



Review

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A NEW CONCEPT IN PROTECTIVE HEALTHCARE: QUINARY PREVENTION

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Abstract

Quinary Prevention; It is a set of policies, conditions, actions and measures aimed at reducing the risks associated with disseminating inappropriate health-related information and minimizing the impact of such misinformation on the progression or development of diseases. Quinary Prevention is under the multi-layered responsibility of health professionals, professional organizations and legislators. Legislators should prepare laws/regulations to prevent and deter the spread of health-related misinformation. Health service providers should assume the primary responsibility of Quinary Prevention, constantly update themselves in the discipline they choose, disseminate correct information and increase health literacy, inform the public through professional organizations or sites where relevant experts are the controllers, and report those who share false information to the necessary authorities. The public should not blindly believe every information conveyed through social media and should consult a healthcare professional. In social media, the impact of which is increasing day by day, the legal infrastructure should be prepared for an accurate information presentation by taking the necessary precautions, and health service providers, who are experts in their work, should contribute to the health literacy of the public by providing information on these platforms. Family physicians, who provide preventive and curative health services together, must know the protection steps within the scope of preventive medicine and update themselves in this regard. In this context, 'Quinary Prevention', the newest preventive care steps, was mentioned to guide health service providers, especially family physicians.

Keywords: Quinary Prevention, preventive medicine, family practice, disinformation, information hygiene, infodemic.

Introduction

While WONCA Europe defined Family Medicine, it emphasized that it is an academic and scientific discipline with unique educational content, research, evidence base and clinical practice. It has been emphasized that Family Physicians are personal physicians trained in this discipline and are responsible for providing continuous and comprehensive care to all those seeking medical care regardless of age, gender and illness. One of the most critical components of this care is the improvement of the patient's health and well-being through effective and appropriate interventions. In this context, curative and preventive health services are offered together.¹

Although preventive health services for the individual and society are among the daily routine work of family physicians, protection, with its broad definition, is a set of actions aimed at preventing, eradicating, eradicating or minimizing the effect of the disease or, if neither, slowing the progression.²

Family physicians, who provide preventive and curative health services together, must know the protection steps within the scope of preventive treatment, benefit from them while providing preventive health services, and update themselves in this regard. This review is planned to discuss Quinary Prevention, the newest preventive care step, to guide health service providers, especially family physicians.

Traditional Prevention Steps

Primary, secondary and tertiary protection, the three main steps of preventive health services, are aimed at the person.^{2,3} Primary prevention is the measures applied to the disease or disease groups to prevent the disease from the beginning and reduce the incidence of diseases. Providing clean water and food and routine vaccination programs are examples of this. Secondary prevention, defined as early diagnosis interventions, includes activities to recognize the disease while symptomatic and control its progression. Screening programs for breast, colorectal, and cervical cancer are examples of this. In tertiary prevention, the condition is diagnosed. Still, the aim is to protect and increase the functionality and quality of life affected by the disease and reduce possible complications by providing services such as treatment and rehabilitation to increase life expectancy. An example of this is the administration of aspirin, beta-blockers, and statins at discharge to patients whose hospital treatment has been completed with the diagnosis of acute myocardial infarction.⁴⁻⁷

Primordial protection, under the umbrella of primary protection, is a combination of measures and actions aimed at preventing the conditions that cause the disease to predispose to social and environmental conditions and aiming to reduce or eliminate the occurrence of risk factors. For example, smallpox has been completely eradicated, and primordial protection has been provided, thanks to the effective vaccination program, and the

disease is no longer a risk factor for society. Efforts in this protection are directed to individuals who are not yet at risk and before risky situations occur. These efforts are often carried out through personal or mass training.^{2,3,8,9}

While the principle of 'first do not harm', one of the essential principles of medical education, emphasizes the importance of protection, quaternary protection is a new term used for this old concept.¹⁰ In addition to interpreting the normal and physiological conditions as pathological conditions, which is defined as medicalization, it also prevents the patient from unwanted conditions such as over-diagnosis and over-treatment that do not contribute to the patient's quality of life and life span (sometimes even have a negative effect) and society, and to provide them with scientific, cost-effective and ethically acceptable care.^{4,5,11} Jamouille stated that the most challenging protection step of the physician is quaternary protection. At this step, the physician can learn the patient's underlying anxiety with patient-centered and history-based medicine approaches.^{3,11-13} Quaternary prevention can be applied in all areas of health care, and it is scientifically acceptable, ethically appropriate and appropriate to provide patient care with the highest quality and with the least number of interventional procedures, avoiding unproven screenings, inappropriate antibiotic use, off-label and unnecessary drug use, incorrect rehabilitation methods. Recommends medical care tailored to patients' needs.¹⁴⁻¹⁹ Traditional Preventive Medicine Steps are summarised in Table 1.

Table 1. Traditional Preventive Medicine Steps

Prevention Steps	Definition
Primordial Prevention	Considered a subset of primary prevention, it generally refers to taking preventive measures and eliminating risk in the absence of risk factors in the population.
Primary Prevention	It refers to the preventive measures taken in the absence of the disease in people with risk factors.
Secondary Prevention	It refers to taking measures for early detection and treatment of the disease to prevent complications.
Tertiary Prevention	It refers to the strategies applied to minimize the deterioration of health due to complications caused by diagnosed diseases and to prevent their worsening.
Quaternary Prevention	It refers to overdiagnosis, over-labeling (stigmatization), the medicalization of standard conditions (medicalization) and preventive measures from overtreatment.

THE NEW DIRECTION OF PROTECTION: QUINARY PREVENTION

The Cause and Story of the Concept's Emergence

Thanks to technological developments and advances, communication tools have improved in recent years. This has helped health services be more efficient and effective by providing fast transmission of information. However, this has also facilitated the spread of false information and has had potentially harmful effects on health, so the impact of inaccurate or false information has had an impact on all levels of protection.²⁰ Using technological communication tools to spread misinformation about health is an e-hearsay.²¹ The hearsay or false information sources are traditional media, primarily social media, websites for education/health services, messages transmitted via mobile phones, and consumer marketing.²⁰

Preventing the spread of misinformation about health or health precautions or the effects of disseminated misinformation has gained importance in today's high-tech environment. To represent this idea scientifically, it was necessary to define it in an appropriate conceptual framework and to produce the proper term. To create a new term suitable for this level of protection/prevention, researchers searched various English words and searched for words related to 'five' and 'protection' in these dictionaries. The expression "Quinary" is derived from the Latin word "quinarus" for the number five and describes the fifth object in a sequence or an arrangement of five. Since the fourth step, the conceptual framework for the traditional protection steps was defined last, this newest step was 'Quinary Prevention'.²²⁻²⁴ During the creation of this new term, care was taken to meet the international standards envisaged in its definition and conceptualization.²⁵ The five protection steps were formed by adding Quinary Prevention to the traditional protection steps (Figure 1).

Definition and Concept

Preventing the dissemination or the effects of false health and/or health precautions is important in today's digital environment, which allows rapid and widespread dissemination of (false) information.²⁶ In addition, the fact that the Coronavirus Disease (COVID-19), which started in Wuhan, China, in December 2019, spread rapidly around the world with a wave of fear, prejudice and erroneous information, and triggered discrimination and stigmatization with the failure of intervention policies, the World Health Organization (WHO)) has caused this situation to be called "Infodemia". With this situation, preventing the spread of misinformation or its effects on health has become even more critical.²⁷

and sharing the correct versions of wrongly known situations on social media.²⁸ On the other hand, misinformation about obesity and obesity surgery (bariatric surgery) affects people in two ways, causing people who are ideal for surgery to give up on surgery or because it is used in treating Type 2 Diabetes Mellitus. However, there is little data about it; people who are not ideal for surgery have surgery. Another example is sharing misconceptions about this situation and simple ways to counter them.²⁹ On the other hand, in an article dealing with the parenting relationship with Quinary Prevention, misinformation that impacts parenting and its effects on children's health was mentioned since parenting is considered a health determinant that affects processes such as neurodevelopment, attachment, and stress response.^{26,31,32} Although Quinary Prevention is a new concept, it is also important in fighting and preventing cancer. The fact that this concept is included in the website of the Cancer Prevention Research Group operating in Greece is one of the indicators of this situation.³³ Kalra et al. The mention of Quinary Prevention in a study conducted by Dr. et al. in which euthyroidism was discussed from a biopsychosocial perspective in thyroid diseases proves that this concept has started to gain ground in the endocrinology community.^{20,34,35}

Information Hygiene and Quinary Prevention in False Information, Disinformation and Infodemic

Incorrect information is defined as "misleading" information in the literature and is generally evaluated as "an ill-intentioned error".^{36,37} Disinformation, on the other hand, is false information deliberately spread to deceive and/or deceive.^{38,39} In addition, after the emergence of COVID-19 in 2019, as the world became aware of this new disease, misinformation and disinformation spread through the internet and social media. This condition, which indicates the presence of the disease, is called "Infodemia".²⁷ The concept of "Information Hygiene", expressed as a set of requirements and practices that help protect and obtain health information and prevent the spread of misinformation about health, has gained importance together with the concepts of misinformation, disinformation and infodemic.⁴⁰ Scientifically correct and acceptable information is essential, and the information circulating among the public should minimize unintentional negative information because misinformation can lead to stigma and panic. In this context, it is important to ensure that Information Hygiene protects the public from false information, and the measures and actions to be taken in this area are important.⁴⁰⁻⁴² In this context, four basic methods have been mentioned in the fight against infodemic, and these are Information Monitoring (Infovenance), building e-Health and Science Literacy capacity, promoting information improvement and quality improvement processes, and accurate and timely information translation by minimizing political and commercial factors.^{43,44}

It has been shown that the use of social media increases significantly in emergencies such as COVID-19, natural disasters and crises.^{39,42,45} In this context, a new information platform called WHO Epidemic Information Network (EPI-WIN) was launched to share tailored information with specific target groups immediately after

COVID-19 was declared a Public Health Emergency of International Concern by the WHO risk communication team.⁴⁴

To prevent disinformation, detecting texts on the internet is of great importance. For this, "Threat Modeling", a widely used technique in the field of cyber security, has been developed, but it is seen that its full potential has not been utilized.³⁹ In this regard, Zellers et al., there is a Disinformation Threat Modeling study carried out, and the lack of much work on this modeling in the literature supports this situation.⁴⁶ With "Threat Modeling", the contents such as text, pictures and videos that create disinformation can be detected through existing databases, and moves can be produced to prevent them.³⁹

There is usually underlying miscommunication and distrust based on disinformation and infodemic, and healthcare professionals should be informed of situations that may create disinformation to prevent disinformation, misinformation and infodemic, and health communicators should work to inform practitioners about the most common or dangerous narratives their patients are exposed to. Through intense disinformation reviews published periodically, academic and health education workshops should be organized. Healthcare policymakers should include education and training materials so that healthcare providers can better communicate with their patients when exposed to disinformation.⁴⁷

Responsibilities in Quinary Prevention

The collective and concerted efforts of healthcare providers, the public and law enforcement can prevent misinformation. Quinary Prevention is under the multi-layered responsibility of health professionals, professional organizations and legislators.²⁶

Legislators

In this part of Quinary Prevention, the responsibility belongs to more than one stakeholder, and the suggestions are as follows:²⁰

Legislators should prepare laws/regulations to prevent and deter the spread of health-related misinformation. These regulations should cover all social media (including Facebook, Twitter and WhatsApp) and mass media (print, radio and television). In addition, it is emphasized that introducing these regulations should be deterrent and strict.²⁶

The Ministry of Health should campaign to spread salutogenic (promoting physical and mental health of individuals/communities) messages in society.

Administrators of social platforms should also take the responsibility of moderating and, if necessary, censoring posts that are wrong about health and could harm public or individual health. Both administrators and legislators should work closely with healthcare professionals and information technology professionals.

In all these studies, it is essential to make clear, up-to-date and accurate information accessible through reliable sources, preferably two-way communication, by addressing the uncertainties. The importance of including Quinary Prevention in the process should be emphasized when planning health interventions.

Healthcare Providers

Within the scope of Quinary Prevention, healthcare providers can provide information on self-management and care of diseases on social media. Health service providers should assume the main responsibility of Quinary Prevention, should constantly update themselves in the discipline they choose, disseminate correct information and health literacy, inform the public through professional organizations or sites where relevant experts are the controllers, and report those who share false information to the necessary authorities.^{20,26}

Healthcare providers can actively contribute to the general care of diseases by harnessing the power of social media platforms by providing sick people access to accurate information.⁴⁸ Nelakurthi et al. The study conducted on Diabetes Mellitus, which was achieved through web-based and in-clinic surveys, showed that patients with Diabetes Mellitus who regularly use social media improved their adherence to lifestyle change recommendations.⁴⁹ In a study by Abedin et al., in which they identified 16 Facebook groups with a total of 103 relevant posts on diabetic foot care on Facebook, it was reported that 45.6% of the posts were useful, and Facebook was a valuable platform for sharing information about diabetes care.⁵⁰ From this point of view, it can be thought that the benefit of this and similar platforms can be further improved if healthcare providers disseminate useful and original information about treating chronic diseases such as diabetes care.

Healthcare providers should also refrain from commenting on situations they are unfamiliar with or not competent to discuss. In cases with potential resistance to preventive and control measures, professionals trusted by society should be identified and informed through these people. To ensure that long-term interventions are contextually and logically appropriate and disseminated to the community, plans can be made on how individuals' health information will be used, and additional arrangements can be planned.²⁰

Health professionals can participate in user-friendly patient information sites prepared by professional organizations by being involved in decision-making. They may also advocate for health through health talks, blogs, and discussion programs.³⁰

Family Physicians as Healthcare Providers

Preventive health services for individuals and populations are among the daily routine task of family physicians.¹⁰ They are personal doctors, primarily responsible for providing comprehensive and continuing care to every individual seeking medical care irrespective of age, sex and illness. One of the most critical components of this care is the improvement of the patient's health and well-being through effective and appropriate interventions.¹

Quinary prevention means preventing health-related hearsay or misinformation or its ill effects on the health of individuals.²²⁻²⁴ Within the scope of protection in negotiating management plans with patients, Family Physicians integrate physical, psychological, social, cultural and existential factors, utilizing the knowledge and trust engendered by repeated contacts.^{1,2} For this reason, it is crucial for family physicians who provide preventive and curative health services together to know the protection steps within the scope of preventive treatment, benefit from them while providing preventive health services, and update themselves on this issue.

Public

Health professionals, legislators, and the public are responsible for achieving ideal health. As with other protection steps, it is generally the duty of the public in Quinary Prevention. In this context, ensuring that the public can distinguish between true and false information through ongoing information campaigns is necessary. To achieve this, the individuals who make up the public should be technically and socially competent, and their health literacy should be developed.²⁰ The public should not blindly believe every information conveyed through social media and should consult a healthcare professional to confirm this information.²⁶

In Canada, Leong et al. reported in a study that 32.4% of YouTube videos were misleading, and it was stated that misleading videos were more popular.⁵¹ The fact that misleading videos are more popular indicates the public's tendency in this regard. Public awareness should be created to correct this situation and raise health awareness.

A study on 56 children and teenagers revealed that regular Facebook and Skype use improved people's knowledge and helped them cope better with their illnesses.⁵² This study shows that the impact of technological opportunities such as social media on children and young people is essential. It should be considered that this effect is more important in Turkey, where the majority of the population is children and youth. The interventions should be made by considering children and young people.

Some herbal, chemical, and physical treatments and methods, which can be presented as an alternative to evidence-based medicine and generally shown as pure and harmless, can spread rapidly through the media and cause undesirable results.^{30,52} It should be remembered that such treatments and methods, which are not evidence-based, should be evaluated within the scope of Quinary Prevention.

Conclusion

Quinary Prevention is critical in preventing the spread of false and hearsay information about diseases. All healthcare providers, especially family physicians, who provide preventive and curative health services together, should apply Quinary Prevention and take an active role in preventing threats as a part of routine clinical practices by updating themselves. The legal infrastructure should be prepared for an accurate information presentation by taking the necessary precautions in social media, the impact of which is increasing daily.

Ethical considerations: Since public data and related literature were analyzed in our study, there was no ethical violation.

Conflict of Interest: The author declares no conflict of interest.

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