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## **DIGITAL VIOLENCE AGAINST PRIMARY CARE PHYSICIANS: FORMS, RISK FACTORS, CONSEQUENCES, AND STRATEGIES FOR PREVENTION AND RESPONSE**

**Abstract.** The digital transformation of the healthcare system in Ukraine has substantially changed the professional activity of primary care physicians, expanding opportunities for communication with patients, access to information, care navigation, and continuity of follow-up. At the same time, the active introduction of electronic services, patient portals, messaging applications, social media, public review platforms, and remote interaction channels has created a new range of occupational risks, among which digital violence occupies a particularly important place. This issue is especially relevant for primary care physicians, as they remain in long-term and repeated contact with patients and their family members, serve as the first point of entry into the healthcare system, coordinate the patient pathway, and frequently communicate decisions that may conflict with patient expectations.

The aim of this article is to systematise current scientific evidence on digital violence against primary care physicians, clarify its conceptual boundaries, analyse its principal forms, channels of manifestation, risk factors, and consequences, and identify directions for prevention and organisational response. The literature review showed that digital violence against primary care physicians includes abusive messages in electronic communication channels, public humiliation on social media, discrediting campaigns, dissemination of false information, threats, sexualised and discriminatory remarks, harassment, and the unlawful disclosure of personal data. It adversely affects the psycho-emotional well-being of healthcare professionals and increases the risk of anxiety, chronic stress, emotional exhaustion, occupational burnout, self-censorship, avoidance of public professional presence, and reduced job satisfaction.

Of particular concern is the ability of digital aggression to extend beyond working hours and beyond the physical space of the healthcare facility, thereby blurring the boundaries between a physician's professional and private life and weakening the workforce resilience of the primary care sector. It is argued that digital violence should be regarded as an independent form of occupational violence against healthcare workers. Promising directions for counteraction include institutional recognition of this problem, a zero-tolerance policy towards aggression, algorithms for

documenting and responding to digital incidents, legal and psychological support for affected staff, training in digital safety, improvement of the rules governing online communication with patients, and further research into prevalence, risk factors, and the effectiveness of preventive interventions in primary care.

**Keywords:** digital violence, primary care physicians, family medicine, primary care, cyberbullying, workplace violence, occupational burnout, social media, patient portals, digital safety.

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## ЦИФРОВЕ НАСИЛЬСТВО ЩОДО ЛІКАРІВ ПЕРВИННОЇ МЕДИЧНОЇ ДОПОМОГИ: СУЧАСНИЙ СТАН ПРОБЛЕМИ, НАСЛІДКИ ТА НАПРЯМИ ПРОТИДІЇ

**Анотація.** Цифрова трансформація системи охорони здоров'я в Україні істотно змінила професійну діяльність лікарів первинної медичної допомоги, розширивши можливості комунікації з пацієнтами, доступу до інформації, маршрутизації та безперервного супроводу. Водночас активне впровадження електронних сервісів, пацієнтських порталів, месенджерів, соціальних мереж, платформ публічних відгуків і дистанційних каналів взаємодії сформувало новий спектр професійних ризиків, серед яких особливе місце посідає цифрове насильство. Для лікарів первинної медичної допомоги ця проблема є особливо актуальною, оскільки саме вони перебувають у тривалому та повторному контакті з пацієнтами й членами їхніх родин, виконують роль першої точки входу до системи охорони здоров'я, координують маршрут пацієнта і часто комунікують рішення, що можуть суперечити очікуванням пацієнта. Метою статті є систематизація сучасних наукових даних щодо цифрового насильства стосовно лікарів первинної медичної допомоги, уточнення його понятійних меж, аналіз основних форм, каналів реалізації, чинників ризику та наслідків, а також визначення напрямів профілактики й організаційного реагування. Аналіз літератури показав, що цифрове насильство щодо лікарів ПМД охоплює образливі повідомлення в електронних каналах, публічне приниження у соціальних мережах, дискредитаційні кампанії, поширення неправдивої інформації, погрози, сексуалізовані й дискримінаційні висловлювання, переслідування та незаконне поширення персональних даних, негативно впливає на психоемоційний стан медичних працівників, підвищує ризик тривоги, хронічного стресу, емоційного виснаження, професійного вигорання, самоцензури, уникання публічної професійної присутності та зниження задоволеності працею. Особливу небезпеку становить здатність цифрової агресії виходити за межі робочого часу і простору

закладу, що сприяє розмиттю меж між професійним і приватним життям лікаря та послабленню кадрової стійкості первинної ланки. Обґрунтовано, що цифрове насильство слід розглядати як самостійну форму професійного насильства щодо медичних працівників. Перспективними напрямками протидії є інституційне визнання цієї проблеми, політика нульової толерантності до агресії, алгоритми фіксації та реагування на цифрові інциденти, правова й психологічна підтримка постраждалих працівників, навчання цифровій безпеці, удосконалення правил онлайн-комунікації з пацієнтами та подальші дослідження поширеності, чинників ризику й ефективності профілактичних втручань у сфері первинної медичної допомоги.

**Ключові слова:** цифрове насильство, лікарі первинної медичної допомоги, сімейна медицина, первинна медична допомога, цифрове цькування, робоче насильство, професійне вигорання, соціальні мережі, пацієнтські портали, цифрова безпека.

Problem statement in general terms and its connection with important scientific and practical tasks. Violence against healthcare workers has long ceased to be a problem confined to hospitals, emergency departments, or psychiatric services. Over the past decade, it has increasingly assumed digital forms and has been enacted through social media, messaging applications, email, patient portals, review platforms, remote consultation services, and other channels of online communication [1, 2]. According to the World Health Organization, up to 62% of healthcare workers experience various forms of workplace violence during their professional careers, with verbal abuse, threats, and harassment predominating among non-physical forms [1]. The WHO Regional Office for Europe reports that approximately one in three doctors or nurses in Europe experienced bullying or violent threats at work during the previous year, and that unsafe working conditions are directly associated with poorer mental health outcomes, sickness absence, and intentions to leave the profession [2].

For primary care physicians, this issue is especially acute. It is at the primary care level that the longest and most frequent contact with patients and their families is established; it is here that matters of referral, prescribing, temporary incapacity for work, vaccination, long-term follow-up, chronic disease management, mental healthcare, and palliative support are addressed. The role of the primary care physician as the coordinator of the patient pathway, while at the same time being the most accessible representative of the healthcare system, increases the likelihood of conflict when clinical or organisational decisions do not align with patient expectations [5, 6].

Despite its obvious benefits, the digitalisation of primary care has created new channels for around-the-clock pressure on physicians: aggressive messages through patient portals, public humiliation on social media, defamatory reviews, coordinated discrediting campaigns, sexualised or discriminatory comments, threats of violence, and the dissemination of personal data. Such actions affect not only the mental well-being of an individual physician, but also the quality of communication, team

interaction, trust in the doctor–patient relationship, and the workforce stability of primary care [6, 8–14]. For this reason, digital violence should be recognised as a distinct scientific, organisational, and managerial challenge for contemporary healthcare.

Review of recent research and publications that have initiated the resolution of this problem and on which the author relies, with identification of previously unresolved aspects of the general problem addressed in this article. The number of studies devoted to violence against healthcare workers has increased substantially in recent years. Systematic reviews and meta-analyses show that, on a global scale, non-verbal and verbal psychological violence, verbal abuse, threats, and harassment remain the most common forms, while the COVID-19 pandemic further exacerbated the problem [3, 4, 12, 16]. An umbrella review published in 2023 highlighted the considerable variability in prevalence estimates depending on study design, while at the same time confirming the consistency of the overall pattern: violence against healthcare workers is a widespread phenomenon with marked psychological and organisational consequences [4].

The literature specifically devoted to primary care is far more limited; however, recent studies already make it possible to delineate the specific features of violence in this setting. A 2023 systematic review focusing on the global primary care workforce showed that the prevalence of violent incidents in this sphere varies widely, ranging from 45.6% to 90%, with verbal abuse and other non-physical manifestations of aggression being the most common forms [5]. A 2024 narrative review on primary care clinicians emphasised that workplace violence in this setting is no longer confined to traditional interpersonal conflict and increasingly includes online threats, harassment, public humiliation, racist comments, sexual harassment, and reputational attacks [6].

A distinct body of recent publications concerns violence and bullying in the digital environment. The problem lies in the fact that authors use different terms — *digital violence*, *cyberbullying*, *online aggression*, *digital incivility*, and *digital harassment* — without always clearly defining the boundaries between these concepts [9, 14]. A 2025 systematic review explicitly pointed to the fragmented nature of measurement tools and the absence of unified standards for assessing cyberbullying among healthcare workers [14]. This conceptual ambiguity complicates comparisons between studies and hinders the development of coherent preventive strategies.

Studies addressing specific channels of digital aggression are also important. A survey of physicians in the United States showed that 23.3% of respondents had been subjected to personal attacks on social media, while approximately one in six women physicians reported online sexual harassment [8]. Research into written aggression in patient portals demonstrated that text messages may contain insults, accusations, ultimatums, and threats, thereby effectively functioning as a digital analogue of verbal workplace violence [9]. Analysis of messages within electronic medical systems likewise revealed the presence of profane language and violence-related words in the stream of communications directed at physicians [10].

This article is based on a narrative review of publications indexed in PubMed/MEDLINE, as well as relevant documents issued by the World Health Organization and the WHO Regional Office for Europe, published predominantly between 2019 and 2026. The analysis included systematic reviews, meta-analyses, narrative reviews, and qualitative and quantitative studies addressing violence against healthcare workers, primary care, online aggression, harassment in the digital environment, and electronic communication with patients.

The search was conducted using combinations of the following terms: *workplace violence*, *cyberbullying*, *online harassment*, *primary care*, *family medicine*, *patient portal messages*, and *social media abuse*. Priority was given to studies examining non-physical and digital forms of aggression, as well as research relevant to outpatient and primary care settings. Publications dealing exclusively with physical violence without describing psychological or digital manifestations, as well as studies without a sufficiently clear link to the professional healthcare environment, were excluded. This approach made it possible to combine general patterns of violence against healthcare workers with evidence most relevant to the primary care context.

Despite the evident growth of scientific interest, a number of aspects remain insufficiently studied. There is a lack of research specifically focused on primary care physicians rather than healthcare workers in general; there is no established definition of digital violence in the medical environment; there is insufficient evidence regarding organisational, legal, and technological mechanisms of counteraction; and data remain limited on the impact of digital aggression on the workforce resilience of primary care within specific national healthcare systems. These unresolved issues are precisely those to which the present article is devoted.

The aim of this article is, on the basis of a narrative review of the contemporary literature, to clarify the conceptual boundaries of digital violence against primary care physicians, systematise its principal forms, channels of manifestation, risk factors, and consequences, and outline practice-oriented directions for prevention and organisational response.

**Presentation of the main research material with full substantiation of the scientific findings obtained.** Conceptual differentiation is fundamentally important for the correct analysis of this problem. In the contemporary literature, the terms *digital violence*, *cyberbullying*, *online aggression*, *digital incivility*, and *digital harassment* are often used interchangeably, although they are not exact synonyms. *Cyberbullying* usually refers to repeated hostile behaviour, whereas *digital violence* is more appropriately regarded as a broader concept that also encompasses single but potentially serious incidents.

The notion of *digital incivility*, in turn, denotes a wider spectrum of breaches of communicative norms and does not always imply a clear intent to cause harm. For this reason, in the professional environment of primary care it is more appropriate to use the broader category of *digital violence*, as it better reflects the clinical, ethical, legal, and organisational dimensions of the problem [9, 14].

In this article, digital violence against a primary care physician is proposed to be understood as a set of intentional aggressive, humiliating, discriminatory, sexualised, threatening, or harassing acts carried out through digital channels of communication in connection with the physician's professional activity and causing, or capable of causing, psychological, social, professional, or physical harm. This working definition is broader than the concept of cyberbullying, as it encompasses not only repeated hostile behaviour but also single high-risk incidents — for example, the publication of personal data, targeted discrediting campaigns, or direct threats of violence [1, 6, 14].

On the basis of the literature, it is reasonable to distinguish at least five interrelated forms of digital violence against primary care physicians: 1) direct interpersonal aggression in closed electronic channels; 2) public reputational aggression in the open digital space; 3) harassment and escalation across more than one digital channel; 4) violations of privacy through the dissemination of personal data; and 5) sexualised and discriminatory aggression. This classification is of practical value because different forms of digital violence require different response tools — ranging from moderation of communication channels and technical filters to legal support and the involvement of law enforcement agencies [6, 8, 9, 14].

**Table 1****Forms of digital violence against primary care physicians, typical channels, and consequences**

| <b>Form</b>                                  | <b>Typical channel</b>  | <b>Examples of manifestations</b>   | <b>Potential consequences</b>   |
|--|---|---|---|
| <b>Direct written aggression</b>             | Patient portals, email, messaging applications                | Insults, accusations, ultimatums, threats                                   | Emotional distress, exhaustion, avoidance of electronic communication |
| <b>Public reputational aggression</b>        | Social media, review platforms, open forums                   | Public humiliation, discrediting, false negative reviews                    | Self-censorship, reduced professional visibility, reputational losses |
| <b>Harassment in the digital environment</b> | Multiple platforms simultaneously, private messages, comments | Intrusive repeated contact, coordinated attacks, surveillance               | Anxiety, sense of danger, risk of escalation into offline conflict    |
| <b>Violation of privacy</b>                  | Public posts, chats, review websites                          | Dissemination of personal data, photographs, contact details, place of work | Risk of physical harm, need for legal protection                      |

| <b>Form</b>                                     | <b>Typical channel</b>           | <b>Examples of manifestations</b>                   | <b>Potential consequences</b>                                       |
|---|----------------------------------|---|---|
| <b>Sexualised and discriminatory aggression</b> | Social media, messages, comments | Sexual harassment, racist or discriminatory remarks | Psychological traumatisations, withdrawal from public communication |

The vulnerability of primary care physicians to digital violence can be explained by a combination of clinical, communicative, and organisational factors. First, primary care is based on long-term and repeated interactions with patients and their family members, which increases the likelihood of accumulated mutual frustration. Second, it is the primary care physician who most often communicates the limitations of the system: the absence of an indication for antibiotics, the impossibility of immediate referral, the need to wait, changes in therapy, and issues relating to vaccination, pain control, or mental healthcare. Third, the digitalisation of primary care has sharply increased the volume of electronic interaction and, consequently, the number of potential points of conflict [5, 6, 10, 11].

One of the most typical forms of digital violence is written aggression in clinical communication channels. A study of messages that nurses forwarded as abusive or as causing marked distress showed that the most traumatic were personal attacks, accusations, ultimatum-like demands, and threats [9]. This is of particular importance in primary care, where electronic correspondence with patients is increasingly becoming a routine component of daily work. Unlike a spoken conflict, a written message is preserved, can be reread, forwarded, copied, and used for further escalation, thereby leaving a more lasting psychological impact [9, 10].

Another critical channel is social media. For the primary care physician, social media may serve as a tool for health education, professional self-presentation, scientific communication, and engagement with the community. However, public visibility increases the risk of personalised attacks. Qualitative and quantitative studies describe false negative reviews, coordinated bullying, sexualised messages, threats of rape or death, appeals to employers demanding punishment of the physician, and the dissemination of personal information [8, 12, 13]. All of this turns digital visibility into a space of potential professional danger.

A significant feature of digital violence is its capacity for escalation and for blurring the boundaries between professional and private space. Whereas in the traditional model a conflict often ends once the patient leaves the consulting room, in the digital format pressure may continue around the clock, intrude into time outside work, and multiply through reposts, screenshots, comment chains, and the involvement of third parties [12, 13]. For the primary care physician, this is particularly dangerous in relation to vaccination, addiction, reproductive health, mental health, chronic pain, and other socially polarised issues, where a medical position often comes into conflict

with intense emotions and distrust. The consequences of digital violence may be considered on at least three levels. At the individual level, these include anxiety, emotional exhaustion, irritability, sleep disturbances, somatic distress, and a reduced sense of safety and professional confidence. At the professional level, they include avoidance of difficult topics in communication, self-censorship, withdrawal from public presence, restriction of educational activity, a greater tendency towards defensive medicine, and lower job satisfaction. At the systemic level, they include deterioration of team climate, the loss of publicly active physicians, weakened workforce resilience, and a reduced capacity of primary care to exercise leadership within the community. Accordingly, the available evidence suggests that digital violence should be viewed not only as an individual psycho-emotional problem, but also as a factor capable of affecting the quality of communication, trust in medical care, and the sustainability of workforce provision in primary care [2, 6, 12–14].

It is also important to take into account the unequal distribution of risk. Women in healthcare more often encounter sexualised forms of harassment; representatives of stigmatised ethnic or racial groups face attacks related to origin, appearance, or accent; and highly visible physicians are at greater risk of coordinated reputational attacks [8, 13, 17]. Organisational responses must therefore be not only universal, but also sensitive to the gendered and discriminatory dimensions of digital aggression.

A further problem is the under-reporting of incidents. In primary care, a substantial proportion of non-physical aggression is not recorded at all because of the belief that “nothing will change”, the absence of a clear procedure, unwillingness to spend time on reporting, shame, or fear of escalation [5, 6]. In the case of digital violence, an additional factor arises: it is often not perceived as “real” workplace violence, especially if the incident occurs in the evening, at home, or on a private page. Yet it is precisely this apparent status of being “outside work” that makes the problem so insidious, because digital channels have in fact become an extension of the professional space.

As regards counteraction, the analysis of the literature provides grounds for speaking of a multi-level model of response. At the organisational level, effective prevention of violence requires a zero-tolerance policy towards all forms of aggression, explicitly covering social media, patient portals, email, messaging applications, public reviews, and other digital channels [1, 2, 15]. A primary care facility should have a clear algorithm for documenting incidents, preserving evidence, escalating cases involving threats, informing managers, involving legal services, and, where necessary, notifying law enforcement agencies.

At the technological level, appropriate tools include systems for the early detection of aggressive messages, such as filters for offensive language, automated flagging of high-risk content, separate folders or buffers for toxic messages, centralised moderation of some patient communications by administrative staff, template boundary-setting responses, and minimisation of the publication of physicians’ personal data on open resources [9, 10]. For patient portals, the introduction of rules of

use and warning notices prior to message submission appears promising. Such measures do not replace organisational policy, but they may reduce the physician's direct exposure to abusive content.

At the individual and team level, important measures include training in digital safety, privacy settings, algorithms for responding to online harassment, skills in documenting incidents, establishing boundaries in online communication with patients, and psychological support for affected staff. However, the available reviews indicate that training alone cannot be considered a sufficient response: it may improve staff knowledge and attitudes, but evidence of a real reduction in the level of aggression remains limited [15]. Training should therefore form part of a broader safety system rather than replace it.

A synthesis of the literature makes it possible to argue that digital violence against primary care physicians is not an accidental side effect of digitalisation, but a new and persistent form of occupational risk. It emerges at the intersection of the mass transition to electronic communication, the growing public visibility of healthcare workers, the low threshold for anonymous aggression, social polarisation around medical issues, and the high emotional burden inherent in primary care. This is where the problem has not only practical but also conceptual significance: digital violence should be regarded not merely as a variant of interpersonal conflict, but as a factor weakening the workforce resilience of primary care and limiting its communicative and educational potential.

The present review has several limitations. First, the terminology used in this field remains heterogeneous, which makes direct comparison of findings across different studies difficult. Second, a substantial proportion of the available evidence concerns healthcare workers in general, whereas studies specifically focused on primary care physicians remain insufficient. Third, the literature lacks validated instruments for measuring digital violence and standardised approaches to its recording. Accordingly, some of the conclusions of this article are based on a combination of direct evidence relating to primary care and the broader evidence base on violence against healthcare workers.

Conclusions from this study and prospects for further research in this area.

**1.** Digital violence against primary care physicians should be regarded as an independent form of occupational violence that is enacted through electronic channels of communication and encompasses direct written aggression, public humiliation, reputational attacks, harassment, violations of privacy, as well as sexualised and discriminatory forms of abuse.

**2.** The specific features of primary care — long-term doctor–patient relationships, high intensity of communication, the coordinating role of the family physician, and the growing proportion of electronic contacts — increase the vulnerability of this sector to digital aggression and its cumulative consequences.

**3.** The available evidence suggests that digital violence is associated not only with psycho-emotional distress and occupational burnout, but also with self-

ensorship, withdrawal from public professional activity, deterioration in communication, and weakening of the workforce resilience of primary care.

4. The scientific evidence base on this topic remains fragmented: there is a lack of an established conceptual framework, validated measurement tools, and studies focused specifically on primary care physicians and on particular national contexts. This determines the need for further standardisation of terminology, indicators, and approaches to the recording of digital incidents.

5. The most promising directions for counteraction include institutional recognition of digital violence as an occupational risk, a zero-tolerance policy towards aggression, clear procedures for documenting and responding to incidents, technological tools for moderation and filtering, legal and psychological support for staff, and evaluation of the effectiveness of preventive interventions in primary care.

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