni et al., 2017; Kaplan, 2015).

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Table 2
Colonoscopic Findings, Initial Clinical Presentations, and Diagnostic Challenges in Ulcerative Colitis Patients (n = 30)

Parameter / Finding	Number of Patients (n = 30)	Details / Notes
Superficial ulcers (smooth margins, mucous covering)	16	Single or multiple ulcers observed in intestinal mucosa
Erosions (≥4)	8	Represent early stages of ulcer formation
Diffuse mucosal hyperemia ("irritable bowel-like" appearance)	6	Consistent with early mucosal inflammation
Initial specialty consulted due to presenting complaints		
– Rheumatologists (joint pain)	12	Treated for presumed rheumatologic conditions; highlights extraintestinal manifestations
– Gastroenterologists/hepatologists	10	Evaluated and treated prior to definitive UC diagnosis
Endoscopic features	All 30	Continuous mucosal inflammation, friability, and ulceration (Magro et al., 2020; Harbord et al., 2017)
Clinical note	–	Variability and non-specificity of presenting complaints often delayed accurate diagnosis; consistent pattern of joint pain with abdominal or hepatobiliary discomfort observed

Therapeutic Approaches in the Modern Era

Contemporary management of UC involves a wide range of pharmacological agents; however, these therapies are predominantly symptomatic and pathogenetic rather than truly etiological. Immunomodulatory therapy occupies a central role in current treatment paradigms.

Recent advances have introduced second-generation targeted immunomodulators, particularly Janus kinase (JAK) inhibitors such as:

- Tofacitinib
- Upadacitinib
- Filgotinib

These agents have demonstrated high efficacy in inducing and maintaining remission in moderate-to-severe UC, as evidenced by multiple randomized controlled trials (Sandborn et al., 2017; Panés et al., 2018).

Compared to earlier immunomodulatory agents such as thymalin, which was used in the late 20th century, these newer therapies offer significantly improved clinical outcomes due to their targeted mechanisms of action. Nevertheless, as noted by the authors, these modern agents have not yet been

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implemented in their clinical practice and therefore require further evaluation in their patient population.

Therapeutic Strategy and Clinical Outcomes

In the management of patients under our supervision diagnosed with Ulcerative Colitis, we consider it essential to emphasize not only systemic therapy but also the significant role of local (topical) treatment modalities. In our view, optimal therapeutic outcomes in UC require a combined approach integrating both systemic and localized interventions.

The rationale for local therapy is supported by the pathophysiological involvement of the distal intestinal tract. Inflammation affecting the lower third of the small intestine, together with colonic mucosal injury and irritation—manifesting as increased stool frequency, tenesmus, and urgency—often leads to secondary involvement of the rectum and particularly the anal region. Under these conditions, the application of local pharmacotherapy becomes a clinical necessity.

It should be noted that this approach is not entirely novel. Local microenema-based therapies have been utilized since the mid-20th century in the complex treatment of intestinal infections, demonstrating favorable clinical outcomes. However, our proposed modification involves the incorporation of immunomodulatory agents—specifically methyluracil—into topical formulations. We hypothesize that the administration of such agents in combination with oil-based preparations via microenemas enhances local mucosal immunity and promotes epithelial regeneration, thereby facilitating mucosal healing.

Systemic (general) treatment, on the other hand, may include the use of immunomodulatory drugs, anti-inflammatory agents targeting colonic inflammation (e.g., aminosalicylates, corticosteroids), and supportive medications aimed at reducing stool frequency and improving stool consistency. These approaches are consistent with current internationals guidelines for UC management (Lichtenstein et al., 2020; Kobayashi et al., 2020).

Importantly, in the comprehensive management of UC patients, careful attention must also be paid to comorbid conditions, which may influence disease course and therapeutic response. Overlooking associated diseases may compromise overall treatment effectiveness.

In our clinical cohort, the simultaneous initiation of both systemic and local therapies resulted in favorable outcomes. Specifically, the combined administration of immunomodulators via oral (per os) and rectal (per rectum) routes was associated with:

- Increased rates of clinical improvement
- Prolongation of remission periods
- Reduction in relapse frequency, particularly during seasonal peaks (spring and autumn), when exacerbations are commonly observed

These findings suggest that dual-route immunomodulatory therapy may represent a promising strategy in UC management, although further controlled studies are required to validate these observations.

Conclusion

Thus, the treatment of UC, a disease characterized by a multifactorial (polyetiological) etiology, remains one of the major challenges in modern medicine. The absence of a clearly defined etiological pathway complicates the development of definitive curative therapies. While the introduction of newer-generation immunomodulators has significantly improved clinical outcomes—leading to faster symptom control and prolonged remission—achieving complete and sustained cure remains difficult.

Future research should focus on targeted therapies addressing underlying immunological and microbiome-related mechanisms, as well as personalized treatment strategies tailored to individual patient profiles.

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Proposed Therapeutic Perspective

The therapeutic approach proposed in this study may contribute to the development of a novel perspective in the management of Ulcerative Colitis. Based on diagnostic confirmation through colonoscopy and computed tomography, the identification of localized mucosal lesions—such as ulcers and erosions—highlights the importance of early initiation of targeted local therapy to prevent severe complications, including perforation.

Within this context, our findings support the necessity of *simultaneous initiation of both systemic and local treatment strategies.* Colonoscopic and radiological evidence of mucosal damage provides a clear rationale for early intervention at the site of inflammation, thereby improving therapeutic precision and effectiveness (Magro et al., 2020; Kobayashi et al., 2020).

Specifically, the combination of systemic administration of second-generation immunomodulatory agents with localized delivery via microenemas—augmented by the addition of immunomodulators such as methyluracil—appears to offer significant clinical advantages. This dual-route therapeutic model is hypothesized to:

- Accelerate mucosal healing
- Reduce the overall duration of active disease
- Prolong remission periods
- Decrease the frequency of disease relapse

These observations are consistent with emerging evidence emphasizing the importance of targeted and localized drug delivery systems in inflammatory bowel diseases, particularly for distal colonic involvement (Lichtenstein et al., 2020; Sandborn et al., 2017).

Thus, the integration of systemic and local immunomodulatory therapies may represent a promising advancement in UC treatment paradigms. However, further large-scale, controlled clinical studies are necessary to validate the efficacy and safety of this combined approach.

Declaration of Competing Interests

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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Social Media and Mental Health

Abstract

Social media has changed the way people communicate and interact with each other, and has incredibly accelerated access to information, events around us, and the world. With the spread of social media, people's perceptions of one another, relationships, approaches, and the world have undergone significant transformations. Consequently, research on how and in what form this transformation affects individuals' mental health has become increasingly widespread. One of the reasons for the widespread adoption of these networks, which have quickly become an integral part of our daily lives and have millions of users, may be that they provide platforms where young people are less pressured by social and environmental factors and can express themselves more freely. People who carry small worlds in their pockets and bags use social media to signal their presence and alleviate the burden of stress in their daily lives. On the other hand, social media makes individuals feel that life is passing them by. It traps people who live in fear of not being able to keep up with what is happening on their tablet, computer, or smartphone screens, affecting academic performance, work life, sleep, and many other areas. It separates emotions and thoughts from reality by making them virtual, distances individuals from each other, and leads to loneliness, increases mental fatigue, encourages increased use through positive feedback received in a short time, and thus makes the existence of the individual and the virtual self he creates dependent on the presence and existence of other users.

Keywords: *mental health, social media, depression, anxiety, psychiatric diseases, personality psychology*

Introduction

Mental health is an important aspect of human well-being, but it is often neglected and stigmatized. According to the World Health Organization (WHO), the prevalence of mental health problems is increasing by 13% per year (Beyari, 2023). Anxiety and depression are the most common mental health problems, affecting 264 million and 280 million people worldwide, respectively.

In addition, an estimated 269 million people struggled with drug and substance abuse as of the end of 2018 (United Nations Office on Drugs and Crime, 2020).

These numbers are likely to continue to rise due to a variety of factors. Among these, the increasing use of technology-especially social media-plays a significant role in the rise of mental health problems. Social networking sites are online platforms where individuals can create personalized profiles, manage privacy settings to control who sees their content, and interact with others by sharing and viewing posts.

The first social networking site, SixDegrees, was founded in 1997, inspired by the idea that people are connected through six degrees of separation. This concept, known as the “small world hypothesis,” posits that anyone can be linked to another person in just six steps through their network of acquaintances, even virtually. Social media refers to applications that enable users to interact by creating and exchanging media, text, and making calls within a digital network. Examples of social media platforms include Facebook, Twitter, Instagram, and TikTok. In this study, the primary social media tools examined are private conversations, group chats, advertisements, media sharing, calls, likes, comments, and pages. Research has identified a connection between social media use and poor sleep patterns, depression, and anxiety (Meier & Reinecke, 2020).

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Additionally, studies have highlighted the negative impact of excessive social media use on the mental health of young people (Duradoni et al., 2020).

Methods

Social media, as an alternative communication tool, stands out from traditional media and allows users to freely fulfill their news needs whenever and wherever they want. These platforms allow for quick, objective assessment of news while also creating opportunities for free sharing of news not covered in traditional media. Social media, unlike traditional media, is a low-cost communication channel with a wide reach. Their ease of use and the possibility of rapid change have led to greater use of these platforms among young people. Young people, in particular, can achieve various goals at both societal and individual levels through social media. Therefore, young people have quickly mastered these platforms and used them intensively. Although social media offers various benefits, such as obtaining information, communication, and socialization, it also has negative effects.

We can classify the benefits of social media as follows:

Rapid communication and information sharing: Social media allows individuals to communicate with people anywhere in the world within seconds. For example, We Are Social and Hootsuite's Digital 2024 report highlights that social media platforms are among the most widely used tools for communication (Digital 2024 Report, 2024). This feature has important functions, especially in disaster situations, such as emergency response and coordination.

Access to information and contribution to education: Social media enables students and teachers to quickly access educational materials. A study by Ellison et al. (2007) highlighted the educational benefits of social networks, stating that they promote information sharing and collaboration among students (Ellison et al., 2007). In addition, these platforms are effective tools for learning about current events worldwide.

Social assistance and solidarity: Social media also acts as a platform for mutual assistance and solidarity. UNICEF's report "Children in a Digital World" states that donation campaigns carried out through social media strengthen the sense of mutual assistance among young people (UNICEF, 2025). For example, the rapid provision of urgently needed materials after natural disasters clearly demonstrates social media's role in this function.

Self-expression and freedom: Boyd (2014) argues that social media offers young people a space to express themselves more freely. These platforms let users share ideas and artwork, yet this freedom is still limited. Social media, now part of daily life, can positively impact access to information, communication, and socialization. It also supports education and training, especially among youth. Finally, social media can foster empathy, compassion, cooperation, and solidarity.

However, these benefits should be utilized deliberately and responsibly. Although social media provides distinct advantages, improper usage can significantly harm young people. The harms of social media can be categorized as follows: Adverse effects on personality development: excessive social media use can stunt personality development in young people. Danah Boyd's study "It's Complicated" observes that young individuals often explore alternate identities on social media, which detracts from authentic personality development (Boyd, 2014).

Loss of privacy: One significant disadvantage of social media is the loss of privacy. Kuss and Griffiths (2017) emphasize that young people's tendency to share personal information on social media creates a platform for malicious actors to misuse it (Kuss & Griffiths, 2017). This situation poses a threat to both personal safety and psychological health. Information pollution and misdirection: The rapid spread of misinformation through social media creates a toxic environment. Reports from the Pew Research Center show that a large proportion of users are exposed to unverified information, which negatively affects people's thinking processes. This can lead to misdirection, especially in young people's decision-making. Reversal of socialization: Although social media is seen as a tool for socialization, its excessive use can isolate individuals. Turkle (2011), in his book "Alone Together," states that social media encourages virtual relationships rather than face-to-face ones, which can lead individuals to become antisocial (Turkle, 2011).

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Popularity and imitative behavior: young people may distance themselves from themselves to be popular on social media. They may start to doubt their own worth by taking the users they follow as examples. This situation may cause individuals to shape themselves to meet others' expectations. Social media plays an undeniable role in our lives. Its benefits can be maximized, and its harms minimized only through conscious use. This requires parents and educators to take significant responsibility for how young people use social media. To effectively address related challenges, it is crucial to offer comprehensive guidance, provide digital literacy training, and establish time limits for use. The widespread use of social media makes it necessary to consider both its positive and negative aspects. The guidance of parents and educators is very important for young people to use social media consciously. Controlled and balanced use can ensure that young people benefit from its positive aspects while protecting them from its negative effects. Social media, which presents an attractive world for young people who encounter both positive and negative experiences, can have negative effects when used excessively. Social media addiction is also among these harms. Kuss and Griffiths (2017) state that the use of social media can create addiction in individuals, especially during adolescence (Kuss & Griffiths, 2017). This addiction is observed in young people with a desire to be constantly online and a tendency to increase the time they spend on social media. Social media addiction can reduce academic performance, disrupt sleep patterns, and distract young people from their daily lives. Dopamine release from instant feedback—such as likes, comments, and shares—encourages young people to stay in this cycle. The design features of social media platforms contribute to this addiction. For example, Boyd (2014) states that social media applications are deliberately created to increase user time spent on them (Boyd, 2014). As a result, young people may disconnect from real-world relationships and create idealized virtual identities. Loneliness, depression, and anxiety are psychological problems that social media addiction can intensify.

Researchers have found that social media influencers significantly harm the mental health of social media users by presenting unrealistic standards and lifestyles (Li et al., 2021). Advertisements are the core of most social networking platforms, and users have to accept them alongside their digital social lives. Advertisements shape young people's psychology and opinions on these platforms because they reach large audiences (Staniewski & Awruk, 2022). An advertisement depicting a muscular person may depress a social media user who lacks similar body features. Similarly, advertisements featuring tall girls may have a negative psychological impact on young girls due to social projection.

Results

The sharp rise in social media use has contributed to a significant increase in social media addiction and mental health challenges among young people. This strong correlation often diminishes motivation to seek psychological support, causing addiction severity to worsen. Analyses of the psychological and social effects of social media use across various categories have consistently found negative outcomes for young people's mental health. Symptoms such as depression, anxiety, loneliness, and low self-esteem have become increasingly prominent. Young people often consult psychologists for academic failure, disrupted relationships with family and friends, and mood instability. Most do not seek help explicitly for "social media addiction." Instead, they present with symptoms that are indirectly related. When asked, "What psychological problems arise in young people who use social media more?", data indicated more than depression and low self-esteem. It also revealed diminished self-perception compared to idealized online portrayals, heightened anxiety, loneliness, social isolation, experiences of peer violence, attention deficit disorder, and sleep disturbances. The question “Does the frequency and duration of social media use affect the psychological health of young people?” shows that as the duration of social media use increases, so do psychological health problems. According to the DSM-5 addiction criteria, the risk of developing addiction increases with the duration of social media use. Attention deficit, stress, depression, and social anxiety disorders are more commonly observed in young people who spend a long time on social media. It has been observed that social media reduces academic performance and causes sleep

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disorders. The idealized lives shared on social media platforms lead individuals to inadequately evaluate their own lives and to reduce their self-esteem. Indicators such as the number of likes and followers directly affect people's mood, and depression tendencies increase due to popularity anxiety. Negative comments, isolation, and threats made on social media platforms can cause young individuals to lose self-confidence and psychological trauma. Victims of cyberbullying experience problems such as depression, anxiety, and social isolation due to the pressures they are exposed to on social media. The extended family's involvement significantly shapes recovery for individuals facing mental health challenges in many cultural groups.

In low- and middle-income countries, the lack of family support can lead to the individual being completely neglected, and there may be a lack of social support from the state, which acts as a safety net (Gopalkrishnan & Babacan, 2015). In this case, social media platforms pose a greater risk for adolescents.

Discussion

Analysis of the data suggests social media offers advantages but also poses risks when used irresponsibly. The rapid flow of information on these platforms makes it difficult to monitor and control misinformation, which can compromise privacy and threaten personal data security. The lack of clear sources for shared content can also lead to the spread of inaccurate information. Research shows a strong link between university students' social media use on phones and increased feelings of loneliness and depression. Habitually checking social media often reduces face-to-face interaction and leads to greater focus on digital devices, encouraging social withdrawal and weakening relationships. This pattern can raise levels of depression and loneliness. It is important to recognize individual differences: no single amount of time, frequency of checking, or number of posts defines unhealthy use. The key factors are how social media affects mood, daily functioning, and the underlying motivations for engagement. For instance, problematic social media use can lead individuals to neglect face-to-face relationships or become distracted from work or academic responsibilities. It may also evoke negative emotions such as jealousy, anger, or depression. It is advisable to reassess social media habits if usage patterns emerge, such as turning to social media when feeling bored or lonely, or posting content with the intent to provoke jealousy or distress in others.

Social media use has been linked to increased rates of anxiety and depression, particularly among adolescents and young adults. The addictive qualities of social media stem from its activation of the brain’s reward center through the release of dopamine, a neurotransmitter associated with pleasurable activities. Receiving “likes” or positive feedback on posts provides a temporary dopamine boost, reinforcing social media engagement. Conversely, the absence of such approval can negatively impact self-esteem and perceived self-worth. Additionally, social media emphasizes physical appearance. Platforms such as Snapchat, Instagram, and TikTok offer filters that allow users to alter their images. While filters can be entertaining, the ease of modifying physical features can foster unrealistic standards and false perceptions. Prolonged exposure to digitally altered images may contribute to dissatisfaction with one’s own appearance.

Checking in on others on social media can give the impression that they are having more fun or living a better life. Social media is often called a “highlight reel,” which reflects the best parts of a user’s life. However, having access to others’ highlight reels can increase feelings of dissatisfaction with our own daily lives. This affects self-esteem, causes anxiety, and makes us want to use social media more. Future research on the potential effects of online social networks on mental health can be expected to face a number of challenges. First, many authors who have investigated this issue so far have used a cross-sectional research design, followed by correlational analysis. Correlation does not necessarily imply causation. For example, Facebook use may be related to lower self-esteem, but it could also mean that people with low self-esteem use Facebook more frequently. In other words, it is very difficult, and sometimes impossible, to conclude which variable is the cause and which is the effect. Finally, data from experimental studies will allow us to draw precise conclusions about this relationship. It should be noted that most research on social networks and mental health has been

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conducted with healthy populations (e.g., high school, university, and adolescent students). For example, when it is said that "time spent on social networks is associated with depression," the authors usually mean that this time is associated with physiological mood (measured by various psychological scales) rather than depression. To our knowledge, no such study has been conducted among psychiatric patients. Therefore, the possible relationship between social networks and mental health problems can only be discussed in terms of normal physiological (psychophysiological) variations in mental functions.

Conclusion

There are many AI tools available. We know that elementary school children use AI to do their homework. We know a few people's phone numbers by heart. We don't even need to remember the parking space number when we park our car. People write it down in the program, thinking they might forget. In short, all this tells us that we no longer think about even the simplest tasks, that we are not using our brains − a miraculous organ whose secrets are still being discovered - and that our skills are atrophying. All this poses serious risks not only for children and young people, but also for adults.

On the other hand, digital technologies like the internet and social media make life easier. Thus, completely distancing oneself from the digital world is not a feasible solution to avoid risks. Instead, we can learn about the long-term effects of digital technology and social media, and regulate their use so they do not dominate our lives. Families have a key responsibility, especially for young people. If children and young people lack healthy relationships and communication with their families, they cannot meet their needs for belonging and visibility.

However, social media offers very easy ways to meet these needs. Young people may join dangerous groups to which they feel they belong to satisfy emotional needs that cannot be met through family relationships, or they may get involved in meaningless activities to avoid being seen. Considering how planned and organized these dangerous groups are, one can imagine how easily these young people can become their captors. Therefore, families should make their children feel loved and supported, build their children's confidence, talk to them, and help their children engage in meaningful activities.

As digital mental health advances, the broad reach, easy access, and popularity of social media can provide evidence-based treatment and support for those needing mental health services or experiencing mental illness. To close global mental health gaps, researchers and clinical psychologists must work together to weigh the benefits and risks of social media use.

Declaration of Competing Interests

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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