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## COMPUTER SCIENCE

УДК 004.032

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## ЭТИЧЕСКИЕ АСПЕКТЫ ИСКУССТВЕННОГО ИНТЕЛЛЕКТА

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## ETHICAL ASPECTS OF ARTIFICIAL INTELLIGENCE

**Аннотация.**

В данной статье рассматриваются особенности этических аспектов искусственного интеллекта, направления этической рефлексии в контексте ИИ

**Abstract.**

This article examines the features of the ethical aspects of artificial intelligence, the directions of ethical reflection in the context of AI

**Ключевые слова:** искусственный интеллект, этика ИИ, ответственность, прозрачность, приватность, защита данных, контроль, мораль, цифровое неравенство

**Keywords:** artificial intelligence, AI ethics, responsibility, transparency, privacy, data protection, control, morality, digital inequality

**Введение**

**Искусственный интеллект**—это область компьютерных наук, цель которой—создание систем, способных выполнять задачи, которые обычно требуют человеческого интеллекта. К таким задачам относятся:

- понимание и обработка языка (например, всеми известный ChatGPT)
- распознавание изображений и лиц
- принятие решений и прогнозирование
- игра в шахматы или Go
- автономное управление (например, автопилоты в авто)
- обучение на больших данных (machine learning, deep learning).

**Этика ИИ**—это раздел прикладной этики, исследующий моральные проблемы и последствия, связанные с разработкой, внедрением и использованием ИИ.

Этические аспекты искусственного интеллекта (ИИ) охватывают широкий спектр вопросов, связанных с тем, как ИИ влияет на общество, людей и окружающую среду, а также с тем, как его следует разрабатывать, применять и регулировать.

Ниже приведены организации, занимающиеся этикой ИИ:

- UNESCO-Рекомендации по этике ИИ (2021)
- OECD AI Principles
- IEEE Ethically Aligned Design
- AI Now Institute (Нью-Йоркский университет)

- **Future of Life Institute** (поддерживает безопасное развитие ИИ)

В Казахстане уже реализуется комплексный подход—от образовательных программ до государственного регулирования и стартап-экосистемы.

Этика ИИ встроена в конференционные площадки (ЮНЕСКО), стратегические инициативы (AI-Sana, комиссия), в академические программы и инфраструктуру.

Особый акцент делается на локальную адаптацию (KazLLM), культурную ценность и защиту прав человека.

Ниже представлены ключевые направления этической рефлексии в контексте ИИ:

**1. Ответственность и подотчетность**

- Кто отвечает за действия ИИ, особенно в случае ошибок или причинения вреда?
- Разработчики, пользователи или компании? Например, если автопилот Tesla сбивает пешехода — кто виноват?

**2. Прозрачность и объяснимость**

- ИИ-системы, особенно на основе нейросетей, часто "необъяснимы" даже их создателями.
- Этика требует, чтобы пользователи и надзорные органы понимали, как и почему система приняла то или иное решение.

**3. Справедливость и недискриминация**

- ИИ может усиливать социальную несправедливость, особенно если обучен на предвзятых данных (например, дискриминация по полу, расе или возрасту).

- Этические нормы требуют разработки справедливых алгоритмов, учитывающих разнообразие.

#### 4. *Приватность и защита данных*

- ИИ анализирует огромные объемы личных данных, часто без полного согласия пользователя.
- Необходимо соблюдать право человека на конфиденциальность и обеспечивать прозрачность сбора и использования данных.

#### 5. *Автономия и контроль*

- При использовании ИИ важно сохранить контроль со стороны человека, особенно в критических сферах (здравоохранение, судопроизводство, вооружённые силы).

- Опасность: «человек в петле» (human-in-the-loop) становится «человеком вне петли» (human-out-of-the-loop).

#### 6. *Влияние на рынок труда*

- Массовая автоматизация может привести к безработице, социальному неравенству и переобучению кадров.

- Этический вызов — справедливый переход к новой экономике и защита уязвимых групп населения.

#### 7. *Военное и полицейское применение*

- Использование ИИ в вооружениях (дроны, автономное оружие) вызывает опасения по поводу дегуманизации войны.

- Проблема моральных дилемм: допустимо ли доверять ИИ принятию решений о жизни и смерти?

#### 8. *Экологическая устойчивость*

- Обучение больших ИИ-моделей требует огромных вычислительных ресурсов, что ведёт к высокому потреблению энергии.

- Необходим баланс между технологическим прогрессом и экологическими последствиями.

#### 9. *Цифровое неравенство*

- Разрыв между странами и слоями населения, имеющими доступ к ИИ, и теми, кто его не имеет, может углубить глобальное неравенство.

- Этический вопрос — обеспечение инклюзивного доступа к ИИ и его выгодам.

#### 10. *Мораль ИИ и "сильный ИИ"*

- При появлении ИИ, способного к самознанию или принятию моральных решений, встаёт вопрос:

**имеет ли ИИ моральный статус? Нужно ли давать ему "права"?**

- Пока это теоретический, но уже обсуждаемый аспект в философии ИИ.

#### **Заключение**

Развитие искусственного интеллекта открывает перед человечеством огромные возможности — от повышения эффективности труда до кардинального преобразования здравоохранения, науки и образования. Однако, вместе с этим, ИИ порождает и серьёзные этические вызовы. Среди них — вопросы справедливости, приватности, автономии, прозрачности и, главное, ответственности за решения, принимаемые машиной.

Этика ИИ — это не просто набор ограничений, а навигационная система, которая помогает направлять технологическое развитие в русло общественного блага. Без надлежащей этической и правовой основы ИИ может стать инструментом дискриминации, социальной несправедливости или даже угрозой человеческой безопасности.

Поэтому крайне важно, чтобы создание и внедрение ИИ-систем происходили с учётом:

- **прозрачности алгоритмов**
- **ответственности разработчиков и пользователей**
- **уважения к правам человека**
- **и соблюдения принципов справедливости и инклюзивности.**

Только в этом случае искусственный интеллект станет инструментом прогресса, а не источником новых рисков и неравенства. Этика ИИ должна быть не дополнением к технологиям, а неотъемлемой частью их проектирования и применения.

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# MEDICAL SCIENCES

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## COMORBID PATHOLOGY IN INTENSIVE THERAPY AS A PROBLEM OF MODERN MEDICINE

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## КОМОРБІДНА ПАТОЛОГІЯ В ІНТЕНСИВНІЙ ТЕРАПІЇ ЯК ПРОБЛЕМА СУЧАСНОЇ МЕДИЦИНИ

### **Abstract.**

*The article considers the problem of comorbidity as one of the key challenges of modern intensive care. The clinical, pathophysiological and psychosocial aspects of concomitant pathology in critically ill patients are analyzed. The models of development of comorbid conditions, diagnostic difficulties, risks of polypharmacy, as well as the influence of age and behavioral factors on the course of the disease are considered. The importance of a multidisciplinary and individualized approach to the management of patients in intensive care units (ICUs) is emphasized. The presented literature review is aimed at deepening the understanding of the essence of comorbidity and the formation of modern clinical strategies in the provision of medical care in ICU conditions.*

### **Анотація.**

*У статті розглянуто проблему коморбідності як одного з ключових викликів сучасної інтенсивної терапії. Проаналізовано клінічні, патофізіологічні та психосоціальні аспекти супутньої патології у пацієнтів критичних станів. Розглянуто моделі розвитку коморбідних станів, труднощі діагностики, ризики поліпрагмації, а також вплив вікових та поведінкових факторів на перебіг хвороби. Наголошено на важливості мультидисциплінарного та індивідуалізованого підходу до ведення пацієнтів у відділеннях інтенсивної терапії (ВІТ). Представлений огляд літератури спрямований на поглиблення розуміння сутності коморбідності та формування сучасних клінічних стратегій у наданні медичної допомоги в умовах ВІТ.*

**Keywords:** *comorbidity, intensive care, chronic diseases, multidisciplinary approach, critical conditions.*

**Ключові слова:** *коморбідність, інтенсивна терапія, хронічні захворювання, мультидисциплінарний підхід, критичні стани.*

**Introduction.** Comorbidity, or the presence of two or more diseases in one patient, is a global medical problem that is of particular importance in intensive care. Patients hospitalized in the intensive care unit (ICU) often have not only a critical emergency condition, but also concomitant chronic diseases that affect the clinical picture, treatment tactics and prognosis. The presence of multiple pathologies complicates diagnosis due to polysymptoms and atypical manifestations, creates prerequisites for polypharmacy, and also increases the risk of side effects and complications. With age and the accumulation of chronic pathology, the problem of comorbidity increasingly comes to the fore in the intensive care system. The review article reviews the definition, pathogenetic models, clinical aspects, as well as modern approaches to the management of comorbid patients in critical conditions.

The purpose of the study: to analyze current literature data on the problem of comorbidity in intensive care, with an emphasis on clinical, pathophysiological and organizational aspects of managing patients with comorbid pathology in intensive care units.

**Material and methods of the study.** The study used the method of review analysis of scientific literature from the PubMed, Scopus, Web of Science, Google Scholar and professional medical sources for the period 2018–2024.

Main part. Comorbidity is one of the leading challenges of modern medicine, which is especially relevant in intensive care. Patients hospitalized in the ICU often face not only an acute urgent condition, but also have a number of chronic diseases. These concomitant pathologies significantly affect the course of the main pathological process, complicating diagnosis, treatment and prognosis. Chronic diseases can change the

clinical picture of an acute condition, which makes it difficult to quickly establish the correct diagnosis. For example, symptoms of heart failure may be masked or exacerbated by a comorbid condition, such as COPD. Alvan R. Feinstein defined comorbidity as “an additional clinical entity that exists or may arise during the course of the underlying disease.” It encompasses both pathogenetically related diseases and those that coincide in time (chronological comorbidity). He also noted that comorbidity may not only affect a patient’s prognosis but also alter treatment plans and outcomes [1].

Other studies have defined comorbidity as the presence of two or more chronic diseases in a patient that may be pathogenetically related or occur simultaneously, regardless of their degree of activity [2, 3, 4]. Comorbidity involves the presence of new disease mechanisms, additional clinical presentation, complications, and course that are not specific to the underlying disease, and significantly affects quality and duration of life [2, 5, 6].

Therefore, comorbidity is considered one of the leading problems of modern global medicine, requiring a comprehensive approach taking into account all interacting factors, risks and a coordinated therapeutic plan. The existing concomitant pathology complicates both diagnosis (blurred clinical picture, polysymptoms, atypical manifestations), treatment (presence of contraindications to the use of modern methods of therapy), and the implementation of secondary prevention measures (decreased compliance) [7].

Studies of comorbidity have shown that its prevalence has increased significantly in the last decade due to demographic changes, in particular the aging of the population and is accompanied by the accumulation of chronic pathologies. In addition, modern medicine has achieved significant success in the treatment of acute diseases, which has allowed patients with painful conditions to live longer, but at the same time has led to an increase in the number of people with multiple diseases [8].

According to WHO, at least 2–4 diseases are detected in people under 40 years of age, while at the age of 60 this figure increases to 5–7 pathologies. Comorbidity increases from 10.0% at the age of 19 to 80.0% in people over 80 years of age. According to some researchers, the number of diseases per individual increases every year, and at least 3–4 diseases are diagnosed in patients aged 60 during outpatient examinations [9, 10].

Comorbidity requires the search for common clinical, pathophysiological, biochemical, usually non-specific links, which deepens the understanding of the essence of the interaction of existing pathological processes, and on this basis a new, more effective complex of treatment and preventive measures and diagnostic and therapeutic methods is carried out.

There are etiological models of comorbid diseases, each of which is based on the interaction between diseases or risk factors [11]. In the direct causal model, one condition causes another. From a clinical perspective, this may include cases where treatment of one condition causes the development of another condition. For example, the prescription of anticoagulants for the

treatment of atrial fibrillation may lead to the development of gastrointestinal bleeding as a complication of therapy.

In the associated risk factor model, risk factors for one condition are correlated with a risk factor for another condition, making the simultaneous occurrence of the diseases more likely. For example, smoking and alcohol consumption are correlated; the former is a risk factor for chronic obstructive pulmonary disease, and the latter is a risk factor for liver disease, increasing the likelihood that both conditions will occur together. In the heterogeneity model, risk factors are not correlated with each other, but each of them can cause the development of diseases, which, in turn, are interrelated. For example, smoking and age are independent risk factors that can lead to the development of malignant neoplasms and cardiovascular disease.

In the independence (or single disease) model, the presence of comorbidities is actually caused by a third, independent disease. For example, the simultaneous occurrence of hypertension and chronic tension headache may be caused by pheochromocytoma, which is the primary cause of both conditions.

Thus, these models are not necessarily mutually exclusive and have yet to be widely applied to the study of comorbidity, but they have been successfully tested using modeling and have been confirmed by empirical validity for the assessment of individual comorbidities.

It is worth noting that from the complex of comorbid processes, clusters of vascular diseases (arterial hypertension, ischemic heart disease, heart failure, cerebrovascular pathology), digestive system lesions (gastroduodenopathy, cholecystohepatopathy, pancreatitis, enterocolopathy) and metabolic diseases (obesity, diabetes mellitus and hypothyroidism), which are often combined with each other or accompany the course of other diseases [12].

Comorbidity acquires particular importance in the context of intensive care, as it significantly complicates patient management due to a decrease in the body’s compensatory capabilities, an increased risk of developing multiple organ failure and the need for an individualized approach to treatment [13].

V.M. Kovalenko and O.P. Bortkevych emphasize the important role of psychosocial factors in the formation of comorbid conditions, in particular as those that have a significant adverse effect on the risk of occurrence, course and prognosis of cardiovascular diseases. Therefore, this is especially relevant for individuals with socially significant forms of cardiovascular pathology and individuals with high cardiovascular risk. Such factors include mental disorders, in particular post-traumatic stress disorder, low socio-economic status, social isolation, chronic stress associated with professional activities or family circumstances, as well as depression and anxiety disorders. In view of this, the latter are often accompanied by such emotional components as fear, shame, guilt, retrospective fixation on negative events of the past and pessimistic views of the future [2].

It is worth noting that psychosocial disorders are closely associated with behavioral risk factors for car-

diovascular diseases, including smoking, excessive alcohol consumption, unhealthy diet, and physical inactivity [2]. According to evidence-based medicine, age is an independent predictor of comorbidity, and the prevalence of comorbidities significantly increases with patient age [14].

Comorbidity poses numerous challenges for diagnosis and treatment, complicating clinical assessment due to the manifestation of symptom blurring, poly-symptoms, and atypicality. Treatment also becomes problematic due to the risk of polypharmacy—the simultaneous administration of a large number of medications. As a result, this often affects drug interactions, which reduces the effectiveness of therapy and the risk of side effects. Polypharmacy is common in the post-resuscitation population (> 30%) and is an independent predictor of rehospitalization, even after correction of existing diseases [15].

BMJ Best Practice recently launched a Comorbidity Manager that allows healthcare professionals to add a patient's comorbidities to an existing treatment plan and instantly receive a personalized plan [16].

Thus, comorbidity reflects the close relationship and mutual influence of multiple pathological processes in the human body. It significantly complicates the diagnosis, treatment and prognosis of diseases, especially in the ICU setting, where clinical situations are often critical.

A deep understanding of the nature of comorbidity, its etiopathogenetic mechanisms and clinical manifestations is a necessary prerequisite for ensuring an individualized approach to patients, optimizing treatment and reducing the risk of complications. In the context of the transformation of the healthcare system, demographic aging of the population and the increase in the prevalence of chronic diseases, the problem of comorbidity is becoming particularly urgent, requiring an interdisciplinary approach and a systematic review of the principles of intensive care.

**Conclusions.** Comorbidity is a key factor that determines the complexity of the clinical management of patients in intensive care units. It causes atypical symptoms, complicates diagnosis, complicates the choice of therapeutic strategy and increases the risk of multiple organ failure. Understanding the mechanisms of development of comorbid conditions, taking into account psychosocial and behavioral factors, as well as the use of a multidisciplinary individualized approach are necessary conditions for optimal management of such patients. In light of demographic changes and increasing life expectancy, the problem of comorbidity in intensive care requires further research, a systematic review of approaches to organizing care, and the implementation of innovative clinical solutions.

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## BASIC PRINCIPLES OF SECONDARY PREVENTION OF ARTERIAL HYPERTENSION IN THE RURAL POPULATION

### Abstract

*The rural population needs special attention in the application of preventive technologies. It is extremely important to correct the behavior of patients with arterial hypertension living in the village. Every rural resident with detected arterial hypertension should be taken into account for dynamic observation. The doctor's tactics should be multifaceted, it should not be limited only to the treatment itself, but should correspond more to the concept of "medical management of patients", that is, be oriented towards involving patients in active cooperation in the implementation of preventive technologies.*

**Key words:** arterial hypertension, rural population, secondary prevention, healthy lifestyle, risk factors.

We emphasize once again that the treatment of arterial hypertension (AH) is a classic form of secondary prevention, that is, the prevention of its complications and a way to achieve the most positive course of the disease.

Preventive and therapeutic care for AH is a complex process, the components of which are primary and secondary prevention. The occurrence and course of AH are closely related to uncontrollable and controllable risk factors.

The share of controllable risk factors for AH in AH regulation is more than 50%. This is what our preventive medical technologies for AH and the strategy for its prevention are aimed at, which are based on three levels, of which levels I and II are primary prevention, level III is secondary prevention.

Level I is mass promotion of a healthy lifestyle, identification and correction of risk factors.

Level II is early detection of patients with AH: providing the population with devices for measuring AH and other conditions for implementing this technology.

Level III is drug and non-drug normalization of arterial pressure (AP) to the desired level under the supervision of a physician in order to alleviate the course of the disease, avoid complications and extend life expectancy. [1; 2; 3].

Secondary prevention of AH at the present stage involves the so-called «treatment». It has been proven that timely treatment of AH can reduce the likelihood of developing and more severe course of the disease; reducing even slight increases in AP reduces morbidity and mortality from diseases of the circulatory system. The lower the AP level, the lower the risk of stroke and ischemic heart disease.

The goal of antihypertensive treatment is to reduce AP as much as possible. It is desirable to achieve the following levels:

- not higher than 120 – 130 / 80 mm Hg. in young people with moderately elevated AP;
- below 140 / 90 mm Hg. in elderly patients with elevated AP;

- not higher than 140 mm Hg. CAT in patients with isolated systolic AN, if this can be achieved without undesirable effects. [4; 5].

Treatment of AH is divided into non-drug and drug. Non-drug treatment includes primary prevention measures aimed at changing lifestyle and correcting other risk factors.

There is no direct evidence that non-drug treatments can reduce morbidity and mortality. However, the use of the above measures can normalize moderately elevated AP levels.

The effectiveness of drug measures has been repeatedly proven by various randomized trials. The following classes of drugs are recommended as first-line antihypertensive drugs: diuretics; angiotensin-converting enzyme inhibitors; long-acting calcium antagonists, angiotensin II receptor antagonists; beta-blockers. This problem is also of clinical importance and is the domain of clinicians, so we will talk about it very briefly.

However, it is worth noting that a patient with AH should have individual therapy, which is prescribed after a thorough examination of the patient, taking into account the price and effectiveness of the drugs. Self-prescription of drugs to reduce AP is unacceptable. [5; 6; 7].

We recommend the following model-scheme of the basic principles of AN treatment (as a component of the general prevention model):

1. Treatment (medicated and non-medicated) should be started as early as possible and carried out continuously, mostly throughout life. The concept of "course treatment" for antihypertensive therapy is unacceptable.

2. The treatment regimen should be simple, if possible – according to the principle of «one tablet per day». This increases the number of patients who are actually treated and, accordingly, reduces the number of those who stop treatment.

3. Preference should be given to long-acting antihypertensive drugs, including retard forms, since this prevents significant fluctuations in AP during the day, and also reduces the number of prescribed tablets.

4. All persons with elevated AP are subject to non-drug treatment or lifestyle modification.

5. Elderly patients with isolated systolic hypertension are subject to treatment in the same way as with systolic-diastolic hypertension.

6. In patients with secondary hypertension, the primary task is to treat its cause. Such AH is also subject to mandatory correction.

As the World Health Organization expert committee notes, to improve the prognosis of a patient with AH, it is more important to reduce AP per se than the nature of the drugs used for this. In difficult economic circumstances, it is advisable to prescribe cheap and «unfashionable» drugs to the patient than not to prescribe antihypertensive treatment at all, which is very important in rural areas, because the availability of modern and expensive drugs for the rural population, taking into account the difficult socio-economic situation in the countryside, is much lower than for the urban population, which is proven by our research. We borrowed and improved the algorithm of the doctor's action in the event that a patient is diagnosed with arterial hypertension. [1; 3; 5].

We emphasize once again that the technologies of treatment of AH are a classic form of secondary prevention of the disease.

It is worth noting that the considered preventive measures or technologies of primary, secondary and tertiary prevention are difficult to distinguish, because they are all interconnected and are components of the performance of other functions by medical workers: medical, organizational, managerial activities.

We add that tertiary prevention of AH is determined by the condition of the sick person, so its technologies are not given here. Based on the above, we can distinguish four main components of medical prevention of AH and other diseases of the circulatory system: the first is a healthy lifestyle; the second is medical examination; the third is sanitary education; the fourth is treatment.

Thus, the complex nature of the use of preventive technologies in rural areas allows maintaining their

health at a high level, leading a full life, characterized by physical, spiritual and social well-being.

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<https://doi.org/10.5281/zenodo.16736958>**OTORRHEA: EVERYTHING A DOCTOR AND PATIENT NEED TO KNOW****Resume.**

Otorrhea is discharge from the external auditory canal. Although the pathology is allocated to a separate nosology in the International Classification of Diseases, X revision (code H92.1), it should not be considered as an independent disease, but rather as a symptom indicating a possible pathological process in the ear or adjacent structures. The discharge may have a liquid or thick consistency, contain blood impurities. Purulent discharge is usually white or yellowish in colour; they indicate the presence of infection.

But is otorrhea always a symptom of pathology? In some cases, discharge from the ear is physiological in nature and does not pose a danger to human health. The secretion of earwax is a natural process; it is produced by special ceruminous glands, the main functions of which are:

- protection and lubrication - sulfur softens the skin of the ear canal, preventing it from drying out and cracking;
- removal of foreign bodies — the viscous consistency of sulfur helps to trap dust, hair, insects and other small particles, preventing their further movement through the ear canal;
- antibacterial properties — earwax has a slightly acidic environment (pH about 6), which prevents the reproduction of pathogenic microorganisms.

**Keywords:** otorrhea, causes, diagnostics, treatment.

**Otorrhea** — a symptom of the presence or leakage of discharge from the ear — is a common symptom of ear diseases. Discharges can be earwax, blood, pus, mucus, cerebrospinal fluid, or even saliva. The cause of otorrhea can be established in most cases after a history and examination of the patient. Patients with otorrhea are mostly outpatients and do not require inpatient treatment.

**Where to start?**

A thorough interview and history are very important elements in determining the cause of otorrhea.

**Common causes of otorrhea include:**

1. Otitis externa
2. Acute otitis media (perforating or with otorrhea from a ventilation shunt)
3. Chronic otitis media (with or without cholesteatoma)

4. Foreign object

5. Granulating myringitis

6. Otolymphoma

It is important to ask about the onset of otorrhea, the characteristics of the discharge from the ear (color, odor), and the duration of otorrhea. Also, find out about possible accompanying otological symptoms — otalgia, ear itching, unpleasant odor of discharge, hearing loss, tinnitus, dizziness, facial nerve paresis, swelling in the periauricular area. A history of ear trauma, ear surgery, foreign objects in the ear, use of hearing aids or in-canal earphones should be asked. A general history (including immunodeficiencies or diabetes) and an allergy history are also important. The questioning alone can outline the likely causes of otorrhea (Table 1).

Rapid diagnosis

Features of otorrhea	More likely diagnosis
Acute otorrhea after ear pain	Acute otitis media Acute external otitis
Discharge from the ear with an unpleasant odor	External otitis Chronic otitis media
History of acute ear trauma	Otolycorrhea Typhoid rupture
Combined meningeal symptoms	Otitis media with intracranial complications
Combined ear itching	External otitis
Otorrhea + pain	External otitis

### External otitis

*External otitis (EO)* is an inflammation of the skin of the external auditory canal. Acute external otitis (AEO) is divided into localized and diffuse. Localized AEO (furuncle of the external auditory canal) is an infection of the hair follicle of the skin of the external auditory canal. Diffuse EO can be acute or chronic. As usual, it is associated with risk factors and has a wide range of causes (bacteria - often, fungi - rarely), chronic exposure to adverse environmental factors or allergens, or the patient has concomitant general skin diseases (for example, seborrheic dermatitis).

#### Acute external otitis

Up to 10% of the population suffers from AEO during their lifetime. Symptoms typically develop within 48 hours (Table 2).

Otorrhea is not an obligatory symptom of AEO; typical symptoms include ear pain (otalgia), which is aggravated by movements of the lower jaw (talking, chewing), or pain in the periauricular area (regional lymphadenitis).

Discharge from the ear is mostly purulent, sometimes mucous; it may have an unpleasant odor. The feeling of ear congestion and hearing loss in AEO are associated with concomitant skin edema and complete blockage and discharge from the external auditory canal.

If AEO occurs with simultaneous sudden relief of previous ear pain, this suggests a spontaneous rupture of the external auditory canal (localized AEO). However, the same situation is in acute otitis media after spontaneous perforation of the eardrum, so differentiation should be made on the basis of otoscopy.

Table 2

Typical manifestations of AEO

1.	Pain when pressing on the tragus of the ear or when manipulating the auricle
2.	If otoscopy is possible (sometimes impossible due to severe pain during examination of the ear), then the skin of the eardrum is swollen and hyperemic (locally or totally)
3.	The eardrum may be hyperemic, but not thickened and does not protrude
4.	No perforation of the eardrum
5.	Possible enlargement and tenderness of the preauricular lymph node
6.	The detection of a boil clearly indicates localized AEO

### Treatment of localized AEO

Mostly localized AEO has a mild course and tends to heal on its own. Systemic analgesics are usually sufficient. If the boil causes severe pain, surgical debridement may be necessary. If the top of the boil is visible, it can be opened with a disposable syringe needle. Systemic antibiotics are rarely needed. If oral antibiotics are ineffective or if purulent inflammation spreads to the periauricular areas, the patient should be referred for inpatient treatment.

### Treatment of diffuse AEO

All patients are advised to keep the ear clean and dry, and to take systemic analgesics if there is associated pain. They should also be advised to avoid risk factors: trauma (including the use of cotton swabs), water ingress into the ears (covering the ear canal with cotton wool moistened with oil; avoiding swimming pools for 7–10 days), and limiting circumstances that provoke increased sweating (high humidity, high ambient temperature, physical activity). If water gets into the ear, it should be dried, for example, with a hair dryer. It should be recommended to change to new ear tips for

hearing aids, headphones, earrings; it is necessary to abandon the use of local ear medications that could be an allergen/irritant for the skin of the ear canal.

Since up to 98% of cases of otitis media have a bacterial cause, antibiotic ear drops should be prescribed in all cases of otitis media. Antibacterial drops are prescribed for a period of 7 to 14 days. It is best to choose drops that also contain a corticosteroid, because AEO is usually accompanied by skin inflammation, swelling and narrowing of the ENT. If treatment is ineffective or there is a relapse, then a swab of the ear discharge should be taken for flora (including fungi) and their sensitivity.

Topical ear drops must have an acidic pH, the use of topical medications (without systemic ones) is usually sufficient, and the duration of treatment should be at least 7 days. The American Academy of Otolaryngology recommends that an aminoglycoside and a corticosteroid be used for the treatment of EO. German guidelines recommend neomycin and polymyxin B for the treatment of EO. Neither the American nor the German guidelines recommend the use of chloramphenicol, beclomethasone, lidocaine or clotrimazole.

The most modern recommendations for ear drops for the treatment of EO are met by the drug Polydexa - an original fixed combination containing neomycin, polymyxin B and dexamethasone. The drug has a pronounced antibacterial activity, a powerful anti-inflammatory effect and a high safety profile, which makes it possible to prescribe it to children from birth. Polydexa has an acidic pH, which inhibits the growth of pathogens (bacteria or fungi).

The treatment regimen for EO with Polydexa is as follows:

- dosage for adults - 1–5 drops in the affected ear 2 times a day;
- dosage for children - 1–2 drops in the affected ear 2 times a day.

**Blocked ENT in AEO**

Severe edema of the ENT skin may prevent the ingress of drops and requires the introduction of gauze

turundas saturated with medication by an otolaryngologist. The doctor cleanses the ENT of pathological contents and inserts the turunda with medication; the patient must remove the turunda independently after 4 hours. Rinsing the ear in AEO is prohibited, as it can cause the spread of infection, the development of necrotizing ENT or trauma to the eardrum, especially in elderly patients, immunocompromised or diabetic patients.

**Chronic external otitis**

Otorrhea is a rare symptom of *chronic external otitis (CEO)*. Manifestations of CEO are listed in Table 3. Fungal infection of the ENT is a consequence of prolonged use of topical antibacterial or corticosteroid drugs, which changes the flora of the ENT, contributing to mycosis. Common causes of CEO are constant exposure to irritants or allergens; it is also known that seborrheic dermatitis, eczema or psoriasis can also lead to CEO.

Table 3.

**Objective and subjective manifestations of CEO (with modifications)**

Feeling	Symptoms
Subjectively	Constant or frequent itching in the ear
	Otorrhoea is rare or absent at all
	Pain or discomfort is easily expressed or absent
Objectively	Discomfort during manipulations in the gastrointestinal tract
	Skin changes (seborrheic dermatitis, psoriasis) around the ear or in other areas of the skin are possible
	Changes in the ENT in CEO range from mild hyperemia of the skin to severe stenosis
	There may be lichenification (hypertrophic proliferation of the skin)
	Massive or single layers of desquamated epidermis
	A small amount of earwax
	Manifestations of fungal damage — white layers in candidiasis, black or yellow plaques in aspergillosis

**Treatment of CEO**

Initially, treatment should begin with local medications. The general advice is the same as for AEO (Table 4). In eczema complicated by bacterial infection, local drops with an antibiotic and a corticosteroid are indicated. Here, it is best to prescribe Polydexa - original European ear drops containing neomycin, polymyxin B and dexamethasone. The composition of Polydexa corresponds to the most modern European and American recommendations for the treatment of external otitis. In

case of a pronounced allergic reaction (severe swelling of the skin of the external auditory canal and/or auricle), systemic corticosteroids should be included for several days and an allergy test should be prescribed. If a fungal infection is confirmed, local 1% clotrimazole should be prescribed.

If the cause is unknown, you can start with a local corticosteroid. If the reaction is insufficient, then add an antifungal drug.

Table 4.

**General principles of treatment of external otitis**

Elements of treatment	Indication
Avoidance of water in the ear	All external otitis
Topical drugs	All external otitis
Cleansing of pathological contents	Chronic, recurrent external otitis
Systemic drugs	Severe external otitis

**Necrotizing otitis externa**

*Necrotizing otitis externa (NEO)* is an aggressive infection of the external auditory canal with a high mortality rate, which mainly affects the elderly, immunocompromised patients or diabetics. Infection with external auditory canal spreads rapidly to the mastoid process, temporal bone and skull base with the development of osteomyelitis, and meningitis may also

occur. NEO should be suspected if patients in the specified risk group have otitis media and fever over 39 degrees C. Extremely severe pain, more pronounced at night, may also suggest that the patient does not have ordinary otitis, but NEO.

Typical for NEO is severe pain in the ear, head, manifestations of damage to surrounding structures (in particular, facial nerve paresis, dizziness, sensorineural

hearing loss). Examination reveals granulation tissue at the junction of the bony and cartilaginous parts of the external auditory canal, as well as exposed bone in the bony part of the external auditory canal — these are clear evidence of NED, although these findings are not required for diagnosis. Despite rapid and effective treatment, mortality is relatively high and is 15%.

#### **Acute otitis media**

*Acute otitis media (AOM)* is a middle ear infection that occurs mainly in children and rarely in adults. It can be caused by a virus and/or bacteria. It most often occurs in children under 4 years of age, and 90% of children have at least one episode of AOM by the age of 2; the disease is characterized by seasonality (more often in the cold season). Sometimes spontaneous otorrhea occurs with AOM. If a tympanostomy (ventilation) shunt is present in the nasal cavity, otorrhea also occurs (mainly in primary rhinosinusitis), then the diagnosis is “AOM with otorrhea from a ventilation shunt”.

#### **Manifestations**

If otorrhea occurs with AOM, it is a consequence of spontaneous perforation of the nasal cavity; when otorrhea appears, the ear pain quickly subsides. Discharge from the ear in AOM never has an unpleasant odor, this is an important differential sign of otorrhea in AOM from otorrhea in CEO or chronic otitis media.

#### **Treatment**

In AOM with spontaneous otorrhea, systemic oral antibiotics are mandatory. Local antibacterial treatment with drugs without ototoxic properties is also prescribed. In such a situation, Otofa, the original ear drops that contain rifamycin (an antibiotic without ototoxic properties), can be prescribed. Indications for hospitalization in AOM:

- Severe general condition of the patient
- Presence or suspicion of otogenic complications (e.g., mastoiditis meningitis, brain abscess, sigmoid sinus thrombosis, or facial nerve palsy)
- All children under 6 months of age with fever greater than 38° C

#### **Chronic otitis media without cholesteatoma**

If AOM leads to perforation of the tympanic membrane, and in the future there will be periodic otorrhea and persistent perforation of the tympanic membrane persists between episodes of otorrhea, then chronic otitis media (COM) occurs. Discharge from the ear is purulent, periodic, mostly without an unpleasant odor, after treatment and the disappearance of otorrhea, persistent perforation of the tympanic membrane persists for a long time.

Such a patient should be referred to an ENT specialist for further examination and determination of indications for surgical treatment. In the presence of double perforation of the tympanic membrane, the diagnostic search should be directed towards tuberculous otitis media, Wegener's granulomatosis or syphilis. Rifamycin (the active ingredient of Otofa ear drops) has high activity against the causative agent of tuberculous otitis media.

*Treatment of COM* without cholesteatoma during active otorrhea consists of prescribing systemic antibiotics for 7–10 days (based on the results of culture and sensitivity), as well as local antibiotic drops.

The best drug for this is the original Otofa ear drops, which contain rifamycin. Rifamycin exhibits antimicrobial activity against most gram-positive and gram-negative microorganisms that cause infectious and inflammatory diseases of the middle ear. Rifamycin does not have an ototoxic effect both when applied locally and systemically.

The only original rifamycin for local use is Otofa. The scheme of use of Otofa is as follows:

- dosage for adults - 5 drops in the affected ear 2 times a day;
- dosage for children - 3 drops in the affected ear 2 times a day.

#### **Chronic otitis media with cholesteatoma**

Cholesteatoma is a rare but clinically significant and potentially life-threatening condition. In a general practice with approximately 2500 patients, one can expect to see a new case of cholesteatoma every 4–5 years. There are two types of cholesteatomas: congenital and acquired.

#### **Congenital cholesteatoma**

It is usually discovered incidentally during otoscopy. Otorrhea is not a typical initial symptom, but as the cholesteatoma grows, an accompanying infection may occur, and then there will be discharge from the ear. Congenital cholesteatoma accounts for 3.7–25% of all cholesteatomas. On average, it is diagnosed at the age of 4.5 years, but it can occur as early as 6 months or in adulthood.

Congenital cholesteatoma occurs when ectoderm (the precursor tissue of the keratinized epithelium) enters the middle ear during embryogenesis, proliferates, and spreads, infecting and destroying surrounding structures.

#### **Manifestations**

Otoscopy reveals a pearly white, rounded mass behind a normal intact tympanic membrane, and there is no history of otorrhea or otosurgical procedures (including myringotomy). All such cases should be referred to an ENT specialist for further surgical management.

#### **Acquired cholesteatoma**

Acquired cholesteatoma is a well-defined mass that occurs when the keratinized epithelium enters the middle ear (after perforation of the tympanic membrane or after otosurgery) and its subsequent proliferation. It may be a consequence of the progression of the tympanic membrane retraction pocket. Cholesteatoma can cause erosion of surrounding structures, in particular the auditory ossicles, and also lead to damage to the facial nerve, cochlea, semicircular canals, bone structures of the mastoid process or to destruction of bone structures with spread into the cranial cavity.

#### **Manifestations**

Cholesteatoma is often asymptomatic at first, and when symptoms appear, they may be nonspecific. However, if there is recurrent discharge from the ear with an unpleasant odor, this indicates the need for an

in-depth examination to confirm or deny cholesteatoma. There is conductive hearing loss; sometimes the patient indicates a feeling of fullness or pressure in the ear. In the case of large cholesteatoma, there may be pain, dizziness, the appearance of sensorineural hearing loss or facial nerve paresis. Intracranial complications may occur - meningitis or abscess.

#### **Otoscopy**

Perforation can be seen, from which cholesteatoma scales are visible, pus with an unpleasant odor, granulation tissue or polyps can be seen, changes are more often localized in the area of the unstretched part of the eardrum. Sometimes the cholesteatoma is covered with earwax, which masks it.

#### **Treatment**

A patient with COM with cholesteatoma who has symptoms of complications (facial nerve paresis, dizziness, sensorineural hearing loss or meningeal signs) should be urgently referred for hospitalization in the ENT department.

The treatment of cholesteatoma (complicated or uncomplicated) is only surgical, therefore a patient with cholesteatoma or suspected of having it should be referred to an ENT for an in-depth examination (CT, MRI, audiogram). In the presence of active otorrhea, such patients are prescribed systemic antibiotic and local antibacterial drugs until the otorrhea disappears/reduces. Rifamycin (Otofa) has the best activity against bacterial pathogens of otitis. Referral for an in-depth examination should not be delayed until an accurate diagnosis is made in a patient in whom cholesteatoma is suspected or in whom repeated courses of adequate treatment are ineffective in stopping otorrhea.

### **UNCOMMON CAUSES OF OTORRHEA**

#### **Foreign objects in the ear canal**

Foreign objects can block the lumen of the ear canal, causing secondary ear infection with otorrhea. A case of larvae in the ear (ear myiasis) has been described. If a foreign object is found, it should be removed. The primary care physician can flush it out with a Janet syringe. If it cannot be removed in this way, then a referral to an otolaryngologist should be made. After removal of the foreign object, otorrhea resolves on its own or after subsequent administration of local drops (antibiotic with corticosteroid).

#### **Bullous myringitis**

It is manifested by the discharge of blood from the ear. It is a consequence of viral inflammation of the eardrum in acute respiratory viral infections, mainly with a severe course (for example, influenza). Otoscopically - blisters (bullae) on the eardrum, filled with blood or bloody contents).

#### **Granulating myringitis**

A rare disease, it is often confused with COM or CEO, which can lead to unnecessary surgery. It is a consequence of chronic inflammation of the tympanic membrane, secondary to infection with *S. aureus* or

*Pseudomonas aeruginosa*. Granulating myringitis can be secondary to trauma to the eardrum with a cotton swab.

It is manifested by painless otorrhea with or without conductive hearing loss. The diagnosis is mainly clinical, for differential diagnosis, CT of the temporal bones can be done. The PD is totally covered with granulation tissue, mainly in the posterior-upper quadrant; there are vesicles, sometimes perforation. Such a patient should be referred to an otolaryngologist for conservative or surgical treatment.

#### **Ramsay-Hunt Syndrome**

This is an auricular herpes zoster, manifested by very severe otalgia, facial nerve paresis, and vesicles in the auditory canal and on the auricle. A small amount of sucrocid, bloody fluid may flow from the vesicles.

#### **Liquorrhea**

Clear watery discharge from the ear may be liquor. Liquorice should be suspected in the presence of a history of head injury, skull base fracture, or otosurgical procedures. If CSF is suspected, the patient should be immediately referred for hospitalization.

#### **Trauma to the Eardrum and/or External Auditory Canal**

Blood discharge may be a consequence of trauma to the ENT and/or external auditory canal (most often with cotton swabs), but careful diagnostics are required to exclude other causes, which may include otomicroscopy. Bleeding from the ear may be due to the formation of granulation tissue around the ventilation shunt.

#### **Rare causes of otorrhea**

Very rare causes of otorrhea include systemic granulomatous diseases (e.g., sarcoidosis or Wegener's granulomatosis), ear tumors, post-radiation otitis media, and post-radiation osteonecrosis of the temporal bone.

Rare cases of otorrhea (Fig.1) as a symptom of neck abscesses—odontogenic submandibular abscess and parapharyngeal abscess—have been described, as well as otorrhea as a symptom of infection of the third lower molar. In these cases, the route of infection into the tympanic cavity is either through the Santorini fissures (thin slits in the anterior wall of the cartilaginous part of the tympanic cavity) or through the permanent foramen tympanicum (Huschke's foramen, a dehiscence of the tympanic cavity that forms a route of infection from the superficial lobe of the parotid gland to the tympanic cavity, or vice versa).

In the case of a salivary fistula, saliva may be released from the external auditory canal. This type of otorrhea is characterized by concomitant edema in the preauricular area and a history of trauma and/or surgery of the parotid salivary gland. Although cases of spontaneous sialoorrhea (through the foramen of Guschke), i.e. without a history of surgery/trauma of the parotid salivary gland, have been described.

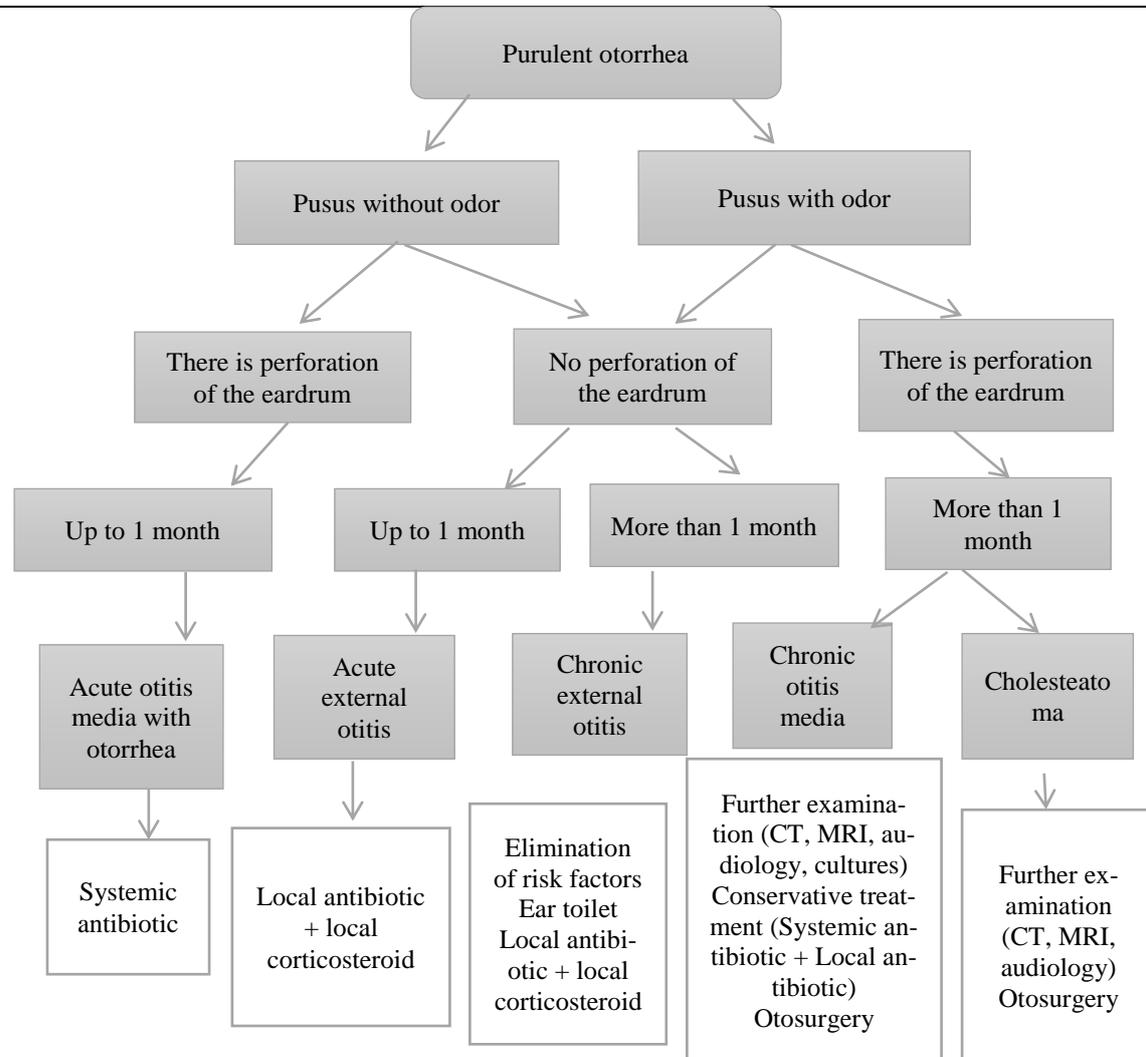


Fig. 1. Algorithm of the doctor's actions in case of purulent otorrhea

**Conclusion.** Otorrhea is an important symptom of ear diseases, or it can be a manifestation of the spread of diseases from the periauricular areas to the ENT organs. The most common discharge from the ear is pus. The most common causes of otorrhea are AEO or AOM. The doctor should remember about COM with cholesteatoma as a life-threatening pathology. Understanding the cause of otorrhea will help to establish the correct diagnosis and prescribe the correct effective and safe treatment.

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# PEDAGOGICAL SCIENCES

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## PEDAGOGICAL CONDITIONS FOR THE FORMATION OF COMMUNICATIVE SKILLS AND ABILITIES OF FUTURE SPECIALISTS

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## ПЕДАГОГІЧНІ УМОВИ ФОРМУВАННЯ КОМУНІКАТИВНИХ УМІНЬ І НАВИЧОК МАЙБУТНІХ ФАХІВЦІВ

### **Abstract**

The article is devoted to the justification of pedagogical conditions for the formation of communication skills and abilities of future specialists in the system of higher education. The theoretical and methodological foundations of the concept of communicative competence are examined, and the key factors of the educational environment that contribute to its development are identified: a person-centred approach, active teaching methods, interdisciplinary integration, reflection, digital technologies.

### **Анотація**

Стаття присвячена обґрунтуванню педагогічних умов формування комунікативних умінь і навичок майбутніх фахівців у системі вищої освіти. Розглянуто теоретико-методологічні основи поняття комунікативної компетентності, виявлено ключові фактори освітнього середовища, що сприяють її розвитку: особистісно-орієнтований підхід, активні методи навчання, міждисциплінарна інтеграція, рефлексія та цифрові технології.

**Key words:** *communicative competence, educational environment, professional communication, interdisciplinary integration, reflection, digital technologies.*

**Ключові слова:** *комунікативна компетентність, освітнє середовище, професійне спілкування, міждисциплінарна інтеграція, рефлексія, цифрові технології.*

The modern system of higher education is focused not only on the transfer of knowledge and the formation of professional competencies, but also on the development of students' readiness for productive interaction in various activities. Due to rapid technological renewal, growth of information flows and internationalization of the professional environment, communication skills and abilities that provide a specialist with the opportunity for constructive dialogue, negotiations, joint problem solving and effective participation in collective projects are of particular importance. In this context, communication competence is regarded as an integrative education of the individual, including a system of knowledge, skills and values that ensure the successful implementation of professional communication. The formation of these qualities in a university requires the creation of certain pedagogical conditions that contribute to the targeted development of communication competence in students.

In modern pedagogy, the concept of «pedagogical conditions» is interpreted as a set of factors in the educational environment that are specifically organised to achieve certain learning and educational outcomes. The development of communication skills and abilities is

considered in line with the competency-based approach, where communication competence is one of the key components of professional readiness. Researchers emphasise that the development of the communicative qualities of future specialists is impossible without their active involvement in educational and extracurricular communication situations that require productive interaction, exchange of opinions, and coordination of activities. The methodological basis for the formation of communication skills is the combination of principles of personality-oriented and activity-based approaches. The personality-oriented approach involves recognising the subjective experience of students, their individual style of communication, while the activity-based approach involves organising active practice in verbal interaction. [1, p. 207]

According to researchers, communication skills and abilities include:

- the ability to perceive and adequately interpret the speech of the interlocutor;
- the ability to clearly, logically and accurately formulate one's own thoughts in oral and written form;
- mastery of verbal and non-verbal means of influencing the audience;

– the ability to maintain dialogue, conduct discussions, and observe ethical and cultural norms of communication;

– willingness to cooperate, ability to listen, ask questions, and argue the point of view. [2, p. 304]

For most professions of the 21st century, these skills are not auxiliary but essential, as modern specialists work in teams and interact with colleagues and international partners.

It should be noted that a fundamental condition for the development of communication skills and abilities is the creation of such an environment at the university that encourages students to actively engage in dialogues and collaboration. The atmosphere of respect and trust allows students to take initiative and express their own opinions without fear of negative evaluation. In this situation, the teacher acts as a facilitator, supporting the development of students' subjective concepts. [3, p. 58]

Traditional lecture-based teaching methods do not fully develop communication skills. Teaching techniques that encourage students to speak are needed, namely:

- discussions, debates, round tables;
- project work in small groups;
- business and role-playing games that simulate professional situations;
- analysis of cases requiring argumentation and public defence of decisions.

The use of these methods contributes to the formation of constructive debate, public speaking, and teamwork.

The development of communication skills should take place not only within the framework of the humanities, but also in the process of studying core subjects. For example, an engineer defending a course project develops the ability to clearly express technical ideas, while a medical student practises communication skills with patients in a simulation centre and develops professionally relevant speech culture. Such an interdisciplinary approach strengthens motivation and demonstrates the applied nature of communication skills. [4, p. 136]

Further, the issue of reflecting on one's own successes and difficulties in communication is of great importance because this allows students to consciously manage the communication process. The following can be used for this purpose:

- a portfolio of achievements with samples of public speeches and written works;
- self-assessment and mutual assessment of participation in team projects;
- regular feedback from teachers and fellow students.

Such activities develop students' critical thinking, responsibility for the quality of communication, and the ability to adjust their speech practice.

Modern specialists must possess communication skills in virtual space. The inclusion of online discussions, forums, and collaborative platforms in the educational process broadens students' communication horizons and develops their ability to formulate thoughts in written electronic form, observe the norms of online

communication etiquette, and effectively use multimedia resources to argue their ideas. [5, p. 176]

Furthermore, teachers play a key role in developing communicative competence. They act as designers of the educational environment, organisers of group activities, moderators of discussions, and consultants on issues of speech culture. Their professional position should combine methodological competence and willingness to engage in dialogue, flexibility in choosing forms of work, and the ability to stimulate students to actively interact. Teachers are also responsible for assessing students' communicative achievements and providing adequate feedback, which increases motivation and helps to reinforce positive communication experiences.

The comprehensive application of the specified pedagogical conditions leads to the formation of sustainable communication skills in future specialists, which are in demand in professional activities. A graduate with developed communication skills demonstrates the following qualities:

- readiness to cooperate in a multinational and interdisciplinary environment;
- the ability to effectively present the results of their work;
- the ability to constructively resolve conflict situations;
- high culture of speech and behaviour in the professional community.

Thus, the implementation of these conditions improves the quality of training for specialists and meets the requirements of the modern labour market. [6, p. 97]

The development of communication skills and abilities in future specialists in the system of higher education is a complex and multifaceted process that requires the task-oriented organisation of the educational space. The key pedagogical conditions are the following: creating personality-oriented environment, introducing active teaching methods, interdisciplinary integration of content, organising reflective and evaluative activities, and using digital technologies. An effective combination of these conditions ensures the development of not only communication skills in students, but also a broader range of professional and personal qualities necessary for successful realisation in modern society.

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# PEDAGOGICAL SCIENCES

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## ALGORITHMS FOR USING COVID-19 PANDEMIC DATA IN THE EDUCATIONAL PROCESS AT THE POSTGRADUATE STAGE

### **Abstract:**

*The article describes the experience of introducing materials on the study of the features of the course of the COVID-19 pandemic in the acute period and the impact of this disease on the human body into the educational process of internal medicine interns. Possible rehabilitation measures at the outpatient stage in order to improve the condition of patients after an infection are also considered.*

**Keywords:** *medical interns, educational process, COVID-19 pandemic, rehabilitation.*

**Introduction.** The COVID-19 pandemic has created a global problem in the education and training of medical personnel. In modern society, there is a need for highly qualified specialists, high-quality medical care and the use of the latest diagnostic and treatment technologies, therefore, the suspension of the educational process and certification of interns for an indefinite period would negatively affect both their professional development and the country's healthcare system as a whole [1]. Emergency distance learning is a temporary measure to transition the educational process to an alternative regime due to crisis circumstances [2]. The situation in the country required providing temporary access to training and educational support that are quickly adjusted and available in emergency conditions [3]. Given the above circumstances, training and assessments should be appropriately adapted to the conditions of quarantine and other restrictive measures, as well as to the needs and characteristics of obtaining higher medical education by modern youth [1].

It has significantly affected all areas of activity around the world. Even in the most developed countries, the medical industry could not withstand the critical load due to the large flow of patients [2, 3]. The emergency re-profiling of therapeutic hospitals and hospitals into infectious diseases with the appropriate equipment upgrade also required retraining and further training "on the fly" of the personnel of these institutions into infectious diseases specialists. The personnel crisis in providing medical workers is acute today, and there is a real prospect of its continuation in the coming years. Even interns are currently involved in the process of providing medical care to patients with COVID19 in many cities of Ukraine. The unpredictability of the duration of this pandemic requires urgent adjustments to the educational process of interns, primarily of the therapeutic profile, given the possible need for their involvement in the process of providing care to patients who have already suffered from this disease, but have various complications from it. Medical education has

undergone significant changes due to the coronavirus pandemic, and the significant consequences have forced all educators to adapt and restructure their work. Being in conditions of adaptive quarantine requires rethinking the methods and forms of training young specialists in postgraduate education [1, 2]. This requires the implementation of flexible and reliable models of training for interns, which will allow for continuous adaptation to various changes in the educational process. The conditions of the pandemic have accelerated and intensified the pedagogical achievements of past years, creating the need for innovations [1]. The experience gained in applying innovations will be useful for interns in their further practical activities.

**Materials and methods.** Information obtained through monitoring from various electronic, printed media, scientific search databases of Ukraine and the world, regional data, including local clinical databases using methods of analysis, comparison and generalization [2] were used. Preference was given to active search by interns with the preparation of presentations by them, teachers acted mainly as moderators, summarizing the achievements of world medicine for each short period (week, month, quarter) and discussing with interns the prospects for the development of events in the pathophysiological, diagnostic and therapeutic, preventive directions and rehabilitation in the post-covid period. When completing the therapeutic cycle on a clinical basis, this problem was given daily attention for 15-20 minutes before considering the educational topic according to the curriculum and individual classes, at the beginning and end of the therapeutic cycle (first year of study) - approximately 2-2.5 hours in the form of a conference with the participation of most active interns.

**The main part.** The motivational moment of the need to study this problem is set by the teacher, highlighting the global, European, Ukrainian and regional dynamics of the incidence of COVID-19 infection, the workload of hospitals, including intensive care units, patient mortality, including in this analysis of materials

on the defeat of medical personnel with various consequences [4]. In daily classes on this problem, the teacher proactively presents to interns all current world news on the study of epidemiology, pathogenesis, diagnostics and treatment of COVID-19 infection, especially the vaccination process, focusing on the debatable views of scientists from leading countries of the world and actively involving interns in the discussion regarding their understanding of this situation. Cases of infection of medical workers of a medical institution or region, the attitude of the state, local administrations, colleagues to such patients are necessarily analyzed, attempts are made to give a critical assessment of shortcomings, ways to eliminate them: "What would you do in such cases?" When analyzing the tactics of managing such patients in hospitals, the need to adhere to treatment protocols consistent with world achievements is emphasized, and at the same time it is emphasized that they are periodically amended in accordance with new achievements of world infectious diseases. However, all of the above is considered a necessary component of a fundamental understanding of this problem and it is emphasized that with an optimistic solution to epidemiology by applying various degrees of quarantine measures and vaccination, doctors of the therapeutic profile will have to deal in the near future with a less powerful, but significant flow of patients with post-covid syndrome. Clinically, it is extremely diverse, polysystemic with mandatory long-term manifestations of secondary immunodeficiency and metabolic and vascular disorders, which will have age and gender characteristics depending on comorbid processes. This stage of the disease is still clearly insufficiently studied by world medicine. Together with the interns, the teachers, based on world achievements in other fields of medicine, pathogenetically close to COVID-19, discuss possible promising areas of assistance to this contingent of patients. The final leitmotif: to encourage the interns to further independently and collectively search for the latest information on the study of clinical and pathogenetic aspects of diagnostics, rehabilitation of patients with post-covid syndrome. After several years of the pandemic, the coronavirus has "turned" into a seasonal disease and has been equated with SARS. At the same time, people who have already had COVID-19 or are currently sick develop complications that "haunt" them for a long time and do not always go away without the help of doctors. This condition is called post-covid syndrome and occurs in almost every fifth patient. Post-covid syndrome is a complex of symptoms that occur after suffering COVID-19 and are difficult to explain by any diagnosis. This condition can occur immediately after the illness, transforming into the so-called protracted COVID, or several months or even six months after recovery. Post-covid syndrome is often disguised as other diseases, which significantly complicates diagnosis and the correct selection of treatment. For example, yesterday's COVID-19 patients often become patients of a cardiologist, trichologist, neurologist or physiotherapist tomorrow, without even suspecting the main reason for the deterioration of well-being. Symptoms of post-COVID syndrome vary from person to person, but the most common and bothersome are the following manifestations of the condition: cough,

shortness of breath, tachycardia, weakness and fatigue, tremors in the hands, muscle pain, hair loss, headache, panic attacks, sleep disturbances, loss of smell and taste [4, 5]. Today, it is not known for certain how long the post-COVID period can last in a patient. At the same time, British scientists have noticed that in every fifth person this condition lasts about 5 weeks, and in every tenth - up to 12 weeks [5]. Although there are cases when some symptoms after coronavirus remain with a person for years. Especially if rehabilitation measures are not carried out in relation to them. In view of the above, after suffering acute symptoms of COVID-19, the patient requires mandatory monitoring of respiratory function, cardiovascular and nervous systems, and professional assessment of mental functions. Therefore, a multidisciplinary approach to rehabilitation is of particular importance for the full restoration of a satisfactory quality of life in patients with post-Covid syndrome.

### Conclusions.

1. The destructive effect of the COVID-19 pandemic on all spheres of human activity, primarily the medical field, the unpredictable nature of the further development of this disease, requires the general public of doctors, especially those of the therapeutic profile, to urgently acquire the necessary knowledge to provide personnel for the systematic overcoming of this disease.

2. In the event of an optimistic development of the COVID-19 pandemic, doctors of the therapeutic profile will have to provide medical care to a significant flow of patients with post-covid syndrome, currently the treatment, diagnostic and rehabilitation processes are not developed enough to include in the educational process of interns in the specialty "Internal Medicine" all available from various sources of information of such a plan is an urgent requirement.

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# PHYSICAL AND MATHEMATICAL SCIENCES

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## TECHNIQUES OF CHANNEL CHARACTERISTIC TESTING FOR RESCUE RADAR.

### Abstract

#### Subject and Purpose of the Work

The subject of this study is the signal propagation channel of a radar system designed for rescue operations, and the methods for identifying its state during real-time operation. This is achieved through the analysis of sections of Mersenne code sequences, which are used as the modulating function of the radar's probing signal. The purpose of the work is to explore the feasibility of embedding special test pulses into the probing signal—test pulses that are separated from the informational elements of the code by guard intervals—and to assess the accuracy of channel state identification in the presence of broadband interference and in a dispersive propagation environment.

#### Method and Methodology

The method involves constructing a special estimation procedure for characterizing the radar signal propagation channel under conditions of dispersive media and broadband interference. This is achieved by embedding test pulses into the probing signal, which can serve both as control and informational elements of a Mersenne pseudo-random sequence. The methodology for analyzing the instantaneous channel state is based on comparing guard intervals and evaluating the probability of identification errors in the symbols of the Mersenne code sequence under broadband noise and signal dispersion.

#### Results

Radar technologies are widely used in modern rescue operations during various natural and man-made disasters. For example, after earthquakes, survivors may be trapped under rubble or collapsed buildings, hidden from view by debris and walls, making visual detection impossible. The challenge is even greater if the victim is unconscious and unable to indicate their location. One class of devices designed for such scenarios is short-range radar. In such cases, the only informative feature that distinguishes a living person from stationary objects is the movement of the chest caused by breathing or heartbeat. However, the effectiveness of detection depends significantly on how much the probing signal is distorted during propagation through the dispersive medium, and by the presence of broadband interference.

To evaluate the characteristics of the signal propagation channel in real-time, it is proposed to use modified pseudo-noise sequences based on Mersenne codes, into which test pulses protected by special guard intervals are inserted. These test pulses may also serve as informational elements within the code. A structural design of a channel characteristics estimator has been developed, which can be implemented directly in the radar's circuitry. A comprehensive analysis of estimation errors and the system's overall robustness has been conducted.

#### Conclusion

It has been demonstrated that the channel estimator can be implemented as a sequence of processing steps within the radar receiver's data module. During the first step—when only test pulse samples are being processed—signals can be simply averaged. Once valid data symbols begin arriving, the system can immediately proceed to the third step. These two phases can be realized by the proposed design, where control units block the data pulses during the initial step and enable them during the subsequent one. If the initial step is skipped, the decision-making process will continue to update dynamically as the channel state changes. Simulation results confirm the feasibility of this scheme when combined with a suboptimal signal estimator. This approach is especially advantageous because it eliminates the need for a dedicated testing channel, ensuring that no part of the system's capacity is wasted on separate channel sounding.

**Keywords:** Scheme, Comb Filter, Channel, Mersenn Code, Rescuer Radar, Guard Interval, Breathing, Heart-beat, Test Pulse, Guard Pulse.

## INTRODUCTION

Radar technologies are widely used in modern rescue operations during various natural and man-made disasters. In particular, after earthquakes, living people may remain trapped under the rubble of collapsed buildings, hidden beneath debris and broken walls, making visual detection difficult or even impossible.

The situation becomes even more complicated if the injured person is unconscious and unable to indicate their location in any way. Electromagnetic signals in the frequency range of 0.9 to 2.5 GHz penetrate well through obstacles such as brick and concrete walls, construction debris, and similar materials [1-9]. However, traditional radar systems with pulse-modulated signals are ineffective for probing building rubble, since humans

and debris have similar radar cross-sections. The only informative feature that allows a living person to be distinguished from stationary objects is the movement of the chest due to breathing and heartbeat [3-6]. These movements cause a low-frequency phase modulation in the reflected signal due to the Doppler effect [7], typically in the frequency range of 0.2 to 1.2 Hz [1-3]. To detect and identify this Doppler modulation, a class of radars using continuous wave probing signals with pseudorandom phase modulation has been developed and is now widely used in practice [9, 10]. In particular, M-sequences based on Mersenne codes have proven to be highly effective for these purposes [10-13]. The principles of generating such sequences and their spectral-correlation properties are described in [13]. As the probing signal travels from the phase center of the transmitting antenna to the target and back to the receiving antenna, it undergoes various distortions caused by dispersion of the wideband signal in the medium, multiple reflections from obstacles and inhomogeneities, diffraction, and so on [14, 15].

Therefore, to synthesize appropriate decision rules for detecting and identifying radar signals reflected

from the target (such as a living person behind an optically opaque obstacle), it is essential to have reliable estimates of the signal propagation channel characteristics. The important question is which testing technique is to be used for determine the channel characteristic. Obviously it depends above all on available information about the characteristics of the received signal, necessary for detection and identification. These are, of course, could be as non-information and information characteristics. They vary with time because the instantaneous properties of the channel, too, as do the transmitter characteristics, although at a slower rate. This is why information about the received signal stored in the channel estimator must be updated, and this updating should go on continually, as the signals in the same digit position change in waveform.

### 1. APPROACH TO CHANNEL CHARACTERISTIC ESTIMATION.

The receiver of any digital data system of the rescuer radar might be arbitrary divided into two functional units (Fig. 1).

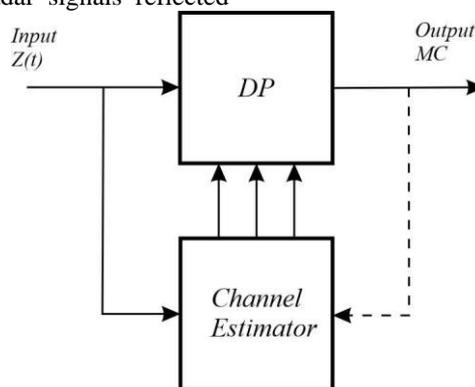


Figure 1. The generalized structural schemas of the channel estimator receiver

One of them is the digital processor block (DP), which derives the Mersenn code symbol  $a_{mc}$  or a combination of code symbols from the received input signal  $z(t)$ . The other block is a channel estimator (CE), which estimates the samples or characteristics of the test signal, averages them in the interval where they are relatively constant, and supplies reference and control signals. In some receivers incorporating decision feedback, the output of the processor is fed to the estimator in the form of digital control signals. Where no special test pulses are used, information about changes in channel characteristics is derived by the estimator from data-bearing pulses, on the assumption that they are received correctly. Recently, continuous or intermittent channel testing has come to be viewed as a powerful means of enhancing the efficiency of short distance radars like the rescuer ones. The point is that changes in the channel introduce an additional uncertainty at the receiver, and additional information has to be transmitted in order to remove this uncertainty. The most convenient way to do this is with a pilot signal which carries an information parameter known at the receiver a priory and which does not therefore carry information in the ordinary sense of the word. Such type of signal

could be produce from the unmodulated frequency carrier of the sounding signal. Instead, a pilot signal assists in tackling the reverse task: it's received from and known information parameter are utilized to estimate the remaining characteristics. As the rate at which the channel varies decreases, an increasingly smaller part of the overall capacity need be allocated to this auxiliary information. In a single-path channel with smooth fades, one measures the signal propagation time, which is necessary for operation of the clock system. When such a channel uses coherent detection, one also has to measure the phase of the complex envelope or its in-phase and quadrature components. In multipath channels subject to selective fading of amplitude and phase, one has either to provide a pilot signal for each subcarrier so as to determine its relative amplitude and phase, or to observe the structure of the impulse response.

In the presence of echo signals, the response to the sounding signal should reveal a multipath structure. That is, the response should contain either the characteristics of the waves associated with the individual paths (amplitudes, phases, and propagation times), or samples of the complex envelope of channel response to the data pulse. In that case, the sounding signal should be identical in waveform with data pulses. This case is most attractive from the view point of rescuer

radar realization in of both potential schemas: the one with samples of the complex envelope are directly utilized for computation, and the other organization the reference circuit operates as a time division multiplex channel.

For generality, the figure 2 shows a lattice function which can be transformed linearly to yield either square pulses with a minimal peak factor, or pulses of the form  $\sin(x)/x$  with minimal bandwidth, or Gaussian pulses with a minimum area of the bandwidth-duration product.

**2. ANALYSIS OF TECHNIQUES OF CHANNEL CHARACTERISTIC ESTIMATION.**

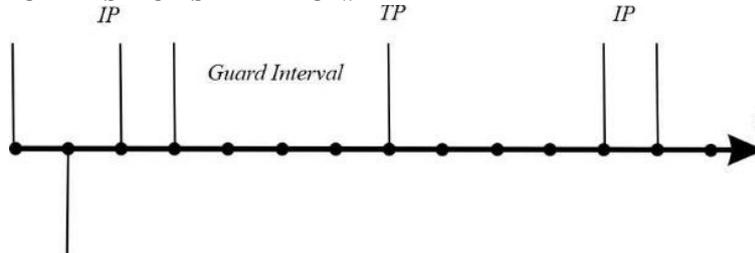


Figure 2. Determination of channel characteristics, using passive guard intervals (here is denoted: TP – the test pulse, IP – the informative pulse).

In passing through the linear circuit elements and filters of a multipath radio link, the signal is smeared out in time, and the initial lattice function becomes to a continuous signal. A distinction of this scheme is that the channel response exists in pure form (accurate up to interference) during sometime between last informative pulse and end of guard interval. This response takes care not only of the distortion in the radio link, but also of the imperfections associated with the signal forming and filtering elements at the transmitter and receiver of the rescuer radar. A disadvantage of

this scheme is that the group signal has three levels (+1, 0, -1), while the information signal has only two levels. This gives rise to purely organizational inconveniences: in addition to phase shift keying (of two-level signal), one has to use on-off keying (to disable the channel for the end of guard interval after the test pulse).

Use of a test pulse protected by active guard intervals which are made up of guard pulses (GP), transmitted instead of zero pulses and taking up a position opposite to that of the test pulse, see figure 3.

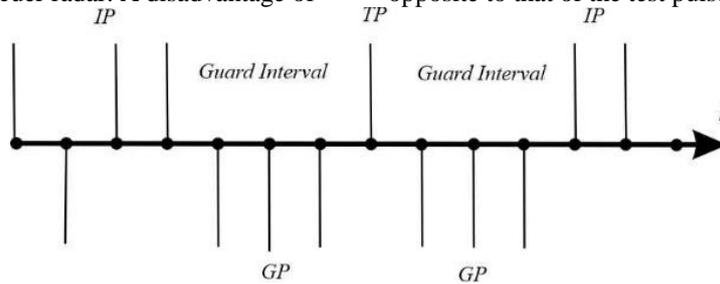


Figure 3. Determination of channel characteristics, using active guard intervals (here is denoted: GP – the guard pulses).

Now, the impulse response to the test pulse in the guard interval is masked by a set of responses to the guard pulses on the left and right along the time axis. It may be said that in the guard interval a double-level test pulse (+2) is superimposed on a long sequence of guard pulses. By the same token, it may be said that the test signal in the sounding circuit is increased four times in power, and so is the signal-to-noise ratio. This is an additional advantage of that scheme.

The next scheme use of a test pulse not separated from informative pulses (see Figure 4). As is seen, the signal consists of informative pulses and a sequence of test pulses superimposed on the former. The period of test pulses is chosen such that the response to the sequence of test pulses is a sequence of non-overlapping transients containing the sought characteristics.

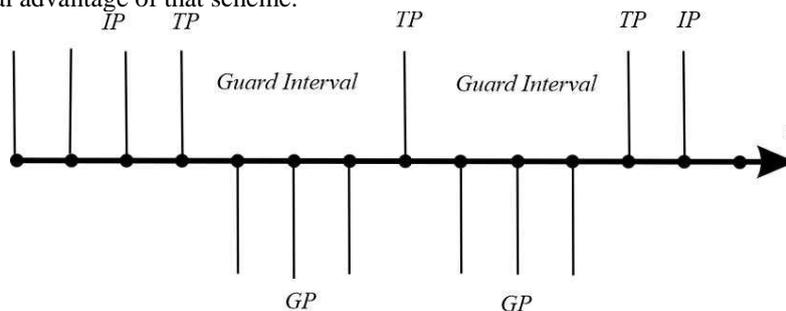


Figure 4. The scheme of measurement of channel characteristics use of a test pulses not separated from informative pulses.

### 3. IMPLEMENTATION OF THE CHANNEL CHARACTERISTIC ESTIMATOR.

Denoting the part of signal  $z_t(t)$ , lying in the guard interval as  $S(t)$ , that is,

$$z_t(t) = \sum_{h=1}^{\infty} s[t - k(B+1)T], \quad (1)$$

and the information  $sign \pm 1$  belonging to the  $n$ -th signal pulse as  $a_n$ , we get

$$z(t) = z_t(t) + z_s(t) = \sum_{h=1}^{\infty} s[t - k(B+1)T] + \sum_{n=1}^{\infty} a_n S(t - nT), \quad n \neq k(B+1). \quad (2)$$

By matching the segments of guard interval of the total signal  $z(t)$  in time, that can handle the resultant segments of guard intervals in any one of two ways.

First of them is average signals at guard interval over  $a_n$  e.g.

$$E\{z(t)\} + S(t) + \sum_{n=1}^B E\{a_n\} S(t - nT). \quad (3)$$

If averaging is carried out over a sufficiently long time and if the source generates the symbols  $a_n$  with equal probability, then  $E\{a_n\} \rightarrow 0$ , and  $E\{z(t)\} \rightarrow S(t)$ .

averaging them, it can be find the pure channel response to the test pulse despite the pulse overlapping. It is to be noted that the requirement for averaging to be carried out over a sufficiently long time runs counter to the requirement for a continuous tracking of changes in the channel. Therefore, averaging should be more in the nature of smoothing, where the result of averaging for the  $i$ -th step is connected to the result of the previous averaging step by relation of the form

Thus, under the conditions specified above, by simply matching signal segments of length  $(B+1)T$  and

$$E\{z(t)\}_i = E\{z(t)\}_{i-1} q + [z(t)]_i (1 - q), \quad (4)$$

where  $q$  is close to unity.

Second variant of matching the segments of guard interval based on the averaging, recalling the signs of  $a_n$  are known with a probability close to unity. To satisfy this condition, it is necessary to delay the received signal for  $(B+1)T$ . Then the sign coefficients  $a_n$  found by the estimator will be known by the time the signal is reproduced at the output of the memory unit, and instead of (2) it can be written

As  $(1-q)$  decreases, the efficiency of averaging improves, but the transient in the  $S(t)$  estimator becomes more sluggish. The estimation of  $S(t)$  can be examined no decision feedback. Because of this, the testing circuit does not use all of the group signal. Now the sequence  $z(t)$  is treated as a classified signal sample, and the sequence  $z_s(t)$ , as unclassified.

$$z(t) = \sum_{n=1}^{\infty} a_n S(t - nT), \quad (5)$$

where  $a_n = 1$  for  $n = k(B+1)$  (test pulses),  $a_n = \pm 1$  for  $n \neq k(B+1)$  (data pulses), all of the  $a_n$  being known.

Now, by shifting  $z(t)$  through  $T$  rather than  $(B+1)T$  and averaging the resultant  $z_T(t)$  with a weight  $a_n$ , it can be get

$$[z_T]_i = z(t + iT) h_B(t), \quad (6)$$

$$E\{z_T(T)\} = E\{a_i [z_T(t)]_i\} = E\left\{a_i h_B(t) \sum_{n=1}^{\infty} a_n S[t - (n-i)T] \rightarrow S(t)\right\}. \quad (7)$$

In evaluating equation (7), all likely values of  $i$  from unity to infinity should be tried. All terms with  $n=i$  will enter the result in pure form (without a shift), with a coefficient  $a_i^2 = 1$ , time-limited with respect to  $h_B(t)$ . The remain terms will combine at random, producing the "background" noise of averaging. The relative level of this background noise will be  $1/B$  of that obtaining in the former case because the number of samples being averaged is increased  $B$  times. Also this

background noise is suppressed for more efficiently because the distribution of the product  $a_i a_n$  tends to be symmetric even in the case of an appreciable dissymmetry. Lastly, it is easier in this case to reconcile conflicting requirements for a large sample size and channel tracking. The two cases examined above do not exhaust all special situations that may arise during the short time interval corresponding to the averaging time. With some probability, a widely varying number of pulses may occur during the averaging interval, and

equation (7) may greatly differ from  $S(t)$ . Assuming that the error in computing  $S(t)$  is  $\delta = 5\%$ , it can be concluded that the excess of the products  $a_i a_n$  of one sign over those of the other in averaging over the signals defined by (7) during an interval covering, say, 200 pulses may be as large as  $\alpha = 2\delta / B$  relative units. With  $B=3$ , this works out to  $\alpha = 3.3\%$ . To state this another way, the difference in the number of positive and negative  $a_n$  is  $\gamma$  relative units. Here  $\alpha = \gamma^2 / 2$  and  $\gamma \approx 0.26$ .

This difference exists when the averaging interval contains 113 positive and 87 negative pulses. If all pulses are independent and both signs are equally probable, this and greater difference between pulses of unlike sign will occur with a probability  $p \approx 0.063$ . Thus the probability of unacceptably great errors in the estimates of samples  $S(t)$  turns out to be very high, despite the assumption about the statistical symmetry of the source, for which the expectation of the number of pulses of each sign is 100. On the other hand, it is clear that with decision feedback there must be a way of finding the pure response  $S(t)$  independent of the keying density. One way is to break up the complete response  $S(t)$  into elements of duration  $T$  and estimate each element separately.

Let

$$S(t) = \sum_{k=1}^{B+1} g_k(t - kT). \quad (8)$$

Then in the  $i$ -th interval of duration  $T$

$$z_i(t) = \sum_{k=1}^{B+1} a_{i-k+1} g_k(t). \quad (9)$$

Now the problem is to find  $g_k(t)$  from the received  $z_i(t)$  and the known  $a_{i-k+1}$ . It reduces to solving a set of algebraic equations. A distinction of the set, equation (9), is tremendous redundancy. In principle,  $(B+1)$  equations of the form (9) are sufficient to find  $(B+1)$  terms  $g_h(t)$ . The only condition is that the equations must be linearly independent and it is satisfied if the  $a_{i-k+1}$  in the chosen  $(B+1)$  equations are all different. However, the estimator handles a continuous stream of equations of the form (9). Their solution must be arranged so that every new equation is added to the existing set without contradicting it. Since the absolute validity of sign coefficients cannot be completely guaranteed, except the test pulses, some equations containing the erroneous  $a_{i-k+1}$  will be incompatible with the set, but they will contribute to solution all the same. Measures should be taken so that this contribution cannot damage the already accumulated solution. This can be done by averaging the solution. In addition, the averaging will suppress fluctuation noise.

With a comb filter (CF) used for averaging, the estimator to solve equations (9) may be built along the lines illustrated in the figure 5.

For better insight into the estimator structure, equation (9) may be rewritten as follows

$$g_k(t) = (a_{i-k+1})^{-1} \left[ z_i(t) - \sum_{\substack{l=1 \\ l \neq k}}^{B+1} a_{i-l+1} g_l(t) \right]. \quad (10)$$

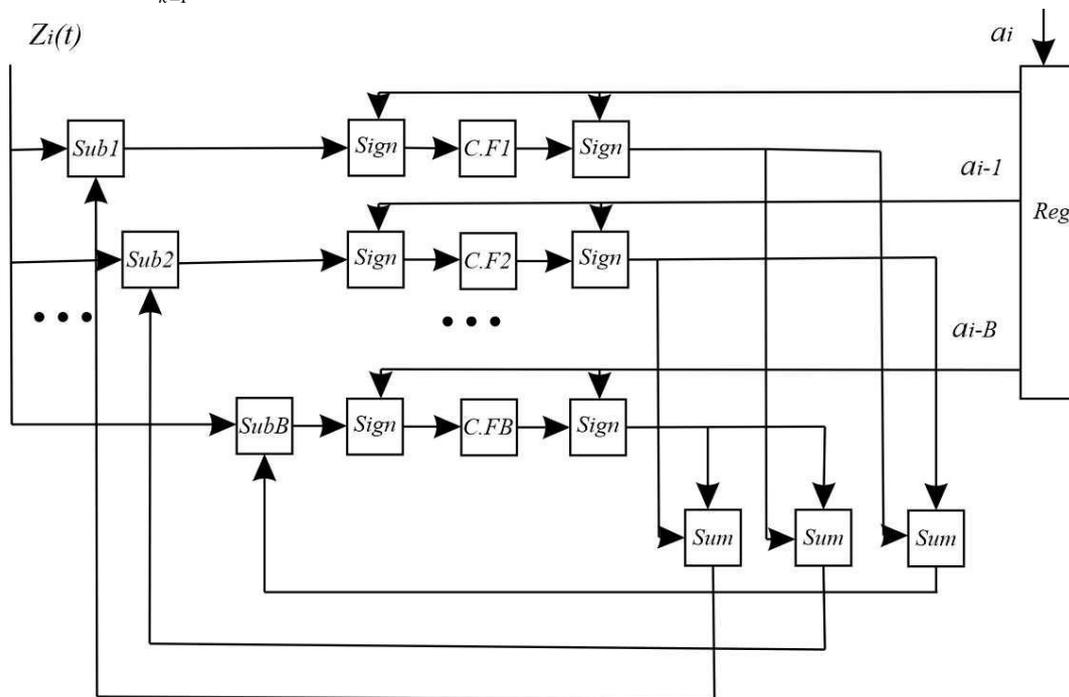


Figure 5. Structure of an algorithm for channel characteristics estimation operating on classified samples. Here is denoted: Sub - subtractor; Sum - summator; Reg - register; Sign- controlled inverter multiplying the input signal by sign; CF - comb filter.

Assuming the presence of  $g_k(t)$  at the inputs of all comb filters and of  $g_i(t)$  at their outputs, it will be seen that the arrangement of figure 5 does implement the operations described by equation (10). The inverters are controlled by shift register which accepts the  $a_i$  form the computer unit, and the outputs present the same sign coefficients, but with a time delay, that is  $a_{i-k+1}$ . Signals are distributed between the adders so that the  $k$ -th adder accepts all  $a_{i-l+1}g_i(t)$ , except  $l=k$  (the first adder accepts no signals from the first comb filter, the second adder from the second comb filter, etc.). When the decision unit of the receiver which presents the sequence of  $a_i$  is operating normally, the outputs of the comb filters accumulate the elements of the sought response  $S(t)$ . Irrespective of the manner in which the data signal is keying, the inputs of the comb filters accept a continuous stream of response element  $g_k(t)$ , following with period  $T$ . Because the arrangement contains feedback circuits and time-delay elements (comb filters), it must be analyzed for stability. A distinction of this arrangement is the use of elements, sign, with a variable gain determined by the form of keying, and a great number of feedback loops. Let a loop encompassing  $p$  different comb filters be called a  $p$ -th order loop. There are no first-order feedback loops. A second-order loop can be going from, say, CF1, passing through the 2nd adder, the 2nd subtractor, the 1st adder, via the first subtractor back to CF1. The magnitude of the gain of all elements in this loop, except CF1, is unity. The gain of the comb filter is likewise equal to unity at the frequencies corresponding to maxima. With the signs of the  $a_{i-k+1}$  fixed, phase relations in the loop are such as exist with positive feedback. If the gains were kept precisely equal to unity, the system would be conservative with respect to its own oscillations. However, this is an unattainable idealization, and the system's oscillations have an equal probability of decaying or building up with an exponent dependent on amplitude overbalance and the time delay in the comb filters. However, with the binary signs being continually updated, the  $a_{i-k+1}$  may have fixed signs only when all  $a_i$  are identical. This implies that there is no keying, whatsoever, that indeterminate equation (9) are linearly dependent, and that their solution is completely indeterminate.

In practice, at least test pulses are keyed, and random keying occurs in the data sequence. Self-oscillations originating in CF1 are applied to the input of CF2 with an appropriate sign ( $-a_i a_{i-1}$ ), and the oscillations taken from the output of CF2 reach CF1 with the same sign ( $-a_{i-1} a_i$ ). The sign minus appears because the feedback loop contains a subtractor, Sub. After time  $T$ ,  $a_{i-1}$  is replaced by  $a_i$ , and  $a_i$  is replaced by a new symbol,  $a_{i+1}$ . The new product ( $-a_i a_{i+1}$ ) may likewise have two values independent of the previous one. Thus, the signal due to self-oscillations is taken from the output of CF1 to the input of CF2 with an alternating sign and is averaged in accordance with the functions of CF2. Over some not too long time interval, the average loop gain will be less than unity. With uniform keying density, the average value of any sign product  $a_i a_{i-1}$  is zero. With

any form of keying, if there is at least one sign  $a_i$  different from the others, the loop gain will be less than unity, and the system will move away from the verge of self-oscillation. It may be said that positive feedback during one-time interval is balanced out by negative feedback during another.

### 3. CONCLUSION

Thus, the following conclusions can be drawn. The described here schema of the channel estimator may be realized as successive steps in operation of a receiver a data cell. During the first step, when only the sample corresponding to test pulses is classified,  $z(t)$  may be simply averaged over  $a_n$ . Then, if correct data signs start coming in, the system may jump directly to the third step. The two steps may be implemented by arrangement of figure 5, if the sign units are instructed to block passage for data pulses during the first step and to enable their passage during the second. If, during a data call, the first step is skipped, the arrangement of figure 5 will ultimately form a decision which will continually be updated as the channel varies. The feasibility of such a scheme used in conjunction with a suboptimal sign estimator for  $a_i$  has been proved by simulation. This scheme is attractive because it does away with a separate testing channel and no part of the system capacity is wasted for channel sounding. However, this scheme suffers from a major disadvantage. Under conditions of complete a priori uncertainty and decision feedback, the set of equations (6) has a bi-valued solution. Accordingly, the sign coefficients are presented either in direct or inverse code, which corresponds to inverted operation of the system. To avoid it, use has to be made of phase-difference shift keying which results in that single errors become double errors upon detection. This is the penalty for savings in system capacity.

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# PHYSICAL EDUCATION AND SPORTS

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## ФІЗИЧНЕ ВИХОВАННЯ ПОЛІЦЕЙСЬКИХ ПІД ЧАС ВОЄННОГО СТАНУ

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## PHYSICAL EDUCATION OF POLICE OFFICERS DURING MARTIAL LAW

**Анотація.** Важливість фізичного виховання поліцейських у період воєнного стану, зокрема акцентуючи на його ролі у підготовці правоохоронців до виконання складних та високоризикованих завдань. У дослідженні розглядаються основні аспекти фізичної підготовки, включаючи розвиток загальної витривалості, сили та спеціалізованих тактичних навичок, які є необхідними для ефективного виконання службових обов'язків у складних умовах військових конфліктів. Зокрема, особлива увага приділяється тренуванням, які включають симуляції бойових ситуацій, що дозволяють поліцейським адаптуватися до стресових умов і покращити їх здатність до швидкого реагування.

Окремо зазначається значення розвитку фізичної сили та витривалості, що дозволяє поліцейським не лише виконувати фізично складні завдання, такі як евакуація постраждалих або транспортування важкого обладнання, але й підтримувати психологічну стійкість у ситуаціях підвищеного ризику. Це включає фізичну підготовку, що сприяє збереженню працездатності навіть у умовах тривалих операцій без перерв на відпочинок. Крім того, вивчаються методи тренування, які допомагають поліцейським досягти високої готовності до виконання обов'язків у кризових ситуаціях.

Таким чином, фізичне виховання поліцейських під час воєнного стану є необхідним елементом підготовки, що забезпечує високий рівень їхньої професійної готовності та здатності ефективно виконувати завдання у надзвичайних умовах. Через застосування різноманітних методів фізичної підготовки та симуляцій, поліцейські здобувають необхідні навички для забезпечення національної безпеки, підтримання громадського порядку та захисту життя та здоров'я громадян в умовах військових загроз.

### **Abstract.**

The importance of physical training for police officers during martial law, with a particular focus on its role in preparing law enforcement officers to perform complex and high-risk tasks, is highlighted in this study. The research examines key aspects of physical preparation, including the development of general endurance, strength, and specialized tactical skills necessary for the effective execution of duties in the challenging conditions of military conflicts. Special attention is given to training that includes combat situation simulations, allowing police officers to adapt to stressful conditions and improve their ability to respond quickly.

The development of physical strength and endurance is particularly emphasized, as it enables police officers not only to perform physically demanding tasks, such as evacuating victims or transporting heavy equipment, but also to maintain psychological resilience in high-risk situations. This includes physical training that helps sustain performance during prolonged operations without rest breaks. Furthermore, the study explores training methods that help police officers achieve high readiness for performing duties in crisis situations.

Thus, physical training for police officers during martial law is an essential component of their preparation, ensuring a high level of professional readiness and the ability to effectively carry out tasks in emergency conditions. By applying various physical training methods and simulations, police officers acquire the necessary skills to ensure national security, maintain public order, and protect the lives and health of citizens in the face of military threats.

**Ключові слова:** фізичне виховання, поліцейські, воєнний стан, фізична підготовка, тактичні навички, симуляції бойових ситуацій.

**Keywords:** physical training, police officers, martial law, physical preparation, tactical skills, combat situation simulations.

**Постановка проблеми.** В умовах воєнного стану значно зростає потреба у високій готовності правоохоронних органів до виконання складних та високоризикованих завдань. Одним із основних

елементів підготовки поліцейських є фізичне виховання, яке включає в себе розвиток загальної витривалості, сили та тактичних навичок. У надзвичайних ситуаціях, таких як військові конфлікти,

поліцейські часто опиняються у складних умовах, що вимагає від них не тільки професіоналізму, але й фізичної та психологічної стійкості. Тому питання ефективної фізичної підготовки поліцейських в умовах воєнного стану набуває особливої актуальності.

**Аналіз досліджень і публікацій.** У своїх роботах такі науковці, як Бортнік С. М., Гіденко Є. С., Коломієць Ю.М., Пашаєв А.З., Уварова О.Ю., Корнійчук Ю.М., Сушков О.О. та інші, висвітлювали різні аспекти фізичного виховання та спорту, зокрема їхній вплив на формування здорового способу життя, розвиток фізичних якостей, мотиваційні чинники занять спортом, а також інтеграцію фізичної активності в освітній процес. Науковці наголошують на важливості системного підходу до фізичного виховання та його ролі у всебічному розвитку особистості.

**Мета статті** – є дослідити ключові аспекти фізичної підготовки поліцейських у період воєнного стану, визначити основні напрямки тренувань, що сприяють підвищенню їхньої ефективності в умовах військових загроз

#### **Виклад основного матеріалу.**

Фізична підготовка поліцейських є важливою складовою їх професійної підготовки та має велике значення з кількох причин. Однією з головних вимог до поліцейських є здатність долати фізичні труднощі, які можуть виникати під час виконання службових обов'язків. Це включає в себе необхідність переслідувати правопорушників, фізичні протистояння, а також інші ситуації, де потрібна сила та витривалість для забезпечення власної безпеки та безпеки громадян. Фізична підготовка дозволяє поліцейським бути готовими до таких ситуацій, забезпечуючи їм високий рівень працездатності, швидкості та витривалості [3, с.74].

Також фізична підготовка позитивно впливає на продуктивність та ефективність виконання службових завдань. Краще фізичне здоров'я допомагає поліцейським бути більш витривалими, рухливими та швидкими, що є важливим у багатьох ситуаціях [14, С. 27]. Крім того, фізична активність сприяє покращенню психологічної стабільності поліцейських, оскільки заняття спортом знижують рівень стресу, поліпшують загальне самопочуття та підвищують рівень впевненості в собі. Можливість відпочити після важкого робочого дня є важливою для підтримки психологічного здоров'я працівників поліції [5].

Фізична підготовка поліцейських також може служити прикладом здорового способу життя для громадян. Поліцейські, які дотримуються здорового способу життя та активно займаються спортом, можуть стати зразком для місцевої громади. Це сприяє покращенню відносин між поліцією та громадянами, що в свою чергу сприяє зміцненню довіри до правоохоронних органів. Показовий здоровий спосіб життя поліцейських може стати важливим чинником у створенні позитивного іміджу поліції серед населення [12, С. 574]

Програма фізичної підготовки поліцейських включає в себе різноманітні вправи, які сприяють

розвитку різних фізичних якостей, таких як біг, підтягування, стрибки та інші вправи, що розвивають силу, витривалість, координацію та швидкість. Крім того, фізична підготовка дає можливість здійснювати оцінку фізичної підготовленості поліцейських за допомогою регулярних тестувань, що дозволяє підтримувати їх рівень фізичної готовності на високому рівні [1, с.14].

Особливо важливою є фізична підготовка для поліцейських, які виконують свої обов'язки під час введення воєнного стану. У таких умовах ризики для життя та здоров'я значно зростають, оскільки поліцейські можуть стикатися з озброєними групами, військовими діями та іншими небезпечними ситуаціями. Робота в умовах воєнного стану часто вимагає значних фізичних зусиль, таких як підйом вантажів, біг, стрибки та інші фізичні навантаження. Фізична підготовленість сприяє не тільки фізичній витривалості, але й психологічній стійкості, що є критично важливим у таких екстремальних умовах [1, с.15].

Воєнний стан створює численні виклики для правоохоронних органів, кожен з яких має вирішальне значення для забезпечення безпеки та виконання завдань національної оборони. Перш за все, однією з основних функцій поліції в умовах воєнного стану є захист громадян. В умовах воєнних конфліктів існує багато загроз для цивільного населення, таких як терористичні акти, агресія з боку сусідніх держав, або інші форми насильства. Поліція повинна вжити всіх можливих заходів для забезпечення безпеки громадян, що включає патрулювання, організацію евакуації, контроль за доступом до небезпечних територій і надання допомоги потерпілим [4, с.242].

У надзвичайних умовах, коли загроза національній безпеці стає особливо гострою, поліцейські можуть бути залучені до участі в національних або міжнародних військових операціях. Це потребує від них мобілізації та проходження військової підготовки, а також участі в бойових діях разом з військовими силами. Це підвищує вимоги до фізичної та психологічної підготовки поліцейських, адже вони повинні бути здатні до виконання завдань в екстремальних умовах, що включають бойові дії та взаємодію з військовими підрозділами [2, с.85].

Незважаючи на складність ситуації, важливим є підтримання правопорядку. Навіть під час воєнного стану поліція повинна прагнути уникати хаосу і насильства в суспільстві, виконуючи функції розслідування злочинів, затримання порушників та підтримки порядку в умовах підвищеного ризику. Це завдання потребує високої готовності поліцейських, як фізичної, так і психологічної, адже в умовах військового конфлікту вони повинні діяти швидко, рішуче і ефективно [3, с.74].

Особливе значення має фізична підготовка поліцейських, адже в умовах воєнного стану вони можуть бути змушені працювати безперервно впродовж тривалих періодів, часто без можливості відпочити [16, с. 152]. Витривалість є ключовим фактором, оскільки поліцейські повинні мати достатній рівень фізичних та психологічних ресурсів

для виконання своїх обов'язків протягом дня і ночі, особливо під час організації охорони та постійного нагляду за безпекою громадян. Здатність переносити великі фізичні та емоційні навантаження забезпечує їх ефективність у складних ситуаціях, що виникають під час війни.

У таких умовах необхідно володіти також спеціалізованими фізичними навичками. Поліцейські повинні бути готовими до виконання різноманітних завдань, що вимагають фізичної сили, таких як підйом важкого обладнання, транспортування поранених, а також захисту себе та інших. Ці завдання вимагають розвитку фізичної сили та витривалості, що дозволяє поліції бути готовими до різних ситуацій, які можуть виникнути під час воєнних дій. Крім того, важливим є володіння спеціальними навичками, такими як вміння працювати з вогнепальною зброєю, застосовувати маскування, а також навички фізичної самооборони, що дозволяють поліції забезпечувати безпеку навіть у найскладніших обставинах [5].

Завдання фізичної підготовки поліцейських у умовах воєнного стану спрямовані на забезпечення їх здатності ефективно виконувати складні та високоризиковані завдання. Одним із основних напрямків є підвищення загальної фізичної витривалості, яка є надзвичайно важливою в умовах тривалих операцій. Фізична підготовка завжди була ключовим компонентом професійного навчання працівників органів внутрішніх справ. Проте в сучасних умовах, коли змінилися умови виконання службових обов'язків, зросли й вимоги до рівня фізичної готовності правоохоронців. Особливо важливою складовою фізичної підготовки в навчальних закладах є освоєння різноманітних вправ із врахуванням специфіки професійної діяльності майбутніх правоохоронців, що передбачає виконання великої кількості повторень для формування необхідних навичок [8, с. 96].

Складовими фізичної підготовки працівників Національної поліції України є загальна фізична підготовка і тактика самозахисту та особистої безпеки. Навчання з фізичної підготовки передбачає формування та вдосконалення в поліцейських: рухових якостей та навичок, необхідних у повсякденній діяльності та в разі виникнення екстремальних ситуацій [9, с. 313]

Фізична витривалість дозволяє поліцейським підтримувати свою продуктивність протягом довгих періодів часу, навіть коли настають непередбачувані ситуації. Тренування на бігових доріжках, плавання та інші види аеробних навантажень сприяють зміцненню кардіореспіраторної системи, що дає змогу ефективно засвоїти більший обсяг кисню і краще витримувати фізичні навантаження. Це особливо важливо під час стресових ситуацій, коли необхідно зберігати ясність мислення для прийняття швидких рішень [6].

Фізична витривалість також сприяє швидкому відновленню після інтенсивних фізичних навантажень. Поліцейські, які мають високу витривалість, здатні швидше відновитися після тривалих операцій або фізичних навантажень, що дозволяє їм

бути готовими до виконання нових завдань. Крім того, розвиток силових характеристик є важливим компонентом фізичної підготовки [10].

Для виконання своїх професійних обов'язків поліцейському необхідно мати фізичну силу, стійкість та витривалість, які дозволяють витримувати тривале фізичне навантаження. Важливо також володіти навичками рукопашного бою, необхідними для захисту життя та здоров'я громадян, а також самого поліцейського. Тому фізична підготовка займає велике місце в діяльності поліцейського [11, с. 423]

У випадках, коли виникають надзвичайні ситуації або бойові дії, поліцейські можуть бути змушені виконувати завдання, що вимагають значної фізичної сили. Наприклад, це може бути підйом важких предметів, таких як бар'єри чи техніка, транспортування поранених або робота з важким спеціальним обладнанням. Сила дозволяє поліцейським виконувати ці завдання ефективно, не втрачаючи працездатності, що безпосередньо впливає на безпеку громадян та їх власну [5]. Тактичні навички включають стратегічне мислення, оперативне планування та адаптацію до швидко змінюваних умов. Це допомагає поліцейським ефективно реагувати на ситуації, що потребують тактичних рішень, таких як затримання озброєних злочинців або організація евакуації під час надзвичайних ситуацій [13, с. 37]

У умовах воєнного стану поліцейські також повинні бути готовими до виконання завдань, які включають захист себе та інших. Вміння швидко і ефективно діяти у небезпечних ситуаціях, таких як евакуація постраждалих або надання першої медичної допомоги, може бути вирішальним для порятунку життів. Альтернативою можуть бути індивідуальні заняття з фізичного самовдосконалення, які можна проводити в умовах вищих навчальних закладів, для вдосконалення та покращення навичок евакуації [14, с. 566]

Крім того, поліцейські повинні забезпечувати правопорядок, проводити арешти, контролювати масові заходи і запобігати злочинам. Всі ці дії вимагають не тільки фізичної сили, але й високої ефективності, оскільки вони виконуються в умовах підвищеного стресу, що підвищує загрози для безпеки.

Також, важливим аспектом фізичної підготовки є тактичне навчання. Поліцейські повинні опанувати ефективне використання спеціального обладнання, такого як бронежилети, газові маски, засоби зв'язку та інше обладнання, яке допомагає забезпечити їх безпеку під час виконання завдань. Саме тактичні помилки, яких припускаються поліцейські під час типових та екстремальних ситуацій, і є причинами та наслідками травмування, а також загибелі співробітників поліції [19, с. 261]

У в умовах бойових дій важливу роль відіграє вміння маскуватися та використовувати природні чи штучні об'єкти для укриття від ворожого спостереження. Також необхідно, щоб поліцейські могли

працювати в команді, координувати свої дії з іншими підрозділами, зокрема з військовими, для досягнення спільної мети [7, с. 217].

Не менш важливим є проведення симуляцій різноманітних ситуацій, які можуть виникнути в реальних умовах військового конфлікту. Ці тренування мають бути максимально наближеними до реальності, щоб поліцейські могли адаптуватися до різних умов та правильно оцінювати загрози. Ситуації для тренувань повинні включати різні варіанти тактичних маневрів, маскування, використання засобів зв'язку, а також тренування з використання зброї та спеціального обладнання. Це дозволяє поліцейським покращити свої тактичні навички та здатність швидко реагувати в умовах стресу та підвищеного ризику, що є критичним для забезпечення національної безпеки та громадського порядку під час воєнного стану [1, с.16].

Симуляції, які імітують бойові умови, створюють стресову атмосферу, наближену до реальних ситуацій військового конфлікту. Це дозволяє поліцейським тренуватися в умовах, що максимальним чином відтворюють складнощі та напругу реального бою. Такий підхід допомагає працівникам правоохоронних органів навчитися працювати під високим тиском та приймати швидкі, обґрунтовані рішення в екстремальних ситуаціях. У результаті проведення симуляцій, поліцейські мають можливість проаналізувати свої реакції та дії під час виконання тренувальних завдань, що сприяє визначенню слабких місць у їхній тактиці та стратегії [4, с.243].

Процес аналізу після симуляцій є важливим етапом навчання, оскільки дає змогу виявити можливі помилки та недоліки в прийнятті рішень. Застосування такого зворотного зв'язку дозволяє поліцейським коригувати свої дії та удосконалювати тактичні підходи, що допомагає уникати аналогічних помилок у реальних умовах бойових або кризових ситуацій. Важливо, щоб після кожної симуляції відбувався детальний розбір усіх аспектів виконаного завдання, що допомагає в подальшому підвищити ефективність реагування у нестандартних і стресових умовах.

Основною метою симуляцій є підготовка поліцейських до реальних умов військового конфлікту, де від їхніх дій залежатиме не тільки їхня безпека, а й безпека громадян. Це дає змогу правоохоронцям набути необхідних навичок для прийняття правильних рішень у надзвичайно складних і непередбачуваних ситуаціях. Адже в умовах воєнного стану кожен крок може бути критичним, тому важливо, щоб поліцейські були здатні зберігати холоднокровність і чітко діяти відповідно до вимог ситуації [3, с.75].

Симуляції також виконують важливу роль у розвитку стійкості та психологічної підготовленості поліцейських. Під час тренувань вони мають можливість перенести свої знання та навички в реальні обставини, що дозволяє звикати до стресових умов і мінімізувати ризик паніки. Це особливо важливо під час проведення операцій у зонах бойових дій чи при реагуванні на терористичні загрози, де

кожна дія має бути спланована та виконана з максимальною точністю та ефективністю [6].

Симуляції є необхідним елементом фізичної та тактичної підготовки поліцейських, який забезпечує високу готовність до виконання завдань у умовах воєнного стану. Вони сприяють розвитку не лише фізичних, але й психологічних та тактичних навичок, які є критичними для успішного виконання службових обов'язків у складних і небезпечних ситуаціях. Тренування, що включають симуляції, є важливим етапом у підготовці поліцейських, адже дозволяють їм бути готовими до будь-яких викликів, що можуть виникнути під час охорони громадського порядку та національної безпеки в умовах бойових дій [7, с. 219].

Отже, фізичне виховання поліцейських під час воєнного стану є важливим аспектом їхньої підготовки до виконання складних та високоризикованих завдань. Підвищення загальної фізичної витривалості, розвитку сили та тактичних навичок дозволяє правоохоронцям ефективно діяти в умовах стресу та екстремальних ситуацій, характерних для військових конфліктів. Регулярні тренування, включаючи симуляції реальних бойових ситуацій, допомагають поліцейським адаптуватися до різноманітних викликів, що можуть виникнути під час виконання службових обов'язків. Зокрема, це сприяє швидкому прийняттю рішень, взаємодії в команді, а також збереженню працездатності в умовах надмірного фізичного навантаження.

Завдяки такому підходу, фізичне виховання поліцейських під час воєнного стану не тільки покращує їхню фізичну підготовленість, а й розвиває психологічну стійкість, що є критичним для успішного виконання завдань в умовах високого ризику. Симуляції реальних ситуацій, що проводяться в процесі тренувань, дозволяють поліцейським підвищити свою здатність до швидкого реагування та прийняття ефективних рішень у стресових обставинах. Таким чином, система фізичного виховання під час воєнного стану сприяє формуванню професійної готовності поліцейських до будь-яких викликів, забезпечуючи їхню ефективність у забезпеченні національної безпеки та охороні громадського порядку.

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# PHILOLOGICAL SCIENCES

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## ELEMENTS OF EXISTENTIAL THOUGHT IN CONTEMPORARY AZERBAIJANI DRAMA

### Abstract:

*The primary essence of contemporary Azerbaijani literature lies in the identification and artistic representation of philosophical and psychological elements within works written from a socio-political perspective. The audience's acceptance of works produced by Azerbaijani literary figures during this period can be attributed to this particular approach. Although it was not entirely possible to break away from the traditions of Soviet literature, the long-standing desire of literary artists to depict the social-political nature of the time through artistic means—and to present real characters and events in literary form—began to materialize during this era. One of the defining features of this period was a tendency toward philosophical-psychological stylization in artistic literature. In response to contemporary demands, authors increasingly ventured into the psychological realms of their characters, resulting in the creation of works with a strong psychological orientation.*

*A notable aspect of the philosophical-psychological approach in literature was the adoption of existentialist philosophy. The central premise of existentialism is the contemplation of human existence as the most vital concern of humanity. This philosophical movement found literary expression in the works of contemporary Azerbaijani dramatists such as Anar, Elchin, Firuz Mustafa, Afaq Masud, Ilgar Fahmi, Elchin Huseynbeyli, among others, whose plays incorporated existentialist concepts into artistic and aesthetic frameworks through characters and narrative events.*

**Keywords:** contemporary literature, literary-aesthetic thought, existentialism, philosophical-psychological perspective, Azerbaijani drama, character, event.

### Introduction

The function of literature as a reflection of life varies according to the defining features of historical periods. In Azerbaijani literature, the late 1950s and early 1960s marked a significant shift—this reflective function expanded and gained momentum. Literary works of this period emphasized a humanistic perspective and the strengthening of the individual, laying the foundation for a new literary phase. The prioritization of modern human destiny and objective perspectives on life events contributed to the emergence of characters fighting for innovation.

The post-independence period in Azerbaijani literature is regarded as an era of national self-realization. During this time, the country took its first steps toward revitalization in political, social, and cultural spheres. As the nation embarked on a journey of self-awareness, literature inevitably followed suit by aligning itself with the principles and spirit of national consciousness. In this sense, literature became one of the primary revolutionary forces within a movement aimed at resisting anti-national forces. Consequently, writers, driven by the ideals of freedom and patriotism, began expressing themselves through their works. The method they employed—artistic representation of factual reality—became crucial to conveying essential themes and societal issues.

This artistic engagement with reality played a vital role in uncovering historical truths, making literature a powerful medium of national memory and consciousness. Contemporary Azerbaijani writers infused poetry, prose, and drama with new energy and vision, and the artistic output of this period reflected a strong national awakening. While Soviet-era Azerbaijani literature

boasted many talented authors, they were often bound by the constraints of the regime. However, stylistic cues suggest that, had circumstances allowed, these writers would have vividly and realistically portrayed the harsh truths of the time—attacks on national identity, statehood, and religion.

Eventually, a new generation of writers emerged, ready to shape the literary voice of a new era. This generation adopted a philosophical-psychological lens in breaking away from stereotypes. The resulting literary works, especially in prose and drama, conveyed the psychological distress of a people long deprived of freedom—those who had endured historical subjugation. These deep psychological situations were brought into literature through stylized narratives.

At the turn of the 20th century, Azerbaijan witnessed a revival across various spheres—social, political, literary, cultural—alongside an irreversible rise in national liberation sentiments. Although the nation suffered great losses, endured tragedies, and lost territories, it still succeeded in establishing a modern, progressive, and civil state founded on national independence. Naturally, these events were mirrored in literature with almost supernatural immediacy. Societal awakenings in both political and domestic life left their mark on literary works. However, not everyone welcomed the innovations brought about by this national self-awareness; there were strong objections to works that addressed these themes head-on.

### Discussion

A common trait among playwrights of the national revival period was their attention to the psychological dimensions of their characters and their determination

to create works reflecting these aspects. Writers such as Anar, Elchin, Firuz Mustafa, Kamal Abdulla, Ilgar Fahmi, Afaq Masud, Rustam Ibragimbekov, Elchin Huseynbeyli, and others depicted the psychological tensions of their characters in ways that provoked deep reflection among readers and audiences. It is important to note that the concept of freedom and the struggle for independence provided fertile ground for dramatic creativity during this time.

Living under oppression for seventy years deprived the Azerbaijani people of spiritual freedom, causing widespread psychological turmoil. Nevertheless, elements of psychologism were already present in Soviet-era Azerbaijani drama. One cannot overlook the inner nuances and psychological atmosphere present in the works of Ilyas Efendiyev—whose numerous plays constitute a full chapter in Azerbaijani theater history—as well as in the plays of Bakhtiyar Vahabzadeh and Nabi Khazri. These works captured the complex inner world of their characters in ways that echoed the famous aphorism: *"There is another me inside of me."* Even during the Soviet period, literature was populated with psychologically strained characters shaken by the social and political circumstances of their time.

However, in the post-independence era, writers gained greater freedom to explore the psychological world of individuals. This tendency was especially pronounced in drama, even more so than in prose or poetry.

Among the works produced in contemporary Azerbaijani drama, Anar's plays stand out for their clear artistic portrayal of reality and truth. His works, filled with vivid and authentic characters, reflect the psychological complexities experienced both in the modern period and under the former regime. An excellent example is *"The Last Night of the Past Year"* (*Keçən ilin son gecəsi*), originally written as a short story and later adapted into a play. The central issue in the play is one that concerns not only society as a whole but also the individuals who compose it.

At first glance, the play appears to preserve the stylistic traces of the Soviet tradition. However, as the narrative unfolds, undertones of national self-awareness begin to surface. In this play, the issue that preoccupies Anar is closely tied to existentialism. The solitude of the protagonist, Aunt Hamida, represents the solitude of her inner world. The writer juxtaposes her existential fear of isolation with the existentialist pursuit of personal freedom. Had she been able to reconcile with her solitude, she might have achieved spiritual freedom. To cope with her loneliness, the author frequently immerses her in nostalgia. Aunt Hamida becomes deeply engrossed in her memories, not with sorrow, but with a kind of joyful longing.

In the play, the interaction between a mother who has devoted her entire life to her family and the children shaped by the demands of a new era is depicted with delicacy and care. Hamida Khanum, the mother figure, is so certain she has raised her children to be ideal and exemplary that she swiftly suppresses any criticism posed by her interlocutor, Sakinə, regarding her son Rustam's relationship with his fiancée. At that moment, Sakinə regrets having raised the topic. In reality, Hamida harbors deep anxiety regarding her children:

she is well aware that as they grow up and go their separate ways, they will inevitably leave her alone. Consequently, she will find herself face-to-face with the solitude she fears most—solitude she cannot admit to anyone, not even to herself.

Although the author stays largely faithful to the archetype of the traditional mother, he also portrays a maternal figure who is deeply disturbed by the emerging generation, who are stepping into a new phase of awakening. Her inner turmoil stems from the fear of being left alone—a fear that becomes a psychological phobia. Through Hamida's inner disquiet, the writer skillfully brings to the dramatic plane the psychological tension of a mother confronted with the newfound freedom of a younger generation, born out of a period of national awakening. Nevertheless, the interpretation of this psychological state is left to the reader's discretion.

Despite this, the writer also illustrates that this emancipated youth is expressing their freedom in various situations throughout the play—after all, young people who have lived under constraint for so long now have a rightful claim to freedom. However, the author does not endorse this freedom unconditionally, especially when it comes at the cost of Hamida's loneliness. On the contrary, he criticizes it. For instance, Tofiq joins his friends Chingiz and Shamil to celebrate New Year's Eve, and they do not refrain from drinking. Rustam, upset over his broken engagement, chooses to sleep through the night, paying no attention to the fact that his mother will greet the new year alone. Dilara eagerly runs off to a school event. Gulara and Suleyman leave their child Vagif in Hamida's care without much thought about her loneliness:

"Mom, Suleyman's boss invited us. Let Vagif stay with you, okay?" The vase in Hamida Khanum's hand trembles; the fruits fall to the floor. She bends down to collect them, forcing herself to smile... [2, p.217].

Hamida's inner turmoil becomes especially apparent here. She had been so certain of her children's loyalty and devotion that she had never even entertained the possibility of the opposite. While the author refrains from dismantling the traditional literary archetype of the self-sacrificing mother, he nonetheless centers the play's aesthetic and ideological core on her psychological distress.

The author also introduces the character of the "Man with Glasses" (*Eynəkli kişi*) as a figure who attempts to awaken Hamida from her emotional paralysis, urging her to face reality. This character serves to present the methods and tools of national self-awareness. The "Man with Glasses" acts as a voice of societal conscience, illuminating key social concerns. He is the harbinger of truth and bitter reality—one who has embraced the existential truth that life is ultimately meaningless. His life experiences offer an existential understanding of reality. He believes that life, in essence, has no inherent meaning and that even the sacrifices one makes for others are often futile. He criticizes Hamida's unwavering devotion to her children:

"Where are the grateful children?! When they're little, they're sweet as lambs. But when they grow up, they'll either become thugs, get arrested, and disappear,

or become engineers, doctors, professors—and still disappear, because they'll think you're beneath them. They'll say, 'Mother, father, we have nothing to talk about. Your culture doesn't match ours.' Four children, and all of them are gone on New Year's Eve. Not one of them thinks to stay with their mother!" [2, p.225].

He particularly emphasizes their coldness and indifference:

"Look, sister—sorry, I don't even know your name. Everyone calls me Mailman Bashir. But if even one of your children calls tonight, I'll change my name to Telephone Bashir..." [2, p.225].

At first glance, the "Man with Glasses" seems devoid of any sentiment toward parent-child love. But the author uses this character to reveal the nature of changing human relationships and emotions—emphasizing that such changes are inevitable. The character is thus presented as an existentialist figure who has come to accept the ever-changing, transient nature of life.

Through this character, the writer reflects one of existentialism's central dichotomies: that between life and death. If life is fleeting and ultimately void, then what is the point of sacrifice or struggle? If death is inevitable, what does it mean to live meaningfully? As a carrier of existential thought, "Postman Bashir" questions Hamida's sacrifices, encouraging her to stop expecting happiness from a transient world.

Morality is a classical form of value in consciousness, and thus its connection to philosophy is of particular significance. When morality is viewed not simply as a set of regulatory functions but as a moral lens through which the world is perceived, the convergence of philosophy and morality becomes clearer [5, p.34]. The influence of existentialist philosophy on literature is thus undeniable. An author bringing a period of self-discovery into a literary work must necessarily portray ideals of the free individual. Writers use existentialism to transform the ideology of spiritual freedom and a return to authenticity into characters and events—thus defining the place of the individual who prioritizes "being" above all else. In short, true freedom must begin with the soul. A person whose inner world is free no longer sees the conflict of good and evil, because they will always choose the good.

"According to existentialism, thought cannot grasp concrete reality; any attempt to clarify it through thought inevitably leads to contradictions that cannot be resolved and before which reason is powerless." [5, p.172].

Existentialists argue that the world only exists if the individual exists: "I exist, therefore the world exists." For them, the only true reality lies in individual existence, in the recognition of "I exist." The world is a mysterious place, beyond the grasp of logic or human intellect. Heidegger writes that the world exists because existence exists. If there is no being, then there can be no world [8, p.269]. Naturally, this philosophical idea inevitably influences literature as well. Many great figures of world literature have succeeded by creating characters who embody this existential idea: "If I exist, then the world exists."

The French philosopher Jean-Paul Sartre, in his work *Existentialism is a Humanism*, presents existentialism through compelling ideas. According to him, man is born first and then is cast into life, which forces him into struggle. With each struggle, he discovers a new dimension of his being. To truly understand his own essence, man must be free. Religions and belief systems, according to Sartre, distance man from his true self. To find one's true identity, one must embark on a journey of self-discovery.

One of the prominent representatives of modern Azerbaijani dramaturgy, the writer Elchin, also vividly incorporates existential thought into his plays. In the period of national reawakening, Elchin's literary world—often caught between paradoxes—is neither entirely ordinary nor entirely extraordinary. In works such as *The Murderer (Qatil)*, he often draws on the absurdist strand of existential philosophy, where the essence of the world is defined not by its nature but by the existence of the individual. This principle—that the world is secondary to human existence—is central to existentialist thought and appears prominently in Elchin's plays.

To Elchin, the individual is of the highest value, and the world exists to serve the needs of the individual. If the world is absurd, then the life it supports must also carry the burden of absurdity.

One of the key aspects highlighted in the work is the alienation process experienced by the main character—the Young Man—from the society in which he lives. During his secondary school years, his distinctiveness lay in his excessive reading of books. However, instead of enriching his spirituality, the books he read led to an unexpected outcome: his isolation from life and society. This obsession turned the nickname "Book," given by his peers, into an ironic symbol rather than a genuine compliment. This trait distanced and alienated him significantly from his classmates. Furthermore, during his university years, he continued to drift away from his peers due to the trauma of alienation he had experienced in school. As a result of intense psychological tension, his thoughts begin to shift, eventually leading him to theft. Consequently, he is expelled from the university. Throughout his life, he encounters numerous problems and becomes increasingly estranged from society. The writer temporarily unites this alienated figure with a woman who herself is somewhat alienated from her fate. However, as one of them is fully entrenched in the process of alienation and the other only occasionally experiences it, their union cannot last; ultimately, they prove incompatible. Therefore, the conclusion of the narrative turns entirely absurd. Expecting feelings such as love and care from a person at the peak of alienation is itself an absurd notion.

As existentialist thinkers assert, "Man enters a world of pre-existing social relations. A conflict arises between existence and essence, which continues throughout one's life. Existentialists considered Marx one of their forerunners due to his discussion of alienation. For them, alienation was the central issue. However, whereas Marx emphasized social alienation, for

existentialists, alienation is the defining characteristic of human life in society” [8, p. 269].

A fundamental premise of existentialism is the emergence of extreme conditions—desperation, anxiety, and fear of death. In such a “situation,” as termed in existentialism, man fears annihilation and becoming nothing. The protagonist of the work, the Young Man, is terrified of death. Indeed, he fears it so intensely that all his pitiful actions, as he himself admits, are driven by this fear. This fear affirms a key principle of existentialism: namely, the persistent realization, “If I exist, life exists.” Additionally, his fear also resembles fear beyond existentialism. Some existentialists believe that human existence unfolds entirely within the context of a constant fear of death. Others argue that “the task of philosophy is precisely to awaken this fear and to preserve it.” K. Jaspers, summarizing this, states that “to philosophize is to learn how to die” [8, p. 269]. This idea is vividly affirmed in a dialogue from the work:

Young Man (with growing agitation): I'm afraid of death! Of death! One day, I won't exist! Everything will remain the same—these streets, these buildings, this day, this month! But I won't be here! When I think about it, I'm overwhelmed by terror! I nearly go mad! There will be no difference between me and a beggar! He'll die and become nothing; I'll die and become nothing! There won't even be a trace of me left!

Woman: But this isn't just your problem... It's the fate of all people, all living beings, geniuses, prophets—everyone... [3, p. 274].

Elements of absurdist theatre are clearly manifested in the work. The central character, a forty-one-year-old single female chemistry teacher, connects her inner world with the “realm of stars.” In her real life, there exists only the school and her students. She rejects all other realities of life. Yet, regardless of her rejection, those realities persist. For instance, her neighbor's desire—specifically her husband, a police officer—to catch a murderer is a reality the teacher refuses to accept. Why should one wish for crime and murder merely to earn a promotion? The woman eventually answers these rhetorical questions not with words, but with actions. After poisoning the Young Man who disrupts her stable life and her “star realm,” she ironically fulfills her neighbor's dream:

Woman: Congratulations!

Neighboring Man: Me?

Woman: Yes! (Extending both wrists to the Neighboring Man.) At last, you've arrested a murderer! [3, p. 301].

The absurdity is also evident in the actions of the characters. Their interactions unfold in a space deliberately isolated from the external world. The woman's frequent communication with her star and the emotional attachment she develops toward it represent core elements of the absurd. She genuinely loves her Star. She converses and consults with it. On one occasion, during a moment of romantic happiness with the Young Man, she toasts to her Star's health. This “star realm” becomes the backdrop for the absurdity presented to the audience. Despite encountering this metaphysical absurdity, her neighbors and the Young Man make no attempt to dismantle it; instead, they deepen it. At one

point, the Young Man even grows jealous of the Woman's Star, intensifying the absurdity:

Young Man: ... “My Star!”, “My Star!” You could talk to your Star, but you were breaking my heart right here... [3, p. 288].

The absurdity persists even when it transitions from internal monologue to external reality. The Young Man always believed himself intellectually superior, yet did nothing but remain passive. The Woman's identification with her Star, treating it as her closest confidant, reflects her intellectual and spiritual evolution. She cannot find a true companion among real people. Thus, her confidant is a celestial object—a star. Although the writer attempts to contrast the Woman with the Young Man in an effort to break from absurdity, when real events unfold—such as the Young Man's deceit and manipulation—she once again turns to her Star for solace.

The play “*Revenge*” (*Qisas*) by Elchin, considered one of his short absurd plays, presents a philosophical and artistic reflection of the eternal conflict between good and evil. The play, driven by an absurd and enigmatic method, critiques visible sins through non-traditional means. In contrast to conventional theatre, the play eschews linear sequencing of events. By exposing the characters' actions through absurdity, the writer makes the audience's encounter with the absurd more accessible. In this work, the events and characters deviate from conventional narrative logic; their roots remain unexplored and unresolved.

The dialogue between the main characters—the Man and the Young Man—focuses primarily on the exposure of the former, with occasional mutual revelations. As the confrontation escalates, victims of the Man's past misdeeds confront him, seeking revenge. Yet even this vengeance is steeped in mystery—herein lies the true absurdity. For from the dawn of time, humans have failed to fully grasp the essence of events and things despite all efforts. While some attempts have unveiled relationships among phenomena, the undisclosed often outweighs the revealed in significance.

In *Revenge*, regarded as one of the clearest examples of absurdist drama, death represents the ultimate moment—the end, the unimaginable nature of the real. The dialogues unfold not in the material world, but in the afterlife—in a philosophical, absurd realm. Through these exchanges, the moral essence of each character in the afterlife is exposed. Those who suffered from the power and abuse of the Man, once a secretary of the Central Committee, now relentlessly seek revenge. The victims compete with each other for the opportunity to avenge themselves. A chaotic, grotesque scene unfolds:

Woman (screaming): You son of a dog! Take this! Take this! (She grabs handfuls of sand and throws them in the Man's face.)

Man (shielding his face): Ah! It's in my eyes!  
Child: Good! Take this! Eat it! You will eat it! (He tries to force a bloody piece of raw meat—liver, heart, or something—into the Man's mouth.)

Man: (trying to wipe the blood from his face):  
Oh! Oh...  
Young Man (horrified): Who are these people?  
Man: I don't know!  
Old Man: Gouge out his eyes! His eyes! (He lunges and tries to shove his fingers into the Man's eyes.)  
Man (shouting): Let me go! Ahmadov! Ahmadov! Get them off me!  
Woman (raising an axe): Hold on! I'll strike now!  
Right now!  
Child (still trying to force the bloody meat into the Man's mouth): Let him eat this first! Then! This first!  
Old Man: His eyes! His eyes!  
Man (screaming): Let me go! Get off me! Ahmadov! Ahmadov! [4, p. 71].

In the work, the author employs techniques of the absurd to convey the meaninglessness of human experiences in the real world. This absurdity and emptiness are known, yet humankind does not hold back in performing its deeds in reality. Even after death, as depicted in the narrative, individuals resort to every possible excuse to justify their actions. For example, the Man vigorously justifies himself by accusing his brother, the Young Man, of pursuing selfish interests. Yet his deeds continuously confront him, as those he harmed seek revenge. The core thematic concern of the work is a corrective critique of the opportunistic struggle for collective duty and prestige characteristic of the epoch. These individuals—whether in the past, present, or future—have always hidden behind the facade of knowledge and ideology, transforming into agents of deeds. Through absurdist methods, the author seeks to expose this global problem at its roots.

One of the prominent contemporary Azerbaijani writers who integrates the existentialist absurdity concept into the thematic content of her plays is Kamal Abdulla. As in classical dramaturgy, he limits his characters' connection with the outer world by carefully selecting situations and then presenting them artistically. His 1994 play *Sometimes They Call Me an Angel*, staged repeatedly on theatre stages, stands as one of the clearest embodiments of absurd theatre philosophy in Azerbaijani drama.

Under the heading "Imaginary Game," three principal characters participate: the Boy, the Woman, and the Man. In a space where colors intermingle, the Boy—enthralled by the sounds associated with the colors—initially cannot make sense of the alternating sensory world. Note that the author poetically depicts colors as possessing sound—an imaginative product of absurd thinking. Among the three participants, the Boy alone becomes bewildered by the chaotic play of colors and sounds. Occasionally, the interplay of colors intensifies, especially when red dominates. The Boy is uniquely sensitive: he alone sees the colors and hears their voices; the Woman cannot see them, and if she does, they quickly fade. Most frequently, she perceives red, and she fears the red-green oscillation. In particular, frightened by the red, she attempts to "rescue" the Boy:

"Open your heart to me. Give me your heart. Open it step by step. Tell me what you have and what you don't. If you don't, you'll enter those colors and get lost. The red will consume you... I want... to save you..." [3, p. 412].

Here, the colors symbolically correspond to the Boy's deeds in the real world. The Woman in a white dress stands for his moral realm; the black color embodies the "angel-clad" devil opposing his salvation. The black phantom resists the relationship between the Boy and the Woman—even refusing to accept it:

"The Woman moves toward the Boy. They embrace so tightly it feels as if someone wants to separate them. The black phantom comes, stares at them, and melts away..." [3, p. 412].

The Man (the angel) who represents the reason behind human actions speaks to the Boy desiring to know him:

"If I don't want you to know me, you still won't recognize me. How can it be otherwise? If you find me—well, that's another matter! But first, think carefully..." [3, p. 414].

A life lived in perpetual hesitation invariably leads to a null existence. After vacillating in dialogue with the Man, the Boy ultimately contemplates abandoning the poetic path he has chosen.

Throughout the play, the Boy, Woman, Man, the strange white-colored tree, and the visually dazzling and sonorous dances of colors collectively embody elements of absurdity. In terms of idea and content, the play can be seen as an expanded dramatization of Jean-Paul Sartre's famous treatise *Being and Nothingness*: "Existence precedes essence. Man comes into the world as a pure contingency; since there is no force that conceived or planned him beforehand, one cannot explain human existence by reference to a prior reality. Man is nothing apart from his actions" [8, p. 269].

In existentialist literature, a central theme is the struggle for freedom and the human effort to attain it. Scholars in this field argue that freedom is never a realized outcome. As one strives toward freedom, one often perceives it slipping away. Consequently, individuals spend their entire lives yearning for a freedom that recedes. Yet inner liberation—a prerequisite for true autonomy—rarely occurs. Freedom is an unbroken dynamic that persists until the very end. Characters in existentialist narratives, as a rule, fail to attain genuine freedom.

For instance, in Firuz Mustafa's two-act monologue *Scarecrow*, the Woman's protest against societal norms becomes the artistic embodiment of a lifetime battle for freedom. A modern woman living in a tastefully designed flat finds that the ingrained expectations of the past pose the greatest obstacle to her liberation. From an existential viewpoint, the author clarifies: the person who deprives one most of freedom is another human being. Tired of real people, she replaces partners who cage her freedom not through chains and bans but through their own attitudes and beliefs—with a scarecrow—and gradually convinces herself that the scarecrow surpasses the real person. She sees the path to liberation in releasing those who control her. When demonstrators chant slogans about work, bread, money,

freedom, justice, and truth under her balcony, she responds:

“You demand freedom, you demand money?! Can freedom and money coexist? Is there such a thing as freedom on earth that you could win? I have never seen a free person! You want to work like an animal and also demand freedom! You desire to earn money yet also want liberty! How is that possible?! Can one enslaved by money be free?! Freedom begins from within—first cleanse the bitterness in your heart, then seek freedom!... Freedom starts from our desires, disposition, inner self, outer self... Begin by liberating your heart, then your soul, and ultimately your entire being!” [3, p. 507].

This idea resonates as a red thread within existentialist thought. Like existentialist predecessors, the author views genuine freedom as freeing oneself from both material and spiritual fetters. Accordingly, the Woman in this work symbolically demonstrates her attainment of freedom: she removes her own clothes in public, throws her household belongings into the street, and declares her liberation publicly.

The author's goal throughout is not merely to articulate existentialist ideas about freedom but to illustrate, through absurd theatrical devices, how those who lack freedom inevitably become puppet-like. The Woman who comes to understand the essence of freedom rejects the eternal confinement accepted by humanity. Although aware of the struggle she fights, she believes that freedom can be attained through this very resistance. As a character, she most aptly embodies the existentialist ideal of natural freedom. Her cries against subjugation emerge from the existential philosophical rebellion of self-consciousness. Here the author embraces a fully existentialist philosophical stance. Drawing on Fromm, he reflects: “Man is a symbolic animal. What distinguishes humans from animals are external conditions. For an animal, those conditions never feel like threats; an animal lives in harmony with nature, merged with the world. But a human, endowed with consciousness, disrupts that harmony—consciousness isolates him from nature, revealing his helplessness and limits... A human cannot return to an animal state because he has made a qualitative leap from beast to person. Entering the human condition is a complicated matter” [5, p. 173].

The principle of freedom in existentialism has not bypassed the works of one of the representatives of contemporary Azerbaijani literature, Elchin Huseynbeyli. Like other writers with similar worldviews, he attempts to reflect the fundamental problems of modern times through his characters, based on the core tenets of existentialism. His drama *A Game for Two* presents existentialist ideas in a context rooted in psychological foundations. The concept of freedom in existentialism becomes a crucial psychological driver in Huseynbeyli's protagonist's inner world. The Woman, one of the drama's two central characters, seeks freedom. However, both characters—the Woman and the Man—are unable to accept being themselves. This very refusal stems from their pursuit of freedom. They wish to return to their past “selves,” which only deepens their despair. And despair, in turn, is a destructive force.

In the play, the couple develops an interesting scenario to reclaim their past happiness. They act out this scenario and come to realize that life moves forward, not backward—attempts to reverse the course may lead to ruin. Yet, the thought of freedom continues to overpower them, particularly the Woman, who states:

“Such a miserable life. *Narodny Zbrozka must be better. Everyone there is free.*”  
Li-Li: *Oh, how beautiful it is. Narodny Zbrozka truly lives up to its name. People are very free here. Sometimes I feel like I've entered paradise*” [3, pp. 567, 573].

As can be seen, in this work too, freedom emerges as the core existentialist theme, originating from within the characters themselves.

Among the playwrights writing within the framework of existentialist values is Afaq Mesud, another leading figure in contemporary Azerbaijani literature. In her works, the millennia-old developments of world literature, particularly those experienced in 19th-century European literary thought, find their modern reflection. The existentialist values that permeated Azerbaijani literature during the post-independence years are vividly present in Afaq Mesud's characters.

It is well known that existential values begin with individual existence. Mesud's protagonists act within this philosophical framework. Her characters' inner lives are shaped by ideas such as the search for truth between being and nothingness, and the belief that the world is not a barrier separating us from God, but rather a bridge that connects us to Him [9].

A striking example is Afaq Mesud's play *On the Verge of Death (Can Üstə)*, which reflects existentialist thought by exploring the philosophy of human existence. The play evokes memories of Albert Camus' *The Plague (La Peste)*, especially in its portrayal of psychological turmoil. According to French critic G. Picon, Camus' novel contains a multitude of voices—absurdity and rebellion, indifference and passion, coldness and desire, the eternal and the fleeting—all coexist. It portrays the conflicting emotions experienced by humans in times of extreme crisis: moral pain, compassion, and love of life, layered upon one another.

These same tensions appear in *On the Verge of Death*, especially in the section titled “A Two-Part Mysterious Murder”, where the element of absurdity is clearly felt. The absurd manifests particularly through characters who connect the real and metaphysical realms. The dialogue between the Dying Old Man and the Deceased makes this connection vivid. His conversation with his late wife Khadija is especially telling.

Despite being on his deathbed, the Old Man—who had once been part of the repressive apparatus during the 1937 Stalinist purges—still cannot mentally escape that era. His entire life has been shaped by a strong attachment to this worldly existence. He eagerly accepted tasks without considering their implications, sought personal benefit, indulged in romantic escapades, preserved his health and cleanliness, and enjoyed the luxuries of life. He even pleads with Azrael (the Angel of Death) for more time. The Old Man's character, constructed from an existentialist perspective, vividly reflects the human struggle for continued existence.

Surprisingly, despite the expectation of his death, the play ends with the Old Man mysteriously surviving, even at the end of the second act.

Conclusion:

During the post-independence era of Azerbaijani literature (1991–2005), literary figures such as Anar, Elchin, Firuz Mustafa, Ali Amirli, Elchin Mehraliyev, Kamal Abdulla, Elchin Huseynbeyli, and Rustam Ibragimbekov produced valuable works, particularly in the genre of drama. The most effective portrayal of the period was achieved through the psychological and spiritual depiction of literary characters. These writers moved away from Soviet literary paradigms and began the quest to reveal “the self within the self.”

To uncover the turmoil in their characters’ inner worlds, they often used philosophical frameworks—especially existentialism—as a tool. This led to the emergence of characters shaped by the existential concept of freedom. These works resonated with a wide readership and mirrored the concerns of contemporary society.

In short, the notions of freedom and independence, long suppressed desires of many literary figures, found expression through character-driven psychological narratives that defined the aesthetics of the time. An analysis of works by contemporary authors such as Anar, Elchin, Firuz Mustafa, Kamal Abdulla, Afaq Mesud, and Elchin Huseynbeyli reveals that the absurdity of the age nurtured existentialist thinking, and the authors, in

response, created individualized characters to reflect the broader portrait of the times.

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## THE CONTEMPORARY AZERBAIJANI NOVEL IN THE CONTEXT OF WORLD LITERATURE

### Abstract:

This article examines novels written on the theme of war in both world and Azerbaijani literature, highlighting the deprivations experienced by individuals during wartime as reflected in various literary works. Literary texts depicting the harsh realities of the First and Second World Wars are analyzed, compared, and contrasted. Regardless of where a war takes place, general theoretical conclusions are drawn about the novels written on the subject. Particular attention is paid to the similarities between socialism and fascism and the tragedies caused by war, all explored through artistic means.

**Keywords:** war, human, land, enemy, world

### Introduction

The Great Patriotic War, reflected in works of various genres, significantly influenced the development of subsequent literature, shaping the direction of literary pursuits and giving rise to an entire generation of writers. The Second World War left such an emotional imprint on witnesses, participants, and literary figures that the artists of that period were able to portray the heroism, pain, and cruelty of war through a synthesis of memory and imagination. A review of literary works on war and the experiences of their protagonists clearly reveals that war fundamentally changes human lives and leaves an indelible mark on their destinies. Literature provides an opportunity to understand their fears, doubts, and hopes, fostering empathy in readers.

In the 1950s, due to political and ideological constraints, it was nearly impossible to write openly about war, peace, life and death, or pain and separation. As a result, valuable literary works reflecting the grim realities of the Second World War only began to emerge in both world and Azerbaijani literature in the 1960s. This trend remains evident in world literature today. Contemporary German, French, and English novels on the Second World War continue to draw attention by offering new, diverse, and individual perspectives on the socio-political events of that era, transforming them once again into subjects of literary exploration.

The deep psychological and historical ruptures caused by World Wars I and II are vividly portrayed in works such as Ernest Hemingway's *A Farewell to Arms* and *For Whom the Bell Tolls*, Erich Maria Remarque's *All Quiet on the Western Front*, *Night in Lisbon*, and *Arch of Triumph*, Konstantin Simonov's *The Living and the Dead*, M. Sheyban's *Moonlight*, A. German's *Twenty Days Without War*, and M. Sholokhov's *Fate of a Man*. Over time, events from the war have been revisited not just with emotional intensity but, as Russian literary scholar D. Chugunov notes, also from "socio-historical" and "moral-psychological" [8, p.93] perspectives. This tendency is evident across various literatures, where the causes and consequences of World War II are presented not only on a physical or emotional level but also within social and cultural norms. "Despite differences in meaning and artistic merit among individual works, the literature on the Great Patriotic War forms a cohesive body characterized by shared themes and features" [15, p.16].

One such compelling and artistically rich novel is Kristin Hannah's *The Nightingale*. Set primarily in Carriveau, France during World War II, the novel leaves a profound impact on the lives of two sisters, Vianne and Isabelle. Faced with the many adversities of war, they resist and strive to survive to the very end. After losing their mother prior to the war, the sisters live with their father in the family estate. The obedient and reserved Vianne marries her beloved Antoine, and they have a daughter, Sophie.

In contrast, the rebellious Isabelle, known for her defiant nature, fails to meet the expectations of her teachers and, much like within her family, becomes known as the "weak link." Eventually, she is expelled from school. The expulsion coincides with the outbreak of the devastating war. On her way back to Carriveau, Isabelle meets a young communist named Gaëtan. He invites her to join the fight against the fascists. Driven by her impetuous spirit, Isabelle joins the Resistance movement and quickly becomes one of its most active members. Her surname, which translates to "nightingale," becomes her code name within the movement. As a child, she had refused to obey her father and left home; now, as a young woman, she becomes the movement's "Nightingale."

During one of the operations, Isabelle is captured by the Germans. It is only then revealed that her estranged father had also been part of the Resistance. Upon learning of her arrest, he surrenders himself to the Gestapo, claiming to be the Nightingale in order to protect his daughter. This selfless act draws the enemy's attention away from Isabelle, and he is executed as the infamous Nightingale. Isabelle is spared execution but is sent to a concentration camp in Germany, where she is subjected to unimaginable torture. The novel's depiction of the Nazis' brutal and inhumane treatment of prisoners evokes outrage. The anti-human nature of war is vividly protested through the author's pen. Despite the torment she endures, Isabelle survives due to her unwavering will and rebellious spirit. Her brave and resilient character offers hope and emotional strength to the reader until the very end of the novel.

Unlike Isabel, Viana's previously happy family life is overturned the moment the bloody war begins. Her beloved husband Antonio is conscripted and sent off to fight. Although Viana used to receive letters from him frequently, the correspondence abruptly stops. As

the city falls under fascist occupation, the living conditions of its inhabitants become unbearable. Uninvited guests—Nazis—take up residence in local homes, inflicting emotional and psychological torment. They reflect all the fears and suffering war can generate, testing even the most steadfast souls. German forces seize every large house in the city, including Viana's: Captain Wolfgang Beck of the German army establishes his quarters in her mansion. Forced to breathe the same air as a ruthless enemy, Viana must endure humiliations and compromises in order to survive, to live—and above all, to protect her young daughter Sofi. She confronts fear, hunger, oppression, and psychological pressure each day, fighting merely to stay alive.

Although the two sisters are quite different by nature, throughout the novel both Isabel and Viana share a fundamental goal: survival and safeguarding their loved ones. While Isabel presents outward courage, Viana's bravery lies in her patience and resilience. Each sister pursues, in her own way, what she sees as the most righteous path. Their objectives are sacred. As a teacher, Viana places her nineteen Jewish pupils and her friend Rachel's child in an orphanage to protect them from the Nazis—and she even relies on Captain Beck's assistance to do so. Initially polite, the SS officer Beck eventually crosses all boundaries and violates Viana; the result of this horrific assault is the birth of her son. In such psychologically fraught circumstances, Antonio returns home from a prisoner-of-war camp. Upon learning the truth, he responds with humanity and wisdom—supporting Viana emotionally, and helping rescue her from depression. He persuades her that the child is blameless, and together they raise Julien with love and care.

By the end of the novel, it is revealed that the narrator is Viana herself. Although she now lives in America, she returns to Paris with her son Julien for an event dedicated to the memory of her sister Isabel. Because Julien was raised with love by Viana and Antonio, and never shown his father's German identity, he remains unaware of it—Viana chooses not to reveal the secret even after Antonio's death. While in Paris, Viana meets Ari, Rachel's son—whom she had been separated from in her own childhood. A truth emerges from the events of the novel: those who rebel do not survive war's horrors—only those who withstand them with patience and restraint do, and they emerge victorious. Through the character of Viana, the author illustrates a woman who, despite physical, moral, psychological, and emotional pressures, quietly wages a secret yet firm resistance—thus revealing a formula for survival. Contrary to expectations, it is not brave Isabel but the steadfast Viana who endures and survives. The narrative evokes the Serbian Adriana from Azerbaijani writer Rovshan Abdullaoglu's *Man Lying on the Rails*. Unlike Adriana, Viana does not regard her son Julien—conceived through rape—as a living reminder of guilt, hatred, or traumatic memory. The narrative suggests that losing self-control and essential humanity under torture and captivity is a pervasive tragic consequence of war. The profound psychological and physical suffering endured

by these two innocent women at the hands of their enemies does not fade from memory—it remains as a tragic testament to conflict.

Because Viana is strong and compassionate, Antonio supports her in raising Julien with love and psychological strength—ultimately restoring him into a healthy individual. A comparison between the attitudes of Viana and Adriana toward the children born of rape reveals that perspective shapes everything. It becomes clear that human psychology possesses the power to neutralize even the most unimaginable realities. That Viana and Antonio were able to protect twenty Jewish children and raise the child of an SS officer without trauma testifies profoundly to their humanitarian and benevolent nature. Regardless of race, origin, or identity, their aim is to save an innocent life from the horrors that befell it. In *The Nightingale*, the author metaphorically bears witness to the suffering of thousands of innocent Jews persecuted during wartime—speaking, in a sense, on their behalf. Writers addressing such topics often strive not only to shape the post-war destiny of religions, politics, or ethnic groups but to confront the existential question: What does it mean to be human?—within the context of tragedy [5].

By risking suppression of the painful truth and shielding Julien from it, Viana and Antonio demonstrate that even in the depths of trauma, love and protection can prevail. Julien becomes an embodiment of collective memory—the sculpture of pain incarnate—his existence proclaiming: “I was born of war, I am suffering, I am the manifestation of anguish and tragedy.”

Through Viana and Antonio, the author affirms human dignity even when it is mercilessly trampled—showing how torture, deprivation of agency, and dehumanization leave indelible marks on collective memory. He illuminates the tragedy of 20th-century individuals whose names and very identities were erased by anti-human systems. This prompts readers to reflect on war and injustice and to voice opposition to barbarity. As Svetlana Alexievich rightly observes in *War Is Not Woman's Face*:

“It is hard to remember the horrors of war, but even harder not to remember them.” [4, p. 98].

For those who endured captivity, memory is painful—but forgetting would be even more unbearable. In this light, Aliabbas's novel *The Black Locust Plains* shares the same anguish. There, during the Karabakh war, fighter Afsun attempts to rescue her sister Afruz from captivity—and ultimately commits suicide after failing. The novel's central theme—the moral and spiritual power required to seek freedom for a captive loved one despite insurmountable obstacles—is profoundly heartbreaking. Afsun carries the pain of not only her own sister but the collective suffering of all displaced people, living her despair with the lament: “I am like a broken thermos bottle... who cares about me?” [9, p. 49]. One week after her death, Afruz is freed—creating a paradoxical connection between sacrifice and liberation. In portraying Afsun as a martyr whose death leads to her sister's freedom, the author conveys that our land's liberty comes at the highest human cost. Literary scholar Elnarə Akimova likens Afsun to a “Don

Quixote fighting windmills... battling society, the enemy, the world" [3, p 153]. Despite her heroic ideals, merciless obstacles stay at her heels. In the end—a deep human crisis emerges, and the tragic outcome is inevitable: suicide. Afsun's personal war against enemies and society is silenced forever by her death.

After Afruz returns from captivity, Muqayis teacher tormented by shame over his innocent child's suffering—and unable to bear the moral and psychological burden—kills his daughter with his own hands:

"Why don't you split, O earth? Why don't you crumble, O world? Why don't you swallow me, O soil?" [9, p. 67].

This act becomes a symbolic protest against war—a collective outcry of those who lived through such tragedies. War is humanity's cruellest invention—a brutal struggle that shatters millions of lives, destroying both body and spirit, prompting hate and despair. Muqayis Teacher, who ends in self-destruction, becomes a universal figure representing countless Azerbaijani and all people scarred by war.

The renowned German writer Erich Maria Remarque, who wrote a number of compelling novels about both World Wars, portrays the horrors of war in his novel *All Quiet on the Western Front* through the eyes of 19-year-old Paul Bäumer. Expecting adventure and patriotic fervor at the front, Paul is instead confronted by relentless carnage and the agonizing deaths of his comrades. The realism and conviction in Remarque's depictions of battlefield scenes stem from his own direct experience as a soldier during the war—he wrote what he had seen, felt, and endured. As the author himself noted, "This novel is not about heroes. It is about the victims of war, including those who managed to survive." [6] Scholar Khanim Aydın rightly emphasizes that in *All Quiet on the Western Front*, the war unfolds for the characters across three artistic spaces: the front line, the rear, and in between. [6]

Remarque continues to explore the psychological devastation caused by war in *Arch of Triumph* and *The Night in Lisbon*, vividly depicting the agony experienced on both battlefields and home fronts. Notably, many of Remarque's protagonists were participants in either the First or the Second World War, which stands as undeniable evidence of the fact that the 20th century was an age of conflict—confirming Nietzsche's bleak prediction about modernity.

While in Remarque's works, events and characters are constructed to illuminate the inner world of a central figure like Ravic, Azerbaijani author Elchin's war-themed narratives instead focus on multiple characters whose thoughts and experiences revolve around the central trauma of war.

A similar theme arises in Heinrich Böll's *The Clown*. The protagonist's strained relationship with his mother stems from her impassioned pro-war speeches during WWII and her daughter's tragic fate—having joined an anti-aircraft unit and died in combat. These events mark a turning point in the clown's life, leading him to break away from his wealthy family and choose a marginalized identity in order to suppress the emotional wreckage of his past. Though many years have

passed, the pain of losing his sixteen-year-old sister lingers as vividly as ever. By severing all emotional and financial ties with his parents, he leaves them to bear the burden of their guilt alone. As someone who witnessed the war firsthand, Böll offers his protest against the brutality of war—especially condemning older generations who manipulated the idealism and naïveté of young people for ideological ends.

Regardless of where it starts, war brings identical moral, psychological, and material destruction. This notion is powerfully reflected in Orkhan Fikratoglu's novel *Alone*, in which the character Tekgoz-Jafar is utterly abandoned—not only by his homeland, but by the entire world. The moral violation inflicted upon this literary figure is far more painful than the physical abuse suffered by the orphaned girl accompanying him at the border. The cruelty inflicted upon defenseless children, women, and the elderly keeps the reader in a state of emotional tension throughout the novel, urging a meticulous examination of every facet of wartime atrocity.

In his novel *The Man Lying on the Rails*, Rovshan Abdullaoglu sheds light on the Bosnian-Serbian conflict and leads the reader into the deepest recesses of human cruelty. The protagonists—Emin, a Bosniak, and Adriana, a Serb—face devastating consequences. Despite her father's high-ranking position, Adriana is captured during the war. The novel highlights the senseless hatred between Croats and Bosniaks, and Adriana's tragic story elicits both sympathy and horror. Discovering that her own father, the notorious General Batko, orchestrated the very atrocities she endured, Adriana is shattered. Ultimately, her father commits suicide—seeking to free himself from guilt and to save his daughter from captivity.

The torture Adriana endures in the prison camp mirrors the horrific fate of many women who fell into enemy hands during war. In telling the love story between a Serb woman and her Bosniak husband, Abdullaoglu offers a subtle protest against the senseless bloodshed between two ethnic groups. Forced to flee Mostar to avoid ethnic hatred, Adriana and Emin resettle in Srebrenica, where Adriana assumes the name Lucia. But war erupts again. Emin's ailing mother Hana, unable to flee, commits suicide to avoid capture and save her family. The city is besieged. Emin's father, Muqtadir, and Adriana are taken prisoner. In an attempt to save his father, Emin is wounded. Adriana sacrifices herself to prevent Emin's capture, becoming a symbol of courage and selfless love.

The atrocities faced by female captives are described through Adriana's voice. Soldiers extinguish cigarettes on their skin, beat them mercilessly, and sometimes kill them for no reason [2, p. 306]. One prisoner endures these horrors to shield her 12-year-old daughter. In a chilling act of cruelty, the soldier Vaga forces the girl to wear both legs of her trousers in one leg to prevent her from fleeing, and commands, "Don't cry, or you'll die." The grotesque nature of this command demonstrates that these soldiers were psychologically unwell. Forced to laugh in the face of trauma to survive, the mother becomes a source of entertainment for these "creatures" with "nervous systems removed and replaced with molten metal." Eventually, Vaga

empties an entire magazine into the little girl's frail body. As a mock act of mercy, he tells the mother, "If you can laugh like the happiest people, I'll grant your wish" [2, p. 308]—then kills her daughter.

In another brutal episode, Vaga constructs two gallows before a female prisoner named Yelena and forces her to choose between her husband and daughter. Unable to decide, she runs madly, emitting such terrifying screams that even the soldiers freeze in place [2, p. 318]. Though both her loved ones are spared, the trauma drives Yelena insane. Released afterward, she does not leave the camp—singing lullabies by the fence for her daughter until she disappears. Later, her husband and daughter are freed.

Even after returning from captivity, Adriana, despite extensive treatment and Emin's support, is haunted by her past. Her nightmare worsens when she gives birth to twins—reminders of the violence she endured. "Whenever she heard the babies cry, she remembered the screams of the young girls in the camp. When she tried to hold them, she saw the faces of Serbian officers" [2, p. 339]. Though she herself is Serb, Adriana's story—marked by sexual violence from her own ethnic group—is a cruel irony of fate. Even if rare, such a case compels the reader to confront the terrifying question: *What can war truly do to people?*

Despite everything, both Adriana and Vianne—protagonists of Abdullaoglu's and Kristin Hannah's novels—are saved by love. Though they endure darkness and despair, both women ultimately find light and learn to live again, attaching new hope to the future.

Similar motifs are also evident in the renowned Russian writer Konstantin Simonov's novel *The Living and the Dead*. The plot of the novel is structured around the life story of a military journalist at the front during the early days of the war. Sintsov, who travels to Grodno in an attempt to rescue his family, does not return even after failing to find his daughter and mother-in-law. Instead, he continues his struggle both as a correspondent and a soldier. He is wounded while rescuing pilots, but even after being hospitalized, he returns to the battlefield. The literary hero earns sympathy through his perseverance to the very end. One of the novel's other noteworthy characters is Serpilin, a veteran of World War I who demonstrates consistent bravery throughout World War II as well. Despite having been arrested during the purges of 1937 and spending four years in the Kolyma camps, Serpilin does not change his stance toward the Soviet regime and joins the army as soon as the Great Patriotic War begins. His perseverance, leadership abilities, and refusal to compromise, even with a friend, are confirmed through the unfolding events. Although Colonel Baranov is his former university classmate, Serpilin does not forgive his mistake and demotes him to the rank of soldier.

Konstantin Simonov, who worked as a war correspondent during the war and was personally present on the battlefields, witnessed many events firsthand. This lends *The Living and the Dead* a unique place among literary works on this subject due to its realism. As Seymour Baycan aptly notes, "*The Living and the Dead* is literature from beginning to end." In the novel, the following description exemplifies the brutal reality of war:

*"The corpses were not lying on top of the snow, they were buried in the black soil, trampled and hardened, because people had long since been walking over them. There was no other way to walk here; the area up to the dugout was entirely covered with bodies. The limbs of frozen, half-naked corpses were intermingled, making it impossible to determine which body part belonged to whom"* [18, p. 449]. Such depictions connect this work with others written on World War II, the Karabakh war, and the broader theme of war, as they revolve around similar imagery and suffering.

In Elchin Huseynbeyli's *The Dagger with a Turquoise Hilt*, the act of Armenians in Karabakh pouring water over people in snowy, freezing conditions to hasten their deaths and then burying the frozen corpses in trenches closely mirrors the harrowing descriptions in other war narratives. In his novel *Fighting with Love*, the young soldier Sanan sacrifices himself by throwing his body in front of a bullet to save his commander—a scene reminiscent of Zolotaryev, who risked his life for Sintsov.

Simonov's *The Living and the Dead* also does not shy away from the waves of repression that swept through the country, shedding light on the purges and ideological "cleansing" efforts. The author succeeds in characterizing historical events in a comprehensive and expansive manner, interpreting war as a continuation of the construction process. A similar tendency can be observed in Elchin's novel *The White Camel*. Both authors assess the historical period from a similar perspective, turning war into an object of artistic analysis within a socio-political context. Just as in Russia, the situation in Baku and its old neighborhoods also draws attention for its parallels. For example, the character Mammadagha denounces his father as an enemy of the people, triggering a wave of repression—an indicator that similar socio-political events occurred throughout the USSR and were subsequently reflected in literature.

The portrayal of children, such as little Alekber and others in the neighborhood who kill sparrows with slingshots and cook them due to famine, reveals the grim image of hunger and destitution caused by war. In Sholokhov's *The Fate of a Man*, Vanyusha's filthy appearance while scavenging for food becomes a symbol of the devastating effects of war on innocent people. In Isa Huseynov's *The Sound of the Flute*, the child protagonist Shoshu Bala cries out for bread in a way that seems to echo throughout the world, a natural desire that even his family cannot silence. His cry becomes a symbolic call that could reach the ears of those responsible for causing wars.

The loss and resilience of characters such as Esmat, who lost her husband, and her brother Nuru, who toils day and night in the fields, along with many villagers who send their sons, fathers, and brothers off to war, reflect the shared realities experienced across different regions during the same historical period. In *I Was Not Beautiful*, Rahim Baba, who lost his only son, blindly stands with his cane in defiance, shouting, "*Tyrants! They are slaughtering our children! Do you hear me, people?*" This moment reflects the helplessness of individuals in the face of wars orchestrated by powerful forces. Nietzsche's declaration, "*God is dead! You*

*killed him!*”, becomes a metaphor for the vulnerability and impotence of humankind when faced with brutal reality.

From the 1960s to the 1990s, a significant portion of Russian literature on war adopted a stance advocating for peace and humanism—a tendency also observed in German literature. Both traditions shared critical views of totalitarian regimes, highlighting the similar functions of fascism and socialism and their oppressive effects on national destinies and human morality. Especially after the 1980s, evolving attitudes toward historical events enabled literature to adopt a more universal and humanistic tone, drawing Russian and German narratives even closer together. These works often presented not only the Nazis but also the Soviets as culpable. Vasily Grossman’s *Life and Fate*, written in the 1960s, is one such example. Grossman argues that a Nazi concentration camp was hardly different from a communist labor camp [15, p. 112], emphasizing that both forces stood in opposition to good, justice, and humanism.

This theme was particularly explored by the younger generation of writers who encouraged readers to reflect on these once-overlooked truths. The author highlights Stalin’s culpability as equal to Hitler’s, pointing out that innocent people perished both in the rear and on the front lines. Soldiers like Klimov and his German counterpart, recognizing this truth, do not raise their weapons at each other when hiding in the same trench. Their silent truce serves as a testament to the fact that wars are primarily driven by the interests of great powers. Simonov focuses on such moments, making it impossible for the reader to remain indifferent. The novel, through a backdrop of various socio-political events, promotes an anti-war message.

In Ernest Hemingway’s *A Farewell to Arms*, the protagonist Henry is wounded in war. During his hospitalization, he meets Catherine, a nurse mourning the recent loss of her lover. Their budding romance stands out as a beacon of light in the backdrop of war. When Henry is accused of espionage, the couple flees to Switzerland, hoping to begin a peaceful life. However, they soon realize that even Switzerland has not escaped the reach of war. As noted in one critical analysis, “*The fragile love of two young people is set against the whole world*” [17, p. 137]. Though they attempt to escape the chaos of war and begin anew, the reality proves otherwise: Catherine dies in childbirth, and the child is stillborn. The war once again casts a dark shadow over dreams of happiness. Hemingway conveys the message that once the world has turned into a sea of blood, there is no escape. Despite the great hope represented by the unborn child, war produces no love, no future, no light—only victims.

Ultimately, Hemingway concludes that “*no individual can sign a separate peace treaty with the world*”. In a global war, there is no room for personal harmony or happiness [17, p. 139]. This idea echoes in Georgy Vladimov’s assertion: “*No war in history resembles another—not in methods of killing, not in strategy, not in tactics, not in daily life, and most importantly, not in what Tolstoy called ‘the spirit of the army’... For the new generation, veterans are just old,*

*sick, toothless, worn-out men*” [14]. Nevertheless, all wars, regardless of where they take place, bring about similar consequences—suffering, destruction, and tragedy.

In Hemingway’s novel *For Whom the Bell Tolls*, the Spanish Civil War forms the backdrop. The narrative revolves around Robert Jordan and the events surrounding him, with the theme of love once again intertwined into the tragic setting. Just as in *A Farewell to Arms*, the love between Robert and Maria cannot triumph over the world’s hatred and war. For this reason, Hemingway begins the novel with a poignant epigraph: “*...if a clod be washed away by the sea, Europe is the less... any man’s death diminishes me, because I am involved in mankind; and therefore never send to know for whom the bell tolls; it tolls for thee*” [12, p. 3]. John Donne’s quote reminds readers that in war, every death is a loss for all of humanity.

In the novel, Robert is assigned to blow up a bridge that will be used by German officers. With deep hatred for fascism, the author channels his loathing into the destruction of the bridge, symbolizing the demolition of war itself. The entire narrative unfolds within just four days—yet Hemingway uses this short span to encapsulate the final pulses of the human heart and the vast consequences of war. As the epigraph suggests, since death comes for everyone, the eventual suicides of Hitler and his followers serve to confirm Donne’s warning. Through the novel, Hemingway sends a powerful message: war may destroy everything—but not love. He champions the idea that love is stronger than hate, and good ultimately triumphs over evil.

Huseyn Abbaszade was also a voluntary participant in World War II; he fought as a scout and artilleryman and was discharged from the army after being wounded. As a novelist, he was the first to create a broad and multilayered artistic portrait of the great commander, General Hazi Aslanov, in his novel “*General*.” The writer authored many works on the theme of war, and these works have always stood out in our literature for their naturalness and realism. One of the best stories written about war is his short story “*The Old Chest*.”

The old chest, which holds the painful and bitter memories of the war years, broken hopes, and the unfulfilled dreams of lives left incomplete, remains unforgettable like a mysterious and magical object. It ceases to be just an object and becomes a symbolic monument of living human memory, renewed in its old shell by vivid recollections. When a family moves to a new house, they discard many old belongings, but they cannot bring themselves to throw away the chest left by their grandmother. That’s because, when their grandmother was alive, she kept all the letters from her son on the front and valuable items intended for her future daughter-in-law in that very chest.

The most touching moment is the son, whom the mother longs for, never returning from the war. Because they cannot part with this chest full of precious memories, they take it with them to their new home.

The same motif is found in Sabir Ahmadli’s novel “*The Return of the Departed*,” dedicated to World War

II. The novel vividly portrays the tireless efforts of children, women, and elderly people on the home front, their unwavering willpower, moral and psychological strength, and resilience. The events of the novel are conveyed through the memories and destinies of people who experienced the losses and deprivations of war.

The recollections and pain of those tragic years are portrayed through the experiences of the innocent heroes of war—children, women, and the elderly: their losses, selling all their household belongings to save their children from starvation, their tireless struggle for survival day and night, and the grief of elderly mothers like Yetar and Sheker who lost their only sons in bloody battles—yet never losing their dignity or proud posture. This unyielding spirit and national identity evoke deep respect and admiration.

The character of Jafarli, the collective farm chairman, reminiscent of Isa Muganna's famous character "Sword Gurban" from *"The Sound of the Flute,"* is also notable. He is portrayed as the guardian angel of women and children working day and night on the home front, leaving a deep impression as a father figure who returned from the war with one arm and protected every family as his own.

The young women—Aferim, Surayya, Telli, and Guloysha—despite the sacrifices they made and the tragedy brought by war, did not yield but stood firm like soldiers on the frontlines, demonstrating unwavering willpower until the end. These are among the most touching and pride-inspiring moments in the novel.

The scene of teenage boys tearing off pieces of bread while delivering it to the shop and stuffing it into their pockets is a sad reflection of the hunger and harsh living conditions. This echoes Sholokhov's *"Fate of a Man"* where the orphaned little Vanyusha, who lost his parents, searches through garbage for food—a situation similar to the starving children in Sabir Ahmadli's novel.

The story *"My Grandfather's Tooth"* by the young Azerbaijani writer II Mahmud is also noteworthy. An elderly man, who witnessed the pain and hardship of the 1940s, years later still dips his cane into the flour barrel to check how much flour is left—a symbolic reminder of the hunger-filled days etched in his memory.

The image of children throwing themselves into grain piles to secretly fill their pockets with wheat during wartime reminds us again of Sabir Ahmadli's young heroes. The grandfather's nostalgic view of the past and the characterization of people raised in Soviet society—those who did not understand, recognize, or dared not admit the true, masked nature of that system—serve as generalized images of that era.

#### Conclusion

War is such a global phenomenon that writers have continually returned to it, interpreting it as an event contrary to humanity. Just as in world literature, Azerbaijani novelists have frequently addressed the theme of World War II—not so much the battlefield itself, but its impact on the home front and civilian life.

For this reason, both world and Azerbaijani literature have repeatedly explored the issue of war.

A unifying idea behind war-themed works in world literature—including examples from both German and Azerbaijani literatures—is the shared belief that *"there should be no war."* These works aim not only to portray death but also to highlight the incredible hardships endured, the strength people found within themselves, and the values that helped them survive as soldiers in extreme conditions.

Despite nearly a century passing, the questions and answers formed in the minds of different generations of writers still revolve around the same central issue: the human condition during war, the complex challenges and tests people faced, and the similarities between socialism and fascism. These themes form the artistic foundation of the literature addressing the war.

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