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Introduction

The European Journal of Health Policy, Humanization of Care and Medical Ethics aims to present contemporary challenges related to the expansive development of biomedicine from a humanistic perspective. It attempts to seek answers to intriguing and current issues regarding the role and functioning of humans in both health and disease from the perspective of the medical sciences, health sciences, social sciences, humanities and theological sciences. This international periodical (semi-annual) is devoted to health policy, the humanization of medicine in the provision of patient care and the implementation of the assumptions of medical ethics. It takes an interdisciplinary approach to complex problems in biomedicine, where the knowledge, experience and actions of medical staff in the face of different, but always very critical, borderline situations in the past and today raise numerous questions. Pandemics, a sense of threat regarding the predictability of upcoming events, a lack of sufficient economic resources and wars have changed the face and principles of healthcare systems worldwide. They have forced actions that were not obvious and have prompted the search for answers to basic questions involving access to medical services, the rules of operation of medical facilities, the provision of medical services in situations of immediate threat, the costs of medical interventions, balancing profits and losses, shortages of hospital staff or medical equipment, following standards of conduct consistent with a humanitarian approach, the rules of deontology, and legal provisions. The concepts of professional ethics based on a sense of responsibility and duty, dignity, and patient autonomy are the keys to building the face of modern medicine. The European Journal of Health Policy, Humanization of Care and Medical Ethics is intended to be a platform for the exchange of experiences of academic staff in Poland and Europe, while promoting the humanistic face of medicine. The articles published in the first issue address the above-mentioned topics, where the problem of humanizing medicine, the scale of activities to prevent the suicide crisis, the dimension of humanitarian aid, patients' beliefs regarding antibacterial resistance, and the way medical staff perceive the availability of medical services during the COVID-19 pandemic are expressions of this.

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The Polish Association of Suicidology's Contribution to the Advancement of Scholarly Publications in the Field of Suicidology: The Annual Journal *Suicydologia*

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Abstract

The Polish Association of Suicidology (Polskie Towarzystwo Suicydologiczne [PTS]) has played a major role in raising awareness of the dangers of suicidal behavior in society. One of the objectives in establishing the PTS was publishing. The purpose of this article is to describe the contribution of the PTS to the advancement of publications in the field of suicidology, based on the example of the annual journal *Suicydologia*.

The journal was printed in ten volumes between 2005 and 2018. The authors included members of the Polish Association of Suicidology as well as guest authors who were invited from all over Poland. These were professionals in many fields and disciplines, from the medical and health sciences to social science research. It seems that the publication of papers in the field of suicidology in *Suicydologia* contributed to bringing together this scientific community, spreading knowledge about the threat of suicidal behavior and designing preventive measures to mitigate suicide.

Keywords: suicide, suicide attempt, suicidal behavior, suicidology

Introduction

The Polish Association of Suicidology (Polskie Towarzystwo Suicydologiczne [PTS]), having emerged from the Polish Society for Mental Health, was established on March 12, 2002 by a 25-member Founding Committee at the Institute of Psychiatry and Neurology in Warsaw. The Institute also became the headquarters of the PTS General Board.

In legal and formal terms, the Polish Association of Suicidology was not registered until January 17, 2003. The goals of the PTS as defined by its statute include:
– regularly analyzing the prevalence and sociodemographic characteristics of suicidal behavior in Poland and around the world,
– creating a scientific foundation for prevention programs that reduce suicidal behavior, and
– initiating and conducting research in the field of suicidology.

Standing out among the listed goals of the PTS is carrying out regular research on suicidal behavior in Polish society and publishing the findings of this research in order to disseminate knowledge about the threats of suicidal behavior. Therefore, the aim is to increase awareness among citizens and public authorities of the presence of suicidogenic social risks that arise, for example, from the development of modern information technology, as well as to form public attitudes toward loneliness, the existential loss of the individual and societal problems associated with suicidal behavior.

Therefore, the Board of Directors and members of the Polish Association of Suicidology made efforts to advance scientific publications on selected aspects of suicidal behavior. In the beginning, when the association was still part of the Polish Society of Mental Health, there were numerous publishing projects, which resulted in a number of publications on aggressive and self-injurious behavior. The first activities involved obtaining permission from the World Health Organization to reprint a selection of guidebooks addressed to selected social and professional groups (teachers and journalists). However, the real breakthrough in terms of the development of academic publications in the field of suicidology came with the launch of *Suicydologia*, the first nationwide journal on this topic.

Research Publications in *Suicydologia* From 2005 to 2018

The first volume of *Suicydologia* was published in 2005. The man behind this scientific journal, the first of its kind in Poland, was Prof. Brunon Hołyst, long-time president of the Polish Association of Suicidology. Owing to the nature of suicidology (an interdisciplinary field), the authors represented a variety of specializations. The first article to appear in the section entitled Psychosocial Problems of Suicide was a study by the prominent suicide expert, sociologist Prof. Maria Jarosz (2005): "Suicide in the Third Republic of Poland: A Sociological Analysis." Włodzimierz Adam Brodniak (2005) wrote an article titled "Controversies over Sociological Concepts of Suicide." Czesław Cekiera (2005), in turn, described the psychological and axiological aspects of suicide.

In the second part, the authors focused on mental and somatic disorders. Stanisław Pużyński (2005) stressed the importance of the clinical, biological, and psychosocial conditions of affective diseases in the context of suicide. Another author, Józef Kocur

(2005), analyzed the problem of drug resistance as a risk factor for suicide in mental disorders. The highly important topic of repeated suicide attempts as a diagnostic, therapeutic, and social problem was addressed by Andrzej Polewka (2005). In turn, clinical psychologist Marta Makara Studzińska and Renata Turek (2005) devoted their article to the subject of suicide in somatic diseases. Also in this volume, a team of military psychiatrists, Bartosz Gruszczyński, Antoni Florkowski, and Wojciech Gruszczyński (2005), described indirect self-destructive behavior in soldiers.

The third section of this volume dealt with the determinants and prevention of suicidal behavior. In her article, Agnieszka Gmitrowicz (2005) identified the determinants of suicidal behavior among adolescents. Further on, Marzena Binczycka-Anholcer (2005) drew attention to the problem of suicidal behavior among the elderly. Moreover, a team of military psychiatrists discussed the determinants of suicide among soldiers and evaluated risk factors as a method of prevention (Florkowski et al., 2005). This section of the first volume of *Suicydologia* concluded with an article on the International Program for the Study of Suicidal Behavior (SUPRE-MISS; Rosa & Merecz, 2005).

The Special Report section, in turn, featured an article by Brunon Hołyst (2005) on suicide terrorists.

The second volume, published in 2006, contained four sections with corresponding articles. The section called Social and Psychological Problems of Suicide included numerous studies. The first, by Finnish scholar Iikk Henrik Mäkinen (2006), dealt with the acceptance of suicide and its correlates in Eastern and Western Europe during the period of political transformation. Włodzimierz Adam Brodniak's article (2006) examined contemporary sociocultural concepts and theories of suicide. Andrzej Hankała (2006), in turn, presented his analysis of the role of remembering trauma in the etiology of suicide attempts. Marta Makara-Studzińska and Justyna Morylowska's publication (2006) looked at suicidal behavior in people with experience of physical and sexual violence in childhood. Agnieszka Gmitrowicz and Aleksandra Lewandowska (2006) addressed the important topic of professional burnout syndrome among therapists and the suicidal behavior of patients.

The second part of this volume brought together articles on mental disorders and biological determinants. Jerzy Vetulani's article (2006) analyzed biological markers of suicide risk. Next, Józef Kocur (2006) concentrated on common risk factors for suicide and substance abuse. Marzena Binczycka-Anholcer (2006) reported on the impact of alcohol on suicidal behavior among women. In turn, psychiatrists headed by Professor Antoni Florkowski (Florkowski, Zboralski, & Gałecki, 2006) wrote about aggressive and suicidal behavior in depressive and anxiety disorders.

The section on psychosocial factors in suicide and suicide prevention featured more articles. Aleksander Araszkiewicz and Edyta Pilecka (2006) investigated the phenomenon of extended suicide in relation to the overall number of suicides in Poland between

1991 and 2005. Researchers from Łódź approached the topic of suicidal thoughts and suicide attempts in the context of modeling the relationship between risk factors (Merecz et al., 2006). Additionally, Andrzej Polewka and Marian Kopciuch (2006) studied the seasonality and periodic fluctuations of suicide attempts. Toxicologist Jan Chrostek-Maj (2006) outlined some of the sociodemographic and clinical factors that were predictors of suicide attempts by toxicology clinic patients. In another article, Agnieszka Malczewska (2006) drew attention to the role of the school counselor in preventing suicidal behavior among students.

In the Special Report section, Brunon Hołyst (2006) covered law-enforcement-assisted suicide.

Włodzimierz Adam Brodniak (2007a) opened the next volume of *Suicydologia* with an article on the possibilities of suicide prevention. The volume continued with an article by Derek Chambers (2007) on the national strategy for suicide prevention in Ireland. This was followed by a description of a regional program for suicide reduction in the Łódź region (Rosa & Gmitrowicz, 2007; Gmitrowicz & Rosa, 2007). Aleksander Araszkiewicz and Joanna Chatizow (2007) outlined a psychiatric model for suicide prevention. In another article, Anita Młodożeniec translated the guidelines of the American Psychiatric Association in "Risk Assessment and Treatment of People at Risk of Suicide: Brief Management Guidelines." In turn, Józef Kocur (2007) showed the links between bullying and suicide. Further on, military psychiatrists contributed an article on the epidemiology and diagnosis of brain microdamage in soldiers with reference to the prevention of self-destructive behavior (Gruszczyński, Florkowski, Zboralski, & Gruszczyński, 2007a). In another of their articles, the same authors discussed psychological prevention and the promotion of mental health in the military in the context of preventing suicidal behavior (Gruszczyński, Florkowski, Zboralski, & Gruszczyński, 2007b). Next, a team of researchers described the Scale of Critical Life Events in Adolescents (SKWŻ in Polish; Rosa, Sobala, et al., 2007). Marta Makara-Studzińska and Justyna Morylowska (2007) reported on the current research on suicidal behavior in the course of schizophrenia. Lastly, Włodzimierz Adam Brodniak's article (2007b) described the risk of suicidal behavior among people with mental disorders.

In the Special Report section in Volume III of *Suicydologia*, Brunon Hołyst (2007) outlined unusual cases of suicide.

The fourth volume of *Suicydologia* introduced the sections Prevention of Suicidal Behavior, Suicidal Risk Factors, Motivation of Suicidal Behavior, and Special Report. The first section, Prevention of Suicidal Behavior, included two articles. One of them was drafted by a research team consisting of Jan Czesław Czabała, Dorota Danielewicz, Anna Hryniewicka, Jarosław Rola, and Ewa Zasępa (Czabała et al., 2008). The subject was mental health promotion as a suicide prevention measure. In another article, Małgorzata Łuba, Anita Młodożeniec, and Włodzimierz Adam Brodniak (Łuba et al., 2008)

reported on the Warsaw Education and Prevention Program to address self-injurious behavior among adolescents.

Several more articles addressed the topic of suicidal risk factors. Anita Młodożeniec (Młodożeniec, 2008) discussed the evaluation of clinical risk factors for suicide. Konstantinos Tsigoritis and Wojciech Gruszczyński (2008) wrote about self-destructive behavior in patients with a diagnosis of schizophrenia. The topics of depression, feelings of hopelessness, and suicidal behavior of people with schizophrenia were also featured in an article by Marta Makara-Studzińska and Anna Kośląk (2008). Another team of researchers also covered the issue of self-harm among prisoners (Orzechowska et al., 2008).

The section Motivation for Suicidal Behavior contained an article by Andrzej Hankała (2008) on therapeutic interactions affecting the autobiographical memory of people at risk of suicide. In turn, researchers from Łódź authored an article on indirect self-harm in people who attempted suicide (Tsigoritis et al., 2008). Sara Filipiak (2008) wrote about disorders of the valuation process in the etiology of suicide attempts. Lastly, Andrzej Śliwierski (2008) dedicated his article to the issue of therapeutic help for a person who has made a decision to commit suicide.

In the Special Report section, Brunon Hołyst (2008) described the model of motivation of suicidal behavior. In her report, Agnieszka Gmitrowicz (2008) described the development of suicidology at the beginning of the 21st century based on the topics of international conferences. In turn, Marzena Binczycka-Aholcer, in collaboration with Jerzy T. Marcinkowski and Daniel Zielonka (Binczycka-Anholcer et al., 2008), addressed the bioethical dilemmas of suicide research among individuals and families with Huntington's disease.

Between 2009 and 2010, there was one double volume (V–VI) with 18 articles. The first article analyzed contemporary methods of therapy for patients at long-term risk of suicide (Gmitrowicz, 2009/2010). In a different article, Łukasz Święcicki (2009/2010) presented the issue of suicide in people with bipolar affective disorder. Moreover, a group of researchers outlined the Polish version of a scale for assessing the presence and severity of suicidal thoughts and tendencies in patients with schizophrenia (Młodożeniec et al., 2009/2010a). These authors contributed another article to this volume that reviewed research on akathisia and suicidal behavior in patients with schizophrenia (Młodożeniec et al., 2009/2010b). Next in this double volume was an article by Marta Makara-Studzińska and Anna Kośląk (2009/2010), wherein the scholars reviewed the literature on risk factors for suicidal behavior in schizophrenia. This was followed by an article by Adam Czabański (2009/2010) on the characteristics of altruistic suicide. The next article was a psychiatric/sociological diagnosis of the Tatra district in connection with plans to implement a depression and suicide prevention program (Koszewska & Boguszewska, 2009/2010). The topics of suicidal behavior among drug treatment patients and selected psychosocial and medical risk factors were also covered (Brodniak & Zwolinski, 2009/2010). Agnieszka

Gmitrowicz and Aleksandra Lewandowska (2009/2010) discussed the topic of intentional self-harm among students. Another subject that was tackled in this double volume was sexual dysfunction as a risk factor for suicidal behavior in adolescence (Beisert & Izdebska, 2009/2010). Anna Brytek-Matera's article (2009/2010) concerned suicidal behavior and its determinants in anorexia nervosa and bulimia nervosa. The volume also featured an article analyzing how a person's personality, family, and life circumstances correlate with juvenile suicide based on the stories of two of pupils (Sitarczyk, 2009/2010). Professor Józef Kocur and colleagues (Kocur et al., 2009/2010) reported on emergency medical interventions in life and health emergencies following suicide attempts. Next, a group of psychiatrists working with Professor Antoni Florkowski described the subtypes of aggression in psychiatrically hospitalized individuals with a history of suicide attempts (Strombek-Milczarek et al., 2009/2010). Jadwiga A. Przybyłowska's essay (Przybyłowska, 2009/2010) examined the personality and risk of suicidal behavior in patients with depression. Finally, Sara Filipiak and Edyta Worobiej's article (Filipiak & Worobiej, 2009/2010) examined the self-image of people who had attempted suicide.

In the Special Report section, Professor Brunon Hołyst (2009/2010) discussed the preventive functions of suicidology.

For the next several years, there were technical problems that prevented the publication of *Suicydologia*. Only in 2015, when cooperation with a new publisher was established, did the Polish Association of Suicidology resume the task of publishing further articles in the journal *Suicydologia*.

Volume VII of *Suicydologia* contained 10 research articles. The first two attempted to combine sociological and suicidological perspectives (Jarosz, 2015; Brodniak, 2015). In the next part, Brunon Hołyst (2015a) provided insight into psychiatry's interest in the issue of suicide, while Adam Czabański (2015) gave an account of politically motivated suicides. Another article centered on the psychological consequences of divorce (Hankała, 2015). Further on, a team of psychiatrists analyzed the psychosocial aspects of suicide among soldiers (Florkowski, Gądek, et al., 2015). Another group of psychiatrists described the psychopathological determinants of suicide among soldiers (Florkowski, Flinik-Jankowska, et al., 2015). Other authors undertook to portray suicide rates in Łódź as a symptom of social disintegration (Olszewska & Warzyńska-Bartczak, 2015). Next, clinical psychologists reviewed research on suicide risk in people with diabetes (Makara-Studzińska & Zaręba, 2015). In the Special Report section, Brunon Hołyst (2015b) analyzed the correlation between suicides and homicides based on police statistics.

The year 2016 brought the seventh volume of *Suicydologia*, which was divided into three parts. The first section described the experience of Gotland in suicide prevention in the second decade of the 21st century (Rutz et al., 2016). In the following article, Anna Baran (2016) presented the experience of Sweden in this regard. The second section featured articles on the experience of suicide prevention in Poland. The first of these showed

the problem from the perspective of the third sector, i.e. non-governmental organizations (Koszewska, 2016). The next article portrayed systemic solutions to the problem of suicide (Palma, 2016). The third study included in this section looked at the role of modern technologies and the internet in suicide prevention (Szmajda & Gmitrowicz, 2016). The third section (Determinants and Epidemiology of Suicidal Behavior) featured eight articles, the first by a team of psychiatrists who dealt with the suicidal behavior of people suffering from bipolar affective disorder (Florkowski, Jeżowska-Smorąg, et al., 2016). This section also provided insight into suicide among older women (Makara-Studzińska & Madej, 2016). The next article dealt with suicide risk factors in behavioral addictions (Kocur & Trendak, 2016). Further on, the issue of self-harm by prisoners was examined from a neurosurgeon's perspective (Kopciuch, 2016). Next, the suicidological aspect of underage pregnancies was analyzed (Kielan & Cieślak, 2016). Rokeach's BAV model and its application in explaining suicidal behavior was discussed by Włodzimierz A. Brodniak (2016). The last two articles analyzed human risk behavior in the context of community membership (Kieszkowska, 2016) and the topic of suicide in the social consciousness (Balandinovich, 2016).

The fourth part of the eighth volume of *Suicydologia* (Research Workshops) contained one article in which the social reactions of train passengers who had witnessed suicidal incidents on the tracks were analyzed (Czabanski, 2016). Likewise, there was only one article in the fifth section (Suicide in the World of Culture), on the depiction of suicide in contemporary mass culture (Witkowska, 2016). In the Special Report section, Brunon Hołyst (2016) described the planning of prevention programs and the motives and circumstances of suicidal behavior. The article concluding the eighth volume of *Suicydologia* dealt with suicide prevention in Poland and Europe as reflected at suicidology conferences (Gmitrowicz, 2016).

The penultimate, ninth volume of *Suicydologia* opened with an interview with the long-time president of the Polish Association of Suicidology, Professor Brunon Hołyst. Further on came sections with articles in the field of suicidological research. The first of these articles focused on teachers' statements about methods of responding to a student's suicide or suicide attempt (Czabański, 2017).

The essays in the ninth volume of *Suicydologia* touched on the issues in monitoring suicide attempts and self-harm in Poland in light of WHO recommendations (Gmitrowicz, Baran, & Kropiwnicki, 2017), suicide and somatic diseases (Makara-Studzińska & Madej, 2017), the limits of police intervention in cases of suicidal behavior (Jędrzejczyk & Kornacka, 2017), suicidological sects (Stradomska, 2017), suicide risk among victims of rape (Robak, 2017), the difficult art of "preventive" communication with the media (Baran & Gmitrowicz, 2017), evaluating the depression and suicide prevention program in the Tatra district (Koszewska & Ostaszewski, 2017), the crime of inciting or assisting in suicide in Poland (Gawlinski, 2017), and the suicide note as a performative statement (Witkowska-Nowak, 2017).

The ninth volume of *Suicydologia* ended with two articles on projects that were part of anti-suicide prevention work (Stradomska & Skalska, 2017; Fiszer & Kręgielewska, 2017).

The last volume of *Suicydologia* (X) was divided into the following sections: Review Studies, Research Workshops, Research Essays, and Special Report. Review Studies included articles on rather diverse topics. The first essay showed the role of science in the development of the Polish suicide prevention strategy (Gmitrowicz & Baran, 2018), while the next one dealt with the topic of diagnosing suicide risk (Biechowska, 2018). Adam Czabański (2018) raised the issue of the Far Eastern inspiration of kamikaze and self-immolation in Poland. We should also mention the following articles published in this part of Volume X: "Communication in Urban Space: Prevention or Suicide Risk?" (Stradomska, 2018), "Transsexualism and Suicide Risk" (Robak, 2018), and "The History of Research on the Causes of Suicide in Hungary in the 20th Century" (Kopyś, 2018).

The Research Workshops section dealt with four topics: hyperactivity and the risk of suicide in schizophrenia (Bohaterewicz et al., 2018); social and familial factors and suicidal behavior in adolescents hospitalized at the Department of Developmental Psychiatry, Psychotic Disorders, and Geriatrics at the Medical University of Gdańsk between 2002 and 2012 (Penkowska, 2018a); a case report of a client of the Crisis Intervention Center in a suicide crisis (Zawadzka, 2018); and the recurrence of suicide attempts among hospitalized adolescents of the Department of Developmental Psychiatry, Psychotic Disorders, and Geriatrics of the Medical University of Gdańsk between 2002 and 2012 (Penkowska, 2018b).

The Research Essays section of Volume X of *Suicydologia* included "The Final Monologue" (Witkowska, 2018) and "Self-Immolation as a Performative Gesture: The Case of Jan Zajíc" (Kulminski, 2018). Danuta Raś (2018) touched on the life paths of the Church's saints, while Marta Koziatek (2018) covered suicide in selected works of Russian literature.

The 10th volume of *Suicydologia* concluded with a Special Report by Bruno Hołyst (2018) on suicide as a political protest.

The Importance of the Publications of the Polish Association of Suicidology in *Suicydologia* for the Advancement of Suicidology

A total of 125 diverse scholarly articles dealing with multiple aspects of suicidal behavior were published in the ten volumes of *Suicydologia*; they often combined the perspectives of many scientific disciplines in a single essay. With the launch of the publications in the field of suicidology, many scientific communities became interested in the subject. These publications resulted not only in the establishment of scientific collaboration among

members of the Polish Association of Suicidology, but also among a wider range of authors throughout Poland. These authors represent most of the prominent Polish academic centers. Moreover, many research studies published by the PTS attracted a spectacularly broad readership and resonated among suicidologists from foreign academic centers. Suffice it to mention the cooperation that these publications triggered between Adam Czabański and world-renowned suicidologist David Lester (Stockton University), which culminated in their joint scholarly work. Some of the world-renowned suicidologists who collaborated with Polish scientists as a result of the impact of publications published by the PTS in *Suicydologia* include Nestor D. Kapusta (Medical University of Vienna), Danuta Wasserman (Karolinska Institutet), Karl Andriessen, and Karolina Krysinska (University of Melbourne).

It is worth noting that the initiative to establish and expand the first suicidological journal in Poland also had the value of bringing together the community of scholars involved in research in the field of suicidology. It is also noteworthy that this community is very diverse, as it comprises representatives of the medical sciences (psychiatrists, geneticists, and surgeons) as well as clinical psychologists, educators, sociologists, lawyers, criminologists, cultural scientists, and philosophers.

It is to be hoped that in the years to come the Polish Association of Suicidology will make further efforts to provide Polish readers, both those from the world of science and those who are simply interested in the topics covered in the publications, with interesting scientific articles. This should result in the broadening of knowledge in society about the nature of suicidal behavior and, consequently, in reducing the scale of suicide in society.

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Humanization of Medicine: A Narrative Review

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Abstract

Modern Western medicine is advancing exponentially. Technological innovations enable faster and better diagnosis, tailor therapy to the individual patient and disease, enhance the success of treatment, and shorten the duration of disease. Amid these technological advances, medicine is still about people. This paper aims to synthesize the knowledge on medicine's contemporary approach to human suffering and disease by applying medical humanities to improve medicine humanization.

"The good physician treats the disease; the great physician treats the patient who has the disease."
Sir William Osler, FRS, FRCP (1849–1919), a Canadian physician and co-founding professor of Johns Hopkins Hospital

"The sick person is not a number: he or she is a person who needs humanity."
Pope Francis, 2020

Introduction

Contemporary Western medicine has advanced enormously in recent decades. This progress has involved the development of various classes of drugs (e.g., antibacterial, antiviral, cytostatic, psychotropic, analgesics, and many others) (Pina et al., 2009) and diagnostic methods that span from point-of-care tests confirming pregnancy to sophisticated imaging methods such as computed tomography (CT), positron emission tomography (PET), magnetic resonance imaging (MRI), or single-photon emission computed tomography (SPECT) (Hussain et al., 2022). In addition, vaccines (Saleh et al., 2021) and surgical techniques (McKellar, 2010) have advanced greatly. However, even

though medical technology has skyrocketed (or perhaps because of it), the humanistic aspect of practicing medicine declined during that time (Whatley, 2014).

The dehumanization of medicine has many causes, including the perceived loss of self-determination in patients, the loss of self-awareness in a group, the dissimilarity between patients and medical staff, mechanization (thinking of patients as mechanical systems), reduced empathy, and moral disengagement (Haque & Waytz, 2012). To counteract the dehumanization of medicine, education in the humanization of medicine was created, with medical humanities being developed as a teaching aid (Moore, 1977; Sueiras et al., 2017). This narrative review addresses the concept of medical humanities and its role in contemporary medicine.

Humanization in Medicine and the Medical Humanities

Humanization in medicine can be understood as the pursuit of a relationship between health professionals and patients. This relationship should be guided by a mutual understanding based on ethical and humane behavior. In addition, humanization is related to the quality of healthcare and entails supporting health professionals through working conditions, continuing education, evaluation of services, and recognition of patients' rights (Moreira et al., 2015). Humanization in medicine is supported by the emergence of the medical humanities and their introduction into the medical education of future physicians and other healthcare workers (Han et al., 2019; Rabinowitz, 2021; Wear, 1989). The humanities are disciplines that deal with the recording and interpreting of human experience (Evans, 2002). They include history, literature, philosophy, ethics, sociology, theology, psychology, the arts, and law, among others (Grant, 2002). Thus, the medical humanities are the same disciplines concerned with the human experience of health, illness, disease, medicine, and healthcare (Table 1).

Table 1. Disciplines of humanities with examples of their application in medicine.

Discipline	Use in humanities
History	History of medicine
Literature	Patients experiences in literature
Philosophy	Medical philosophy
Ethics	Medical ethics
Sociology	Sociology of health and illness
Theology	Compassion in healthcare
Psychology	Communication, conflict management
Law	Patients‘ rights

The content of this table is based in part on [Grant, 2002].

The goal of humanization in medicine, and thus of the medical humanities, is to regain interest in the patient as a human being – not just as a medical case, but as a person with all their beliefs, hopes, and fears, with the history of their personal and professional life, and with their plans for the future (Evans, 2003; Greaves & Evans, 2000). Although understanding these needs may seem to have little to do with the treatment process, the impact that mutual understanding, trust, and respect between healthcare professionals and patients has on treatment outcomes is enormous.

In support of this view, a study of 470 patients admitted to orthopedic or internal medicine rehabilitation clinics reported a positive correlation between the quality of the interaction between patient and physician at admission and the patients' health status at discharge and after six months (Dibbelt et al., 2009). In addition, medication adherence in rosacea patients was positively correlated with a good doctor–patient relationship (Perche et al., 2023). Fear of treatment was found to be a significant factor in substance abuse patients dropping out, and it was suggested that addressing these fears and the reasons for them would improve compliance and outcomes (Sarkar et al., 2013). Similarly, when treating depression, addressing the patient's beliefs and attitudes strongly influences the outcome (Demyttenaere, 2001).

The Humanistic Approach to Patient Care: The Biological Mechanism

The biological mechanism behind this positive outcome has much to do with reducing stress. An person with an illness is automatically exposed to stressors related to that illness (Figure 1). Providing medical knowledge in a way that is tailored to the patient, talking to the patient at eye level, showing empathy, providing non-medical information (e.g., contacting a social worker or clergy person), and treating the patient and family respectfully may reduce the level of intensity or remove the stressor (de Wijs et al., 2023; Del Piccolo & Finset, 2018; Dibbelt et al., 2009; Roter et al., 1995).

The belief that the body and mind are separate entities has a long history in medical science. The pioneering work of Hans Selye (1956) on stress and the identification of corticosteroid stress hormones in the 1960s were landmarks that sparked our current understanding of the connection between emotions, stress, and the body's somatic response (de Kloet, 2000). Over many years of research, the mechanism of stress was revealed, its mediators and receptors in the body were identified, and the effects of short- and long-term stress began to be understood (de Kloet & Joëls, 2023; de Kloet et al., 2005). In the human body, cortisol – a steroid hormone – is normally released from the adrenal cortex into body fluids in a diurnal rhythm. It controls the body's use of fats, proteins, and carbohydrates, or metabolism, suppresses inflammation, regulates blood pressure and blood sugar levels, and controls the sleep-wake cycle. Cortisol is also secreted under stress and excessive concentrations or prolonged presence of it in the body

can deregulate all of the above-mentioned functions. The somatic responses to stressors have far-reaching consequences for the body, including negative effects on cognition and the cardiovascular and immune systems, metabolic dysregulation, or accelerated cancer growth (Eckerling et al., 2021; Ma & Kroemer, 2023; Russell & Lightman, 2019). The positive relationship between patient and healthcare worker may help dissolve the stressors, promote the patient's understanding of their illness and therapy, and positively influence the patient's health via the *placebo effect* (Benedetti, 2013). However, when negative, this relationship can worsen the physical symptoms of illness via the *nocebo-effect* (Benedetti, 2013). For this reason, it is tempting to recommend that healthcare workers try to develop a positive relationship with their patients. Such recommendations have already been developed specifically for oncology healthcare workers (Palmer Kelly et al., 2019) and for general healthcare workers (Drossman et al., 2021). Some of the published recommendations consider cultural and racial factors (Qureshi & Collazos, 2011), while others emphasize disease type and patient age (Trachuk, 2018).

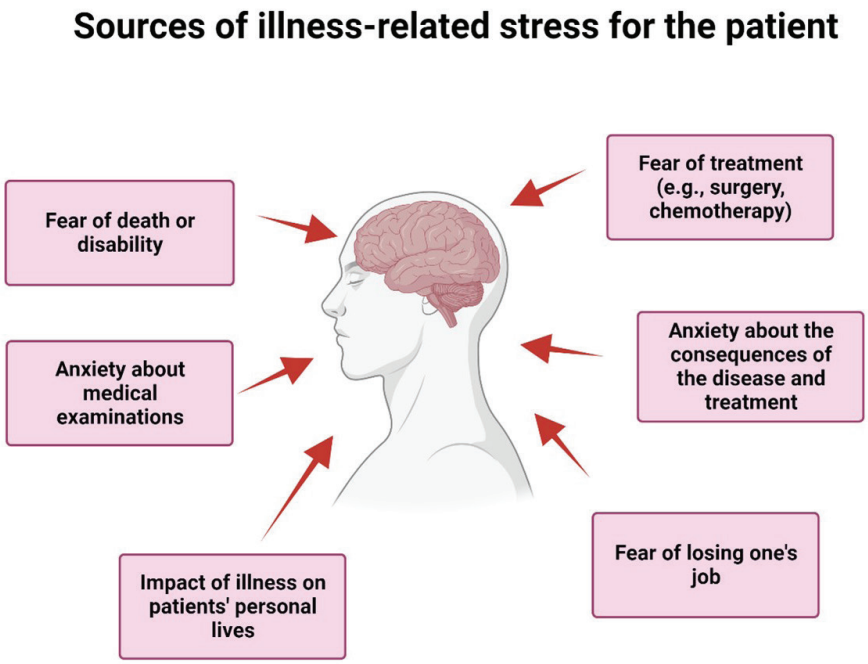

Figure 1. A schematic representation of some of the sources of stress that patients may encounter concerning their diagnosis or treatment. The sources of anxiety in medical settings include fears of death or disability [Khatibi et al., 2020], treatment [Sannes et al., 2019], medical examination [Parker et al., 2018], disease or treatment consequences such as unemployment [Vitturi et al., 2022], and of impact on personal life [Hamlet et al., 2021]. Created with BioRender.com.

Medical Humanities Education

The humanization of medicine and the medical humanities contributes to the development of listening and communication skills, promotes understanding of the ethical aspects of medical practice, and encourages critical thinking and reflection on experience and knowledge. To achieve this, the medical humanities began to be introduced in medical schools in the 1970s and 1980s (Kopelman, 1989; Moore, 1977; Thomasma & Marshall, 1989). Today, the medical humanities are offered at almost every medical school, but a problem has recently been identified: courses are not standardized across schools, course length and allocation to teaching semesters vary, and learning outcomes are assessed in different ways (Carr et al., 2021; Coronado-Vázquez et al., 2023; Dec-Pietrowska & Szczepek, 2021). This phenomenon is worrying, especially when health professionals move not only to other places for employment, but also other countries. There is currently a global trend among medical schools to train universal or global healthcare workers (Brouwer et al., 2020). This trend poses a challenge not only to the creation of a universal curricula in anatomy or physiology, but also to the teaching of *soft skills*, including the medical humanities. One possible solution to this situation would be to establish an international body for medical humanities education. National organizations already exist in some countries, but they have different competencies and goals. Among the organizations identified by Boolean web searches ("medical humanities" AND "association"; or "medical humanities" AND "society"), some were dedicated to research, teaching, and policy development, while others focused on advising healthcare institutions or representing student organizations (Table 2). An additional difficulty is that the legal organization of medical education varies from country to country. Nevertheless, it would be possible to use a platform such as scientific journals (Table 3) to at least start an effort to internationally standardize the training of future healthcare professionals in the humanization of medicine. The process of standardizing medical humanities education should address the subjects to be included (e.g., philosophy, ethics, sociology, psychology, and/or art), the minimum number of hours of study, the teaching methods (lectures, simulations, workshops, films, and/or seminars), and, finally, the methods of testing the students' skills (e.g., Objective Structured Clinical Examination (OSCE) or multiple-choice test [MCT] exams). The value of such standardization would be to equalize the basic knowledge of the medical humanities among medical school graduates worldwide. Since the global migration trend also involves healthcare workers (Aluttis et al., 2014; Bradby, 2014), patients around the world would benefit from a common core of medical humanities knowledge among healthcare professionals. Unfortunately, although the World Federation for Medical Education (WFME) provides global standards for improving the quality of undergraduate medical education, there is no universal core curriculum for medical schools. There are, however, attempts to create such curricula – for example, in the USA (McGuffin, 2014) or Colombia (Quintero et al.,

2020) – as well as to unify the education of so-called global or universal healthcare professionals (Brouwer et al., 2020). Whether or not the medical humanities will be the subject of national or international standardization depends primarily on medical schools, governments, regulatory bodies, and professional associations.

Table 2. Organizations identified by Boolean web search in English-speaking countries that focus on medical humanities.

Organization's name	Web address	Mission Statement/Goals as Stated by Each Association	Nature of the Activities
Association for Medical Humanities	https://amh.ac.uk/	*"The objects of the AMH are to provide a forum for interdisciplinary thinking in the field of the medical/ health humanities locally, nationally and internationally; to add significant value to the field of medical/ health humanities and to promote and support application of medical and health humanities in healthcare, in healthcare education and in society at large."*	Research and education
Health Humanities Consortium	https://healthhumanitiesconsortium.com/	*"(To) promote understanding of the experiences of patients, caregivers, and communities as they are shaped in relation to models of disease, illness, health, and wellness. Share practices and scholarship through an annual meeting. Educate the public, healthcare professionals, and educators about the history, practice, and study of health humanities."*	Research and education; Syllabi Repository
The CHCI Health and Medical Humanities Network	https://chcimedicalhumanities.org/	*"To contribute to the ways medicine and the humanities are taught and practiced; To provide new models for research within and across fields; and to foster collaborations between scholars working in humanities departments and their colleagues in the health sciences."*	Research and education
Planetree	https://www.planetree.org/	*"Humanizing healthcare for Everyone. Everywhere. Every time. Planetree is a passionate not-for-profit healthcare leader setting the global standard for person-centered excellence across the continuum of care. We partner to deliver the leading evidence-based framework for co-designing your roadmap to improved patient and family engagement, better clinical outcomes, increased staff retention and recruitment, and high value care."*	Provides training and consulting services to healthcare institutions in "Person-Centered Excellence"
The American Society for Bioethics and Humanities	https://asbh.org/	*"The Society is an educational organization whose purpose is to promote the exchange of ideas and foster multi-disciplinary, inter-disciplinary, and inter-professional scholarship, research, teaching, policy development, professional development, and collegiality among people engaged in all of the endeavors related to clinical and academic bioethics and the health-related humanities."*	Research, education, policy development

Organization's name	Web address	Mission Statement/Goals as Stated by Each Association	Nature of the Activities
The Health Humanities Society at King's College	https://www.kclsu.org/organisation/11653/	*"The Health Humanities Society at King's aims to celebrate shared interest in diverse intersections between health and the humanities. This encompasses the medical humanities and the use of arts (performance, visual, literary) in healthcare. We want to provide a platform open to all students to explore the richness of this field, to pique curiousity and celebrate creativity- through events such as creative workshops, meetings, talks, gallery tours, just to name a few!"*	Education (student organization)
The Canadian Association for Health Humanities	https://www.cahh.ca/	*"The Canadian Association for Health Humanities exists to promote the exchange of ideas and critical dialogue among scholars and practitioners, as well as foster collaborative explorations nationally and internationally. Through meetings, publications and related activities, CAHH seeks to facilitate initiatives as well as interdisciplinary, cross-professional inquiry into research and educational practices relevant to the health humanities."*	Research and education

Table 3. The list of journals particularly dedicated to medical humanities (based on author's search of Clarivate; https://clarivate.com/)

Title	Web address
Medical Humanities	https://mh.bmj.com/
Journal of Medical Humanities	https://link.springer.com/journal/10912
Ars Medica	https://www.ars-medica.ca/index.php/journal
Research and Humanities in Medical Education	https://www.rhime.in/ojs/index.php/rhime
Journal of Medical Ethics	https://jme.bmj.com/
Literature and Medicine	https://www.press.jhu.edu/journals/literature-and-medicine
Journal of The Surgical Humanities	https://medicine.usask.ca/department/clinical/surgery-pages/surgicalhumanities.php#JournalofSurgicalHumanities
Philosophy, Ethics, and Humanities in Medicine	https://peh-med.biomedcentral.com/

What is All This Good For?

Although the humanistic aspects of medicine were addressed by Socrates and Hippocrates more than 2,000 years ago (Bailey, 2018; Conti, 2018), the need to humanize Western medicine is still seen as a necessity today. The medical humanities are recognized around the world as an educational tool to convey the desired values to future doctors, nurses, paramedics, and other healthcare professionals (Dellasega et al., 2007; Mukunda et al., 2019; Smydra et al., 2022). In today's world, we need a unified set of humanizing standards among healthcare workers that should be supported both during and after their training. Numerous studies have shown that courses in the medical humanities help improve communication within medical teams and with patients and their families (Howley et al., 2020), increase empathy (D'souza et al., 2020), and sensitize people to different cultural, ethnic, and religious backgrounds (Howley et al., 2020; Mukunda et al., 2019). All of this translates into better healthcare, higher patient satisfaction, and a positive impact on the treatment and recovery process (Howley et al., 2020) – which is what medicine is all about.

Of Note

There is a misunderstanding concerning the concepts of humanization of medicine and holistic medicine. The Cambridge dictionary (2023b) defines "humanization" as "the process of making something less unpleasant and more suitable for people," whereas the Merriam-Webster dictionary (2023) says that "to humanize" means "to adapt (something) to human nature or use." The Cambridge dictionary (2023a) (but not Merriam-Webster) defines the term "holistic medicine" as "treatment that deals with the whole person, not just the injury or disease," which would agree with the definition of humanization of medicine. However, *holistic medicine* (also known as complementary or alternative medicine) is described as "the art and science of healing the whole person—body, mind, and spirit—in relation to every person's community and environment. It integrates conventional and unconventional methods, in order to promote optimal health, while being less concerned with pathology and the cure of individual diseases" (Graham-Pole, 2001). The concept of the healing of the spirit is absent from the humanization of medicine. Therefore, it is important to emphasize that while holistic medicine shares with the humanizing approach a holistic view of the patient, it also offers other alternative treatment methods, such as homeopathy, prayer, acupuncture, or meditation. Therefore, using the terms *holistic medicine* and *humanization of medicine* as synonyms is not advisable.

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Ethical Considerations in the Provision of Humanitarian Aid and Development Assistance to Countries and Societies in Sub-Saharan Africa by the European Union and its Member States

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Abstract

The aim of this article is to present the role that ethical factors play in providing humanitarian aid to the countries in Sub-Saharan Africa that are considered the poorest, and are sometimes even extremely poor and underdeveloped. The administrative and economic weakness of these countries is due to the colonial legacy inherited by the newly independent states, among other reasons. Moral sensitivity plays an important role in the European Union and its member countries providing humanitarian aid and development assistance, but these considerations often give way when the significant political and economic interests of donor countries are at stake. The research method is a literature review and analysis of documents and secondary sources.

Keywords: sub-Saharan Africa, humanitarian and development aid, ethics

Sub-Saharan Africa and the European Union (EU) are two very different worlds, with many stark contrasts. On the one hand, the EU and its member countries are among the most developed, richest, best governed, and most stable countries in the world. On the other hand, Sub-Saharan Africa comprises countries that are among the poorest – sometimes abjectly poor and underdeveloped – ill-managed and extremely corrupt, while being the most unstable and sometimes even bankrupt. In addition to these problems, there are the natural disasters that often haunt the region – droughts, floods, and locust

infestations – ravaging local agriculture and its crops, which are the backbone of the local economy in many countries and the livelihood of most of the population, as well as the scourge of malaria and AIDS, and since 2020 the COVID-19 pandemic, and a host of internal armed conflicts, with the resulting mass internal and external refugee migration (Kaczmarek, 2019; UNHCR, 1998; Kłosowicz, 2017).

The roots of the organizational and economic fragility of the countries in sub-Saharan Africa lie partly in the colonial legacy that was bequeathed to the newly independent states, whose borders were drawn at conference tables in the late 19th century. European colonizers did so mostly in isolation from the local economic, political, tribal, or cultural traditions and brought about a disruption in the territorial continuity of traditional states, with a few exceptions (Zanzibar, Rwanda, Burundi, Lesotho, and Swaziland) (Vorbrich, 2012; Kłosowicz, 2017). The causes of the economic troubles and destitution of sub-Saharan African communities can also be found in the structure and functioning of the states and the communities living there, which are often feuding and mired in armed conflicts bearing the hallmarks of civil war. The origins of most of these conflicts can be traced mainly to rivalry over access to the many natural resources in which this region abounds, as well as rivalry over access to scarce farmland and water resources (Boniface, 2001). The old conflicts sometimes erupt with tremendous force and often escalate to genocide. Such was the case with the internal conflict in Rwanda in 1994, which claimed from 800,000 to 1 million lives. Its aftermath was the Rwandan-Ugandan intervention in Congo, as a result of which the country became an arena of internal strife claiming nearly 5 million victims, with foreign interveners looting its natural resources for many years (Reybrouck, 2014; Boniface, 2001). Sometimes these conflicts are fueled by external factors, especially competing European powers and states with vested interests in the exploitation of the area's natural resources. Some of these states – former colonial empires, such as France – are sometimes directly involved in these conflicts and jealously guard their former spheres of influence from their rivals (Kapuściński, 2006).

As a consequence of this constellation of events, new so-called "humanitarian spaces," or areas in need of urgent and regular intervention in the form of humanitarian aid, are emerging in sub-Saharan Africa. Besides humanitarian aid – which is short-term and does not solve problems requiring long-term action – the countries concerned, as well as international organizations and private foundations, are providing development aid to the countries of the region, as otherwise it would be impossible to solve many problems in this part of the world. While humanitarian aid is channeled straight to those in need, sometimes bypassing the authorities of the country in which the needy reside, development assistance is delivered in a more regular manner over a longer period of time, aimed at "reducing poverty, promoting sustainable development, supporting democratic reforms and the rule of law, ensuring respect for human rights, developing civil society, promoting economic growth, and preventing conflict and other threats to security and peace" (Grzebyk & Mikos-Skuza, 2016, p. 10).

The significance of rendering humanitarian aid in the modern world was aptly summarized by Rony Brauman, then president of Médecins Sans Frontières – the largest medical humanitarian organization in the world, providing medical aid in more than 70 countries – in an interview with the French magazine *Liberation* (1992, as cited in Forum, 1993): "Providing humanitarian aid is still a necessary thing; it's a matter of life and death. And one can say that it is inherently linked to war: war zones are its main area of operation" (p. 10). The issue of humanitarian aid is defined somewhat more precisely by the European Consensus on Humanitarian Aid, under which

> the European Union and EU countries have committed to coordinate their actions under common objectives and principles for humanitarian relief interventions. The European Consensus on Humanitarian Aid lays down a strategic framework that guides the actions of the EU and EU countries to ensure effective and coordinated quality humanitarian assistance. (European Commission, n.d.)

According to the Consensus, humanitarian aid is triggered in emergency situations in order "to provide a needs-based emergency response aimed at preserving life, preventing and alleviating human suffering and maintaining human dignity … in response to man-made crises (including complex emergencies) and to natural disasters as needed" (European Commission, n.d.). It declares that "humanitarian aid is a fundamental expression of the universal value of solidarity between people and a moral imperative" (Joint Statement by the Council and Representatives of the Governments of the Member States Meeting within the Council, the European Parliament, and the European Commission, 2008). Therefore, the authors of the European Consensus, while officially undertaking commitments to provide humanitarian aid, also appealed to ethical considerations. This was also reflected in the premise that "the principle of humanity means that human suffering must be addressed wherever it is found, with particular attention to the most vulnerable in the population. The dignity of all victims must be respected and protected" (Joint Statement by the Council and Representatives of the Governments of the Member States Meeting within the Council, the European Parliament, and the European Commission, 2008). The Consensus also includes a commitment by its participants to respect and promote international humanitarian law, international human rights law, and refugees' rights. Human rights, in turn, are closely linked to international morality. Thanks to its influence and pressure, "there has been an impressive expansion of the various forms of their international protection and the commitment of states to this process" (Kuźniar, 2000, p. 262). As Roman Kuźniar (2000) notes, to put it more broadly, human rights can be considered part of ethics, which "with its norms, values, and moral ideas is part of the various forms of consciousness in international relations" (p. 263).

The European Union and its member countries are the world's largest donor of international public humanitarian aid, accounting for about 36% of global humanitarian

assistance. In March 2021, the European Commission issued a Communication on EU humanitarian action, outlining the priorities of EU humanitarian aid policy. The European Commission's Directorate-General for EU Civil Protection and Humanitarian Aid Operations is responsible for the implementation of EU humanitarian relief work (European Commission, 2021). The United States also has an immense role in this area. Meanwhile, in US political science, the issue of global justice only gained greater prominence in the 1990s, with globalization playing no small role in this process. Prior to that time, as Jon Mandle (2009) notes, American analysts representing a position known as realism believed that moral considerations did not apply in foreign relations. According to Roman Kuźniar (2000), "realists believe that a state's conduct in the international arena is not subject to moral judgment, that the national interest justifies ignoring moral principles that may constrain foreign policy, and that the main 'moral principle' is national survival." This author pits the realists against the spokesmen of the trend known as idealism and moralism, with many proponents of replacing the state-centric ethic, marked by egoism, with a "cosmopolitan" ethic, which is geared primarily toward realizing goals that are important to the international community, such as global distributive justice (Kuźniar, 2000).

At the dawn of this century, stakeholders raised the problem of the threats that globalization poses to human rights, which entailed shifting economic and social rights issues to a more prominent place on the human rights agenda. Moreover, attention has been paid to the issue of attitudes toward and respect for human rights on the part of large multinational corporations (Freeman, 2007). The emergence of a network of global corporations, large international organizations, and non-governmental organizations was and is an effect of globalization, wherein the cultural factor played a significant role, facilitated by the diffusion of cultural patterns, if only in the realm of consumption. However, the moral factor is also present and significant alongside the cultural factor in the processes of globalization, because, as Janusz Mariański (2015) notes, while referring to the concept of Anna Pawełczyńska, "the goal is such an all-human community, which would recognize certain principles regulating the moral order on the scale of all humanity (moral globalization)" (p. 220). Pawełczyńska (as cited in Mariański, 2015) defines a global society as a community with "such a bond with moral content that at least limits aggressive tendencies against outsiders" (p. 220). She points out that in such a world, "social injustice on one continent can have its origins on another." Such were the ramifications of European states instituting violent and exploitative relations with local communities living in sub-Saharan Africa during the colonial period.

Colonialism, and especially the slave trade, left an indelible mark on Europe's relations with Africa. By the time slavery was abolished in West African ports, more than 11 million sun-Saharan Africans had been loaded onto slave ships, of whom some 9.6 million survived the voyage and were then sold at slave markets in America (Hochschild, 2016). Colonial rule also led to the incapacitation of African communities and their regular

plunder. The growing role of social Darwinism and the spread of racist ideas in Western societies left African natives treated with a distinct tinge of paternalism or even racist superiority. Acts were committed against Africans that would have been difficult to condone against whites at the time. The most egregious aftermath of colonialism in Africa was the spate of crimes committed by whites against black and other non-white Africans. Unspeakable crimes on a massive scale occurred at the turn of the 20th century in the Congo, ruled by Belgian King Leopold II, Conrad's "heart of darkness," where starvation, exhaustion, brutality, and murder claimed an estimated 5 million victims (Hochschild, 2012). Next in line for the title of murderer was one who even felt pride in the role he played, Kaiser Wilhelm II, who oversaw the massacre of the Nama and Herrero tribes in Southwest Africa (Olusoga & Erichsen, 2012). Particularly repugnant was the conduct of the British in Kenya at the end of their reign in the country, when, in order to suppress the independence movement more effectively, they interned the 1.5 million people of the Kikuyu tribe in concentration camps. Many of them, including women, were imprisoned in appalling conditions and abused in bestial ways (Elkins, 2013). All this happened less than 10 years after the crushing, with substantial British participation, of the murderous Nazi regime and the discovery and exposure of the magnitude of the horrendous crimes committed by the Germans in Europe under Hitler. It is worth noting that many black Kenyans gave their lives during World War II in the ranks of the British army (Pawełczak, 2004).

The pernicious impact of colonialism was also evident in the destruction of the legitimacy of traditional African sociopolitical structures and the creation of artificial administrative boundaries, subsequently inherited by newly established African states, often gathering mutually hostile tribal communities within their borders, which in turn had a deleterious effect on their future prospects for stability and governance. As Peter Calvocoressi (1998) notes, "African countries lacked the basic attributes of any state: a clear identity and authority of power" (p. 621). Almost every state that emerged in Africa experienced a coup d'état. According to estimates of governance effectiveness, made under the auspices of the World Bank in 2011 and covering 47 sub-Saharan African countries, 19 of them were found to be very poorly governed, with a further 15 rated as poorly governed. Countries in the region are also riddled with almost ubiquitous corruption. According to a ranking of "corruption perceptions" published in 2012 by Transparency International, of the 47 countries reviewed, the situation was considered very bad in 7 and bad in a further 19 (Lal, 2015). Botswana is a commendable exception in this regard, as the situation in that country was assessed as good in both instances.

The colonial period left a legacy of annihilation and marginalization of traditional elites, with no one to replace them, since, as Deepak Lal (2015) notes, only 3% of working-age people in the newly established African states had a secondary or higher education and "this segment became the nationalist elites who inherited the artificial colonial states" (p. 218). In Congo, there were only 16 graduates with university degrees

when the country gained independence, and as David van Reybrouck (2014) notes, "the army had not a single black officer. There was not one native physician, not one engineer, not one lawyer, agronomist, or economist" (p. 343). It must be said here, evoking the opinion of Fr. Adam Boniecki (2004), that various tribal groups – sometimes even hostile – which by no means formed a national community, lived and continue to live side by side in the newly formed states, with their numbers varying from several (3) as in Rwanda and Burundi to several hundred as in Nigeria (250) or Congo (about 200). The author also remarks that there is a lack of "competent people capable of managing the state apparatus in a professional, honest and proper manner, and there is also a lack of people capable of efficiently and responsibly managing the economy" (p. 27).

Another legacy of the colonial era that breeds negative outcomes is the system of food purchase and distribution. The monopoly of food purchase by colonial government agencies, which was created in response to needs arising from the war economy, was inherited by newly independent states. It has enabled those in power to artificially keep prices for agricultural products as low as possible, as African leaders fear unrest in the cities, where the population is steadily growing due to migration from the countryside. This policy consequently leads to the ruthless exploitation of the African countryside by the cities, and in essence by corrupt economic elites exploiting the entire nation (Cohen, 2000; Meredith, 2011; Iliffe, 2011).

The adverse phenomena of poor governance, instability, and pervasive corruption are present in many sub-Saharan African countries. Many ills are caused by corruption, which has its origins in the traditional culture of the region and is perpetuated by the unethical conduct of European companies bidding for contracts in tenders organized by local authorities (Przybył-Orłowski et al., 2014). An influential African politician who decides on the awarding of contracts must, in the process, take care of their clan – and this means giving gifts (bribes) to their relatives (Zaremba-Bielawski, 2016; Etounga-Manguelle, 2003). These factors make it difficult to combat the poverty that is quite common here. Poverty, or destitution, is an economic and sociological category that describes a permanent shortage of the material resources necessary to meet an individual's basic needs – in particular, food, shelter, clothing, transportation, and basic cultural and social needs. Poverty is therefore a threat to the attainment of life goals or objectives (Jarosz, 2002).

In contrast, the concept of absolute poverty is used in international statistics and denotes the extreme form of poverty. Until recently, the criterion for extreme poverty was living expenses not exceeding the equivalent of $1.25 per day per person. According to a 2014 UNDP Report, there were about 1.2 billion such people in the world. In 2015, the World Bank raised the international poverty line from $1.25 to $1.90 in daily income for one person (UNIC Warsaw, 2014; Kaczmarek, 2019; Milenijne cele rozwoju, n.d.). Most of those affected by extreme poverty are sub-Saharan Africans and South Asians. Therefore, one of the Millennium Development Goals was to reduce by half the number

of people suffering from hunger or extreme poverty. However, the pace at which this goal is being achieved and the absence of political will from rich countries suggests that it is unachievable at this time and that poverty is actually worsening in some regions. The World Bank estimates that it will take another generation to eradicate it. According to UNDP estimates referring to the Multidimensional Poverty Index, nearly 1.5 billion people in 91 developing countries live in poverty due to inadequate healthcare, education, and living standards. And while the overall number of people living in poverty is declining, nearly 800 million are at risk of returning to a life of poverty (UNIC Warsaw, 2014). To step up aid efforts for the poorest countries in November 2008, the European Union decided to transfer 0.15%–0.20% of its GDP to countries on the Least Developed Countries (LDC) list. By 2011, this rate had reached 0.13% of EU GDP being routed as aid to countries on the LDC list. Simultaneously, the EU urged other countries to join the donor lists and thus facilitate the lifting out of poverty of as many LDC-listed countries as possible (Potocki, 2011). These countries were also given some trade privileges with the EU and the USA.

The situation in sub-Saharan Africa is of mounting concern to the international community due to the dire situation of many countries and societies in the region. The list of the world's 50 poorest countries included as many as 33 African countries in 2011; of the 10 poorest, nine were located in sub-Saharan Africa: Democratic Republic of Congo, Zimbabwe, Burundi, Liberia, Eritrea, Central African Republic, Niger, Malawi, and Madagascar (Potocki, 2011). In 2023, the ranking of the world's poorest countries based on IMF data again included seven of the previously mentioned countries, the only difference being that Congo, Liberia, and Zimbabwe were replaced by Sierra Leone, Somalia, South Sudan, and Mozambique (Shulim, 2023). In 2014, in turn, the list of the world's 37 most unstable countries featured 21 located south of the Sahara, with the four most unstable countries being South Sudan, Somalia, the Central African Republic, and Sudan. In 2019, according to the Fragile States Index (2019; see also Nowa Strategia, 2014), of the 31 most unstable countries in the world, 22 were located in sub-Saharan Africa.

It is worth stressing at this point that poverty, including in sub-Saharan Africa, has more than just a material dimension. It also has an intangible side, which is heavily emphasized in studies of the Global South, which includes Sub-Saharan Africa. As Ruth Lister (2007) notes, the intangible aspects of poverty include "a lack of voice, disrespect, humiliation and an assault on dignity and self-esteem, shame and stigma; powerlessness; denial of rights and diminished citizenship" (pp. 19–20). The author refers to the constellation of these phenomena as relational/symbolic aspects of poverty and suggests that they result from the daily interactions of people in poverty with other members of the society in which they live. They concern

> the way they are talked about and treated by politicians, officials, professionals, the media … The less value-laden word "poor" is itself problematic. It is an adjective that we "apply"

> to "them" but people in poverty themselves are often reluctant to wear what they perceive to be a stigmatising label, with its connotations of inferior as in "poor quality." (Lister, 2007, p. 20)

This intangible side of poverty has left and continues to leave a distinctive mark on the livelihoods of African farmers, especially women. It is in sub-Saharan Africa that the world's poorest farmers live, making up nearly 70% of the population there at the end of the previous century (Caparrós, 2016). According to Daniel Cohen (2000), the poorest people globally certainly include African women. The scholar believes that "it would not be an exaggeration to say that African women are today's slaves … Aside from being an insult to the rest of humanity, which hypocritically accepts its existence, the exploitation of women creates a self-perpetuating cycle of poverty: by making it unnecessary to invest in machinery, it allows [a man] to save enough money to buy another wife, who will bear more children, who will work for their father if they are boys and who will be sold if they are girls" (p. 17). An example cited by Martín Caparrós corroborates this claim. He writes about a farmer from Niger who, motivated by cultural considerations, eventually used the money he had set aside to buy a plow – with which he could have multiplied the effects of his labor and cultivated a larger area of land – to get a second wife. While this is not a universally applicable rule in social relations in sub-Saharan Africa, it should be remembered that the principal function of the African family is procreation, which ensures the continuity of the family and clan (Waldenfels, 1997). One of the main reasons for the polygamy which occurs in sub-Saharan Africa, and which is highly controversial, was the constant shortage of labor in Africa relative to its territory, something which drove local societies to increase procreation (Easterly, 2008). African women actively contribute to the production of national income in sub-Saharan Africa, although their contribution is unquantifiable, as most of it is not recorded (or accounted for) in any way. According to a 1998 WHO estimate (as cited in Forum, 1998), women in sub-Saharan Africa had a critical share in the production of basic food volume, estimated then at about 60%–80%. In many communities, especially rural ones, however, women's lives are anything but easy. The plight of Kenyan women who live in rural areas was described by Rebecca Lolosoli (as cited in Wax, 2005). "Samburu women have no rights," she says, referring to members of her tribe, including men from a neighboring village. "You aren't able to answer men or speak in front of them whether you are right or wrong. That has to change. Women have to demand rights and then respect will come" (Wax, 2005, p. 37).

Today, the vast majority of sub-Saharan African countries have introduced modern legislation, encompassing constitutions that guarantee equal rights for men and women, regardless of place of birth, level of education, or wealth. One of the most relevant international documents underpinning the protection of women's rights in sub-Saharan Africa is the African Charter on Human and Peoples' Rights, also known as the Banjul Charter on Human and Peoples' Rights. Women's rights have also been incorporated

into other normative acts, such as family and labor codes, which increasingly guarantee them equality in the areas of rights to property, inheritance, or divorce (Michałowska, 2008). However, as in the issue of combating the practice of female circumcision, as in the protection of their rights, experience often diverges from theory. An example of this is the issue of women's access to education, ostensibly guaranteed by the constitution, but severely handicapped in practice because it is often optional and involves a small fee. However, even the elimination of this fee changes little, since the ability to continue education is not only affected by the price of school books or compulsory uniforms, but also by early marriage and subsequent early motherhood (Michałowska, 2008).

While the very idea of humanitarian aid is not very controversial, evaluations of the provision of development assistance to sub-Saharan Africa are not conclusive, especially in terms of the effectiveness of the measures taken in this area. According to contemporary estimates, the aid officially granted to sub-Saharan African countries over a period of 30 years (until 2014) amounted to the equivalent of just over $607 billion. However, it has not brought much benefit to the beneficiaries. As Deepak Lal (2015) writes, "the region has received more aid than any other region in the world in the last 50 years. It remains the poorest region in the world" (p. 215). The bulk of this aid has gone to the public sector, where it has been squandered and stolen. The financial aid flowing into sub-Saharan African countries on a regular basis has enabled many of the dictators there and the small cliques clustered around them to get rich with impunity (Meredith, 2011) while pursuing economic policies that have had no positive effect on the local population. "Ill-conceived and ill-managed economic policies produced crippling external debts out of all accepted proportion to GDP or export revenues" (Calvocoressi, 1998, pp. 620–621). This form of aid is often met with criticism, not least from Africans themselves (Lal, 2015), who are aware of the detrimental consequences it entails in its current form because it does not offer hope for effective solutions to key problems that block the economic development of countries in the region. Still, there is no shortage of advocates among Western voters for the continuation of development aid in its present form, so in the UK, for example, despite the need to cut budget spending in 2008 due to a massive budget deficit, both the ruling and opposition parties unanimously agreed on the inviolability of development aid spending.

One of the main arguments for the legitimacy of such a course of action is that these funds cover a significant portion of budget expenditures, up to 50% in some countries, and a sudden pullback of such aid could lead to disaster (Swianiewicz & Rosiak, 2014). However, some of the expenditures for this purpose should raise serious questions, since relief funds often serve to prop up violent dictatorships, such as that of Rwandan President Paul Kagame, otherwise a favorite of the West. His regime, with the help of censorship and manipulation of facts (i.e., deception) has created, for the benefit of international public opinion, as one foreign journalist Anjan Sundaram (2016) put it, a "magical nation," with a face that is far removed from the grim reality of the daily lives of the people

of Rwanda. In this way, Europe rewards with European taxpayers' money a politician who is reputed to be remarkably effective in action, without inquiring into the details of his doings and without trying to push for the democratization of the regime there (Sundaram, 2016). Such actions can be considered to lack moral sensitivity, as they do not meet the rationale underlying the provision of such assistance, and are therefore highly unethical. This is by no means an isolated case, for as William Easterly (2008) writes, rich countries have opted to provide aid only through the government of the recipient country. Thus, in 2002 alone, the 25 most corrupt countries in the world received a total of $9.4 billion in foreign aid. Consequently, Easterly asks, "What are the chances that these billions are going to reach poor people?" (p. 113). After all, the donor community intended that the money should. Interesting, albeit depressing, in this context are the findings that Easterly cites of a study conducted by World Bank economists in selected health centers in Tanzania. "In the survey, new mothers reported what they least liked about their birthing experiences assisted by government nurses. The poor mothers-to-be were 'ridiculed by nurses for not having baby clothes' (22%) and 'nurses hit mothers during delivery (13%)'" (Easterly, 2008, pp. 113–114).

In view of the failure of the existing form of providing development assistance, which consists mostly of transfering vast sums of money to the accounts of governments that often top the rankings of the world's most corrupt, attention is drawn to the need to phase out this form of development assistance. Instead, measures should be taken to ultimately make these countries independent of such aid, by creating advantageous conditions for development based on internal factors and establishing favorable terms for sub-Saharan African countries in trade relations with the outside world. It is worth quoting here the remarks by Janusz Kaczurba (2004), who says that

> if justice in the international order is an extension of the concept of justice in the relations of the national community, then the basic and politically most important, I believe, connection between justice so understood and the world order … is the presence of developing countries in [the WTO]. There are about a hundred of these countries today, which is two-thirds of all WTO members. (p. 65)

This line of reasoning, according to the author, stems from the fact that the idea of building a multilateral international trade system that is beneficial to its participants was the work of countries "which, for the most part, had an infamous colonial past" (Kaczurba, 2004, p. 65) and, consequently, moral considerations were to some extent unavoidable in their actions. Following the argumentation of Kaczurba, it should be recalled that colonialism significantly boosted the economic power of the colonial countries and metropolises. Therefore, developing countries, pointing to colonialism as a blatant manifestation of injustice in international relations and "its legacy of development deformities and deficiency of trade capacity," demand special treatment (Kaczurba, 2004,

p. 66). Meanwhile, bearing in mind that agricultural products such as food and cotton, in addition to natural resources, are a significant portion of the exports of sub-Saharan African countries, highly developed Western countries (i.e., the European Union or the USA) apply protectionist barriers to trade in these products through high external tariffs and subsidization of their own agriculture. Furthermore, in many cases, the World Bank and the International Monetary Fund have on more than one occasion made aid to poor African countries conditional on the cessation of any agricultural subsidies and the freeing of prices for agricultural products under the pretext of bringing them into the "global free market system" (Caparrós, 2016, p. 51) from which developed countries had previously been eager to exclude their own agriculture. Such measures should be evaluated as another example of actions devoid of moral sensitivity on the part of developed Western countries, which are the main sponsors of the two aforementioned institutions: the IMF and the World Bank. Meanwhile, the World Bank has acknowledged over time that "it is the agricultural subsidies that are four times more effective than any other measure" (Caparrós, 2016, p. 51) in helping to successfully combat famine, which is one of the most formidable scourges of the region. Meanwhile the European Union and its member countries, and the United States, are participating in combating famine with humanitarian aid by sending the countries affected by it their own subsidized grain.

It is indisputable that ethical considerations are present in the EU's and its member states' provision of humanitarian aid, if not that of development assistance, to countries in sub-Saharan Africa. This is especially true since the media images of starving children or endless streams of refugees arouse sympathy in viewers and have a powerful impact on public opinion in these countries. However, the way in which this aid is organized and distributed on the ground, i.e. in the so-called "humanitarian space," can raise large ethical doubts at times. A behind-the-scenes look into the so-called humanitarian aid industry and the ethical dilemmas involved – aid is given even if the goods and money feed the war coffers of warring parties – were described in the acclaimed book *The Crisis Caravan: What's Wrong with Humanitarian Aid?* by Linda Polman (2011). In the Foreword to Polman's book, Janina Ochojska-Okońska wrote that "the book also talks about how aid should not be given and the dangers associated with its large-scale use" (p. 7).

The factor of moral sensitivity has an unassailable place among the motives accompanying development assistance to countries in sub-Saharan Africa. It is certainly involved in the case of countries that are former colonial empires, which once drew significant material benefits from this, while committing numerous atrocities against the indigenous population, as mentioned earlier in the text. They contributed to distorting and retarding their development, besides often destroying traditional elites and failing to prepare new ones to take over in African states liberating themselves from white domination. While the very fact of providing aid to countries in sub-Saharan Africa has, in the words of Tony Bair (as cited in Lal, 2015), at its core "a scar on the conscience of the world" (i.e., a factor of high moral sensitivity), the forms of providing this aid and its direct

recipients show that ethical considerations often lie in the deep shadow of the political and economic interests of the donor countries of this aid (p. 211). That this sensitivity fades when specific actions are taken is not only evidenced by the maintenance of barriers to protect Western agriculture from competition from Africans, but also when it comes to external interests, since the assistance all too often reaches countries that do not meet these criteria, despite official declarations about the recipient countries' need to democratize internal structures and to respect human rights. The relief money often serves to strengthen undemocratic and corrupt systems. If it turns out that important geostrategic interests are at play, political and economic motives take precedence over respect for moral norms in international politics.

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Drug resistance in bacteria: An analysis of the knowledge, attitudes and beliefs of primary care patients in areas that are key for better management of the problem

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Abstract

Introduction: The growing issue of bacterial resistance to antibiotics is a global problem and requires urgent action, including at the stage of primary healthcare (PHC). **Objective**: The goal of the study was to assess patients' knowledge of antibiotic-resistant bacteria and patients' attitudes toward antibiotic therapy. **Material and method**: The study, using the survey method by means of a self-developed questionnaire, was conducted among 110 residents of the Wielkopolskie province in 2022. **Results**: As many as 76.4% of the respondents had not come across information about antibiotic resistance at any PHC facility. A high percentage of the respondents believed that antibiotics are effective against influenza (60%) and the common cold (31.8%). In total, 27.3% of the study group reported taking medication that they had left over after previous therapies. Only 50.9% of the respondents properly handled expired antibiotics. At least eight out of ten respondents had not encountered any educational campaigns on the issue. Demographic factors do not differentiate the responses to key questions on antibiotic protection. **Conclusions**: The unsatisfactory knowledge in the patient population that frequently undergoes antibiotic therapy calls for more effective health education. The role of medical personnel and conditions in which educational campaigns are more accessible is crucial.

Keywords: antimicrobial resistance, antibiotic therapy, One Health, primary health care, health education

Introduction

Antimicrobial resistance (AMR) occurs when bacteria, viruses, fungi, and parasites do not respond to drugs as they should (World Health Organization, 2023). Some bacteria may be naturally resistant to antibiotics, while others may be able to acquire such mechanisms (European Centre for Disease Prevention and Control, 2023; European Medicines Agency, n.d.). The emergence and spread of antibiotic resistance has been accelerated by human activity, mainly through the inappropriate use and abuse of antimicrobial drugs in treating, preventing, or controlling infections in people and animals, in livestock, agriculture, and industry, or as a consequence of poor sanitation and hygiene (Narodowy program ochrony antybiotyków, n.d.; Sobierajski et al., 2021; Sobierajski et al., 2023; World Health Organization, 2023). The underlying factors of the problem include inadequate knowledge about the rational use of antibiotics and about the development and spread of antibiotic resistance (Ashiru-Oredope et al., 2021; European Center for Disease Prevention and Control, 2019; Mazińska et al., 2017).

Bacterial resistance to antibiotics is a worsening, multifaceted, and very costly public health problem that requires urgent, organized efforts to preserve drug efficacy for longer (European Centre for Disease Prevention and Control, 2022a, 2023; Polskie Towarzystwo Zdrowia Publicznego, 2022; Tacconelli, 2018; World Health Organization, 2015a, 2020, 2023). We need a multidisciplinary approach to this threat, which affects all regions of the world (European Medicines Agency, n.d.; World Health Organization, 2023). Antibiotic resistance is associated with epidemiological risks, increased patient morbidity and mortality, the danger of losing the efficacy of life-saving medical interventions, a significant burden on healthcare and communities, losses in gross domestic product, and many other ramifications (European Centre for Disease Prevention and Control, 2022a; European Medicines Agency, n.d.; Najwyższa Izba Kontroli. Departament Zdrowia, 2019; Tacconelli, 2018; World Health Organization, 2023). Therefore, a health policy on antibiotic resistance requires a comprehensive approach, by monitoring both the use of these drugs and the growing rates of resistance to them, as well as setting the course for research on new medicinal products so that they can be developed in time (European Centre for Disease Prevention and Control, n.d.a; European Centre for Disease Prevention and Control, 2022b; Narodowy program ochrony antybiotyków, n.d.; Tacconelli, 2018; World Health Organization, n.d.a). The One Health approach of close and integrated collaboration for sustainable and optimized protection of human and animal health and the environment is also being developed, as these areas are closely linked and interdependent (Sobierajski et al., 2023; World Health Organization, n.d.b).

One of the key areas of action is raising the awareness and understanding of antimicrobial resistance through effective communication, education, and training (World Health Organization, n.d.c). Since 2008, a European Antibiotic Awareness Day (EAAD) has been celebrated annually on November 18 in the EU/European Economic Area

(Ashiru-Oredope et al., 2021; European Centre for Disease Prevention and Control, n.d.b.). The World Health Organization (WHO) also runs a global World AMR Awareness Week (WAAW) campaign (World Health Organization, n.d.c). In Poland, these efforts have been organized mainly under the National Program to Protect Antibiotics (NPPA) and are currently funded by the National Health Plan 2021–2025 (Narodowy program ochrony antybiotyków, n.d.).

The data indicates a high rate of antibiotic use in outpatient care, as well as a conspicuous antibiotic resistance problem in Poland compared to other European countries (European Centre for Disease Prevention and Control, 2022b, 2022c; Najwyższa Izba Kontroli. Departament Zdrowia, 2019; Olczak-Pieńkowska & Hryniewicz, 2021; Sobierajski et al., 2021). Primary healthcare (PHC) is responsible for the vast majority of all antibiotic prescriptions, many of which are issued for respiratory tract infections (NFZ, n.d.; Olczak-Pieńkowska et al., 2018). There is reason to believe that we should first analyze the effectiveness of relevant health education at the PHC level and create conditions to increase its availability. Monthly trends in antimicrobial usage, factors that may influence antibiotic consumption, and the awareness and attitudes of medical staff, medical students, and patients have already been assessed (European Centre for Disease Prevention and Control, 2019; European Union, 2022; Mazińska & Hryniewicz, 2017; Olczak-Pieńkowska et al., 2018; Olczak-Pieńkowska & Hryniewicz, 2021; Sobierajski et al., 2021). Our study goes slightly beyond the previous research, as it addresses the One Health approach and looks at the awareness of antibiotic protection initiatives in the PHC patient population.

Purpose of the study

The main objective of this study was to assess the knowledge, attitudes, and beliefs in key areas for rational antibiotic therapy and management of the problem of antibiotic resistance in the PHC patient population. We also analyzed knowledge of educational campaigns and projects, as well as factors that differentiate the respondents' knowledge and behavior. The survey sought to identify educational needs at the health system facilities that are closest to the patients.

Materials and methods

The study was conducted between March 7 and April 15, 2022 using a diagnostic survey method in the population of adult patients of two PHC facilities: one outpatient clinic from Poznań and one from Gostyń (Wielkopolskie province). The research tool was a self-developed questionnaire consisting of 29 single-choice and multiple-choice

questions. The survey was divided into four sections and included questions on socio-demographic characteristics, knowledge of antimicrobial resistance, behavior related to antibiotic use, awareness of drug resistance campaigns, behavior during antibiotic use, and beliefs about who has an impact on reducing the problem of antibiotic resistance. The paper-based survey was anonymous and participation was voluntary. The Bioethics Committee at the Poznań University of Medical Sciences confirmed that the survey did not constitute a medical experiment. Statistical analysis of the data was performed using Statistica 13.1. Pearson's chi^2 test was used to test for interactions between qualitative variables. A significance level of $p \leq 0.05$ was used in all analyses.

Results

Characteristics of the study population

The study involved 110 patients, the majority of whom were women (59.1%). The respondents were between 18 and 75 years old, with a mean age and standard deviation of 39.6 ± 15. Slightly over 45% of the respondents had a higher education. Most respondents were not taking long-term medication (59.1%), had been hospitalized at least once (70.9%), and had never been infected with a drug-resistant bacterium (55.5%) (Table 1).

Table 1. Characteristics of the study population (N = 110)

Variable		n	%
Gender	F	65	59.1
	M	45	40.9
Age	18–27	35	31.8
	28–37	17	15.5
	38–47	23	20.9
	48–57	19	17.3
	58–75	16	14.5
Education	Elementary	6	5.4
	Vocational	21	19.1
	Secondary	29	26.4
	Post-secondary	4	3.6
	College/university	50	45.5
Medical education or healthcare-related profession	No	96	87.3
	Yes	14	12.7

Variable		n	%
Place of residence	Countryside	27	24.5
	Village in an urban agglomeration	11	10
	Town of up to 50,000 residents	32	29.1
	Town of up to 100,000 residents	10	9.1
	City of up to 250,000 residents	6	5.5
	City of up to 500,000 residents	3	2.7
	City with more than 500,000 residents	21	19.1
On long-term medication	No	65	59.1
	Yes	45	40.9
History of hospitalization	No	32	29.1
	Yes	78	70.9
History of drug-resistant bacterial infection	No	61	55.5
	I don't know	44	40
	Yes	5	4.5

Patients' awareness of antibiotic resistance in bacteria

More than half of the respondents (59.1%) had heard of the phenomenon of antibiotic resistance, but at least a third had not encountered the term. Most patients who were familiar with the issue (n = 65) found out about it from the media, while 29.2% learned about the problem from their doctor. Up to 76.4% of the patients had not come across any information about bacterial antibiotic resistance in their doctor's office and nearly a third were not familiar with any of the terms used to describe the problem. Fifty-five percent of those asked pointed to the correct definition of antibiotic resistance. When asked about the reasons for the rise of antibiotic resistance, the most common answers were overuse and misuse of antibiotics in medicine (69.1%) and the use of antibiotics on one's own/over the counter/without consulting a doctor (54.5%); the least common answer was non-compliance with hygiene rules (3.6%). A quarter of the study group (24.5%) mistakenly believed that antibiotics work against viruses, while 31.8% thought they are effective against the common cold and 60% that they help fight the flu. One in three respondents would expect a prescription for an antibiotic when they have the flu (32.7%) and one in five for the common cold. The mean value of participants' self-assessed awareness of appropriate antibiotic use was 2.87 ± 0.88, i.e. between "mediocre" and "sufficient" (Table 2).

Table 2. Responses to questions testing respondents' knowledge (N = 110)

Question	Answer	n	%
Have you heard about bacterial resistance to antibiotics?	Yes	65	59.1
	No	36	32.7
	I don't know	9	8.2
Where/from whom did you learn about bacterial resistance to antibiotics? (n = 65; multiple answers possible)	Doctor	19	29.2
	Nurse	4	6.2
	Pharmacist	0	0
	Family member/friend	17	26.2
	Press, radio, television	24	36.9
	Internet (e.g., websites, social networks, or blogs)	29	44.6
	School/university	17	26.2
Have you ever come across any information about bacterial resistance to antibiotics in your GP clinic? (multiple answers possible)	Yes, I have discussed it with my doctor	11	10
	Yes, I have discussed it with a nurse	3	2.7
	Yes, in a leaflet/poster/video in the waiting room	16	14.5
	No, I have not	84	76.4
Which of the following terms are you familiar with? (multiple answers possible)	Antibiotic resistance	63	57.3
	Drug resistance	46	41.8
	Antibiotic-resistant bacteria	41	37.3
	Superbugs	16	14.5
	Antimicrobial resistance	12	10.9
	AMR	5	4.5
	I am not familiar with any of the above terms	35	31.8
Which of the following phrases do you think best describes what antibiotic resistance is?	The human body becomes resistant to antibiotic treatment	38	34.5
	Resistance of bacteria to an antibiotic / Ability of bacteria to stop the antibiotic's effect and survive in its presence	61	55.5
	Inappropriate use of antibiotics	3	2.7
	Genetic characteristics of the human body that make an antibiotic ineffective	8	7.3
What do you think may be contributing to the growing problem of antibiotic resistance in bacteria? (multiple answers possible)	Overuse and misuse of antibiotics in medicine	76	69.1
	Failure to follow doctor's instructions during antibiotic therapy	52	47.3
	Using antibiotics on your own / without a prescription / without consulting your doctor	60	54.5
	Poor knowledge of the proper use of antibiotics and of the consequences of careless antibiotic use	51	46.4
	Limited use of microbiological diagnostics	8	7.3
	Failure to comply with rules of hygiene	4	3.6
	Widespread use of antibiotics in animal farming and the economy	25	22.7
Antibiotics work against viruses	True	27	24.5
	False	83	75.5
Antibiotics work against bacteria	True	94	85.5
	False	16	14.5

Question	Answer	n	%
Antibiotics are effective in treating the common cold	True	35	31.8
	False	75	68.2
Antibiotics are effective in treating influenza	True	66	60
	False	44	40
Which health problems do you think would require a prescription for an antibiotic? (multiple answers possible)	Bacterial infection	75	68.2
	Viral infection	32	29.1
	Runny nose	7	6.4
	Fever	13	11.8
	Headache	0	0
	Influenza	36	32.7
	Sore throat	16	14.5
	Cold	22	20
	Cough	8	7.3
	COVID-19	15	13.6
How would you rate your knowledge of the proper use of antibiotics?	1 – insufficient	5	4.5
	2 – mediocre	31	28.2
	3 – sufficient	51	46.4
	4 – good	19	17.3
	5 – very good	4	3.6

Patient behavior toward antibiotics

A total of 40.9% of the respondents had used a systemic antibiotic during the year preceding the survey, most often for the common cold (26.4%) and the flu (18.2%) and purchased the medication from a brick-and-mortar pharmacy (95.5%). The vast majority of the group (70.9%) said their doctor had never ordered a microbiological test before starting antibiotic therapy for them. The respondents most often disposed of expired antibiotics and leftovers from previous therapies by handing them over to a pharmacy or drug collection point (50.9%) or throwing them away (42.7%) (Table 3).

Table 3. Responses to questions on respondents' behavior toward antibiotics (N = 110)

Question	Answer	n	%
When was the last time you took a systemic antibiotic (which works on the whole body)?	In the past month	1	0.9
	In the last 6 months	29	26.4
	In the last 12 months	15	13.6
	More than a year ago	27	24.6
	I don't remember	38	34.5

Question	Answer	n	%
What was the reason why you last took a systemic antibiotic?	Cold	29	26.4
	Sore throat	7	6.3
	Influenza	20	18.2
	Cough	1	0.9
	Fever	12	10.9
	COVID-19	5	4.5
	Other	18	16.4
	I don't remember	18	16.4
Where/from whom did you learn how long you should use the antibiotic? (multiple answers possible)	Doctor	101	91.8
	Pharmacist	22	20
	Family/friends	5	4.5
	Drug leaflet	23	20.9
	Internet	2	1.8
	I did not find that out / I was not told	1	0.9
Where did you get the systemic antibiotic you last took?	Brick-and-mortar pharmacy	105	95.5
	Online pharmacy	0	0
	From a friend/family member	0	0
	From previous treatments	0	0
	I don't remember	4	3.6
	Other	1	0.9
Which of the following statements best describes your attitude during antibiotic treatment? (multiple answers possible)	I have always taken the doses regularly	80	72.7
	I would forget to take some doses	8	7.3
	I would take too long between doses	4	3.6
	I ended the treatment after the period recommended by the doctor	34	30.9
	I ended the treatment earlier, once I felt better	16	14.5
Have you ever …?	taken an antibiotic without consulting a doctor, without a prescription	20	18.2
	taken an antibiotic that was left over from previous therapy	30	27.3
	taken an antibiotic that you got from a family member/friend	20	18.2
	given your antibiotics to others	14	12.7
	put pressure on your doctor or persuade them to prescribe an antibiotic	10	9.1
Has there been a time when the antibiotic you took was not effective?	Yes, once	16	14.5
	Yes, several times	22	20
	No	72	65.5
Has your doctor ever recommended a microbiological test to decide which treatment to use?	Yes, a family doctor	5	4.5
	Yes, a specialist doctor	1	0.9
	Yes, a doctor at the hospital	6	5.5
	No	78	70.9
	I don't know / I can't remember	20	18.2

Question	Answer	n	%
What do you do with expired antibiotics that are left over from previous therapies? (multiple answers possible)	I donate them to a pharmacy or drug collection point	56	50.9
	I throw them away	47	42.7
	I flush them down the toilet	4	3.6
	I keep them in my medicine cabinet at home	25	22.7
	I give them to other family members/acquaintances	3	2.7
	I resell them, for example, on the internet	0	0
	Other	2	1.8

Awareness of educational campaigns and patient beliefs

In the study group, 80% of the subjects had never encountered an educational campaign and 83.6% were not familiar with any of the leading programs or campaigns on the appropriate use of antibiotics. According to those surveyed, it is medical personnel (64.5%) and national and international health organizations (41.8%) that can make a difference in reducing bacterial resistance to antibiotics. Only 30% of the respondents felt that anyone who uses antibiotics can make such a difference (Table 4).

Table 4. Responses to questions testing respondents' knowledge of campaigns and respondent's beliefs (N = 110)

Question	Answer	n	%
Have you ever encountered an educational campaign on the proper use of antibiotics? (multiple answers possible)	Yes, from leaflets	11	10
	Yes, from posters	5	4.5
	Yes, from a TV commercial	5	4.5
	Yes, from a radio program	3	2.7
	I have not encountered such a campaign	88	80
Mark only those campaigns that you have heard of. (multiple answers possible)	National Program to Protect Antibiotics	6	5.5
	European Antibiotic Awareness Day	7	6.4
	World AMR Awareness Week	7	6.4
	Global action plan on antibiotic resistance	0	0
	The "One Health" approach	2	1.8
	None of the above	92	83.6

Question	Answer	n	%
Who do you think can have an impact on reducing the problem of antibiotic resistance in bacteria? (multiple answers possible)	Medical personnel	71	64.5
	Decision-makers and leaders in healthcare	36	32.7
	National and international organizations working in the field of health	46	41.8
	Anyone who uses antibiotics	33	30
	Food producers, including breeders of food-producing animals	32	29.1

Factors influencing the knowledge and behavior of the study population

The study found that women were more likely than men (70.8% vs. 42.2%) to declare that they were familiar with the concept of antibiotic resistance ($p = 0.00060$), but the correct understanding of this phenomenon did not depend on gender. Women were significantly more likely than men (50.8% vs. 24.4%) to know that antibiotics do not cure influenza ($p = 0.02149$) and to assess their knowledge of proper antibiotic use better (0.01440).

Age influenced whether the participants had come across the term *antibiotic resistance*. People under the age of 37 were more likely to have heard of antibiotic resistance in bacteria ($p = 0.00140$). With increasing age, the percentage of subjects who chose the correct definition of this problem declined ($p = 0.00704$). While 68.6% of the youngest age group (18–24) knew what the term meant, only 6.3% of the oldest (58–75) selected the correct answer. Respondents under the age of 37 were more likely to be aware that antibiotics are not effective against influenza ($p = 0.00234$).

The higher the respondents' level of education, the more often they reported having heard about antibiotic resistance (from 33.3% among those with an elementary-school education to 76% among those with a university degree; $p = 0.0004$), but we did not find that education was associated with choosing a more accurate definition of the problem. Subjects with a higher education judged their knowledge in the area better ($p = 0.00586$), but only responded more accurately when it came to the ineffectiveness of antibiotics against viruses ($p = 0.04447$).

The respondents' place of residence had an effect on their familiarity with the concept of antibiotic resistance. Residents of urban areas were more likely to have heard of this phenomenon than rural residents ($p = 0.02453$). This knowledge was most common among subjects who lived in a city with more than 500,000 residents (81%) and in villages that are part of urban agglomerations (72.7%); it was least common among residents of villages located far from cities (29.6%). However, the mere fact that a person declared being familiar with the problem did not significantly translate into defining it better or into higher scores on questions about the ineffectiveness of antibiotics against viral diseases, such as in influenza and the common cold.

The statistical analysis showed that there was an association between the participants' education and/or medical profession and their knowledge of antibiotic resistance in bacteria ($p = 0.00388$). Respondents with a medical degree and/or profession had heard of the phenomenon before, rated their knowledge better ($p = 0.03446$), and were more likely to give the correct answer on whether antibiotics are ineffective against viruses ($p = 0.02235$) and influenza ($p = 0.00092$).

We did not collect sufficient data to show that any of the demographic factors (gender, age, education, or place of residence) significantly differentiated risk behaviors, such as taking antibiotics without a prescription or without consulting a doctor, taking pills left over from previous therapies or obtained from family members/acquaintances, giving medications to others, or pressuring a doctor. The use of long-term medications was not shown to be significantly linked to the subjects' knowledge, attitudes, and views.

Discussion

In the Polish scholarly literature, the subject of patients' knowledge, views, and attitudes on issues relevant to the better management of antibiotic resistance is not addressed extensively enough, given the scale of the problem. We hope that our results will contribute to the discussion about the need to improve health education in PHC when it comes to judicious antibiotic therapy and antibiotic resistance.

Patients' knowledge of antibiotic resistance in bacteria

Only about 6 in 10 patients had heard of antibiotic resistance and were able to accurately define it. Most respondents (76.4%) had not come across information on the subject at their doctor's office and medical staff were all too rarely a source of such knowledge. It seems that because doctors, pharmacists, and nurses are perceived by patients to be the most trustworthy when it comes to information about antibiotics, according to Mazińska et al. (2017), they have the potential to educate people about the risk of developing bacterial resistance to antibiotics and about behaviors that mitigate this risk. Meanwhile, only 15% of respondents from Poland, compared to an average of 23% for EU countries, recall hearing any warnings in the past 12 months not to take antibiotics unnecessarily (European Union, 2022). It turns out that not all professionals who prescribe, administer, or dispense these drugs inform their patients about prudent use through, for example, leaflets, brochures, or advice. When they fail to provide such education, they justify this by a lack of appropriate materials, time, and interest on the part of the patient (European Centre for Disease Prevention and Control, 2019). In Poland, 76% of medical personnel said their knowledge of proper antibiotic use in current practice was sufficient, but only about 68% declared they had easy access to useful recommendations for managing

infections; nearly 70% had good opportunities to provide advice on judicious antibiotic use (European Centre for Disease Prevention and Control, 2019). In our survey, the participants identified the internet and the press, radio, and television as the most common sources of knowledge about antibiotic therapy. In the study by Mazińska et al. (2017), these were health websites, health magazines, health encyclopedias, and information from doctors, family, and friends. On the other hand, in a similar WHO study, a doctor or nurse was ranked first, followed by the media (World Health Organization, 2015b).

When asked about the reasons for the growing problem of resistance to treatment, the respondents in our survey most frequently identified the overuse and misuse of antibiotics in medicine (69.1%) and patients' use of antibiotics on their own/over the counter/without consulting a doctor (54.5%), while the least frequent answer was non-compliance with the rules of hygiene (3.6%). A small percentage of patients were able to identify all correlations. Generally, medical students recognized that the over-prescribing of antibiotics by physicians, the limited awareness of the risks, abuse of antibiotics in medicine, the use of antibiotics in livestock farming, limited access to microbiological diagnostics, under-dosing of antibiotics, and poor hand hygiene have the greatest impact (Sobierajski et al., 2021).

In our study group, 24.5% of the respondents erroneously believed that antibiotics work against viruses, 31.8% thought they are effective against the common cold, and as many as 60% considered them effective in treating the flu. One in three of those surveyed would expect a prescription for an antibiotic for the flu and one in five would expect one for a cold. It was previously reported that up to 60% of Poles believe that antibiotics kill viruses and that 36%–49% believe they are effective against the flu and colds, with about 41% of respondents expecting an antibiotic prescription for the flu (Mazińska et al., 2017). According to the latest special Eurobarometer 522 survey (2022), an average of 50% of Europeans and 47% of Poles thought antibiotics kill viruses, while 62% of Europeans and 45% of Polish respondents thought they were effective in treating the common cold (European Union, 2022). This survey confirms that there is still a high degree of ignorance about the ineffectiveness of antibiotic therapy in viral infections and about the difference between bacteria and viruses (Mazińska et al., 2017). However, 82% of Europeans and 86% of Poles are aware that unnecessary use of antibiotics makes them ineffective, while 67% of Europeans and 81% of Poles understand that taking them frequently causes side effects (European Union, 2022).

Patient behavior toward antibiotics

A total of 40.9% of respondents had used a systemic antibiotic in the 12 months prior to the survey, most often for the common cold (26.4%) or the flu (18.2%). This confirms previous reports that about 40% of Polish adults use antibiotics on a yearly basis, mainly for the common cold, a sore throat, cough, and the flu (Mazińska et al., 2017). This is

also consistent with other Polish studies (Mazińska et al., 2017). Doctors who provide outpatient care admit that Poles overuse antibiotics and that antimicrobial resistance is a serious problem (Mazińska & Hryniewicz, 2017). The results described above are lower than the average for all WHO regions, where 35% of people reported taking antibiotics in the past month, 30% in the past 6 months, and 12% in the past year (World Health Organization, 2015b). In the latest edition of Eurobarometer 522, only 16% of Poles and 23% of Europeans were taking antibiotics orally (European Union, 2022). Poles cited bronchitis, the common cold, and influenza as the three predominant reasons for antibiotic therapy, while other EU nationals cited urinary tract infections, sore throats, and bronchitis as the top three reasons (European Union, 2022). Across all WHO regions, 64% of people consider influenza and the common cold to require antibiotic therapy (World Health Organization, 2015b). It was previously reported that the observed seasonal trends in antibiotic use in Poland were similar to trends in influenza incidence (Olczak-Pieńkowska et al., 2018). Meanwhile, medical professionals in EU countries are well aware of the ineffectiveness of antibiotics in treating the common cold and influenza, but slightly underperform in terms of the One Health approach (European Centre for Disease Prevention and Control, 2019). A study by Mazińska and Hryniewicz (2017) found that 84% of physicians claimed to be familiar with the NPPA recommendations for the management of out-of-hospital respiratory tract infections, but 62% were unfamiliar with the Centor/McIsaac scale used to differentiate between bacterial and viral infections in sore throat patients. Rapid microbiological detection methods for Group A beta-hemolytic streptococcal pharyngitis are used only by 20% of physicians (Mazińska & Hryniewicz, 2017). It is hoped that e-prescribing, introduced in 2020, will provide a better opportunity to tabulate data on antibiotic use together with data on the diagnoses that prescriptions are based on (Olczak-Pieńkowska & Hryniewicz, 2021). Our findings reveal a paucity of knowledge in distinguishing between diseases with bacterial and viral etiologies. Some respondents, despite indicating that antibiotics do not work against viruses, also claim that they are effective for the flu and the common cold.

For our respondents, the doctor was the main source of knowledge about how long to take an antibiotic (91.8%). Most often, patients took the doses of the drug regularly (72.7%), but 14.5% ended therapy prematurely once they felt better. It has already been reported that the vast majority of patients (79%) take the full regimen of prescription antibiotics, but there is still a group who does not follow the recommendations and who mostly abandon treatment when their symptoms subside (Mazińska et al., 2017). Similar results to ours were seen in the Eurobarometer report (2022), where 15% of Polish patients said they should stop taking antibiotics when they feel better versus the EU average of 13%.

In Poland, as in other EU countries, antibiotics can only be obtained by prescription, but we have seen high antibiotic use, which can be attributed to several factors (Mazińska et al., 2017; Olczak-Pieńkowska & Hryniewicz, 2021). In our survey, 27.3% of respondents

reported that they had taken an antibiotic that was left over from previous therapy, 18.2% had used an antibiotic without consultation and without a prescription, and 9.1% had pressured a doctor to prescribe an antibiotic. In the 2022 Eurobarometer survey, 3% of respondents from Poland and an average of 8% from EU countries admitted to using an antibiotic that was "not prescribed by a doctor" in their most recent treatment (European Union, 2022). The most common reason for doctors prescribing antibiotics is the fear that the patient's condition will worsen or that there will be complications. Time constraints and a feeling that they need to maintain a relationship with the patient are also important factors (European Centre for Disease Prevention and Control, 2019). In our study, the vast majority of the group (70.9%) said their doctor had never ordered a microbiological test before starting antibiotic therapy for their condition. Although this is not required for some medical conditions, there have been previous reports that microbiological diagnosis is underutilized (Najwyższa Izba Kontroli. Departament Zdrowia, 2019). A Eurobarometer survey (2022) found that 29% of Polish respondents had a blood, urine, or throat swab before or during antibiotic use to check what caused their illness. Meanwhile, the average for EU countries was 46% (European Union, 2022).

Awareness of educational campaigns and patient beliefs

Our survey shows that from the patients' perspective, it is healthcare personnel (64.5%) who can make a difference in curbing antibiotic resistance in bacteria. This is in line with previous reports that healthcare workers play a key role, from educating patients to minimizing the spread of infections in healthcare facilities, especially when they are directly involved in treating infections, that is, prescribing, dispensing, and administering antibiotics (Ashiru-Oredope et al., 2021; Sobierajski et al., 2021). However, only 62% of medical care providers believe they play a crucial role in managing the problem of antibiotic resistance (Ashiru-Oredope et al., 2021).

It seems that educational campaigns and health websites can be instrumental in raising public awareness of the issue. Several years ago, measurements of the effects of EAAD campaigns in Poland allowed for slight optimism, as positive changes in behavior toward antibiotics were observed (Mazińska et al., 2017). However, our findings showed that 80% of PHC patients had never encountered an educational campaign on the proper use of antibiotics and 83.6% were not familiar with any of the leading programs. According to a survey of medical personnel in EU countries, more than 40% of health professionals from Poland had heard of EAAD and more than 30% had heard of WAAW (Ashiru-Oredope et al., 2021). In addition, medical staff from Poland rarely agreed with the statement that there was adequate promotion of prudent antibiotic use and information about antibiotic resistance in their country (Ashiru-Oredope et al., 2021). Meanwhile, educational materials targeting PHC physicians and other groups were being created as part of the EAAD (European Centre for Disease Prevention and Control., n.d.b). It is

noteworthy that only half of medical students have heard of the NPPA and one quarter have heard of the EAAD campaign. There is a need to increase the number of class hours for medical students devoted to antibiotic therapy and bacterial resistance, as well as hand hygiene (Sobierajski et al., 2021). It seems, therefore, that the aforementioned campaigns are still underpublicized, although they have been targeting both the public and healthcare professionals for a long time (Ashiru-Oredope et al., 2021). Also, the Polish Public Health Association, in an appeal to the Minister of Health, pointed out the need for promoting rational antibiotic therapy to the medical, pharmaceutical, and patient communities, while also emphasizing the seriousness of the situation (PTZP, 2022).

We must point out that the average self-assessment of our participants' knowledge in the area of proper antibiotic use was less than sufficient. Moreover, according to the 2022 Eurobarometer survey, as many as 40% of Polish patients would be interested in receiving more information about the conditions for which antibiotics are used, the use of antibiotics, resistance to antibiotics, and the links between human, animal, and environmental health (European Union, 2022). Some studies have shown that up to 70% of antibiotics are prescribed unnecessarily. The most effective way to improve this situation is through direct education, encompassing communication training, access to therapeutic recommendations, antibiotic management programs, access to rapid diagnostic tests, and more patient time at the doctor's office (Sobierajski et al., 2021).

Factors influencing the knowledge and behavior of the study population

A variety of studies suggest that age, education level, and gender are the main factors that influence attitudes toward antibiotics (Mazińska et al., 2017). Our analysis did not show that demographic factors were significantly associated with risky behavior during antibiotic therapy. However, we can confirm that women were more likely than men to have heard about antibiotic resistance and had higher self-rated knowledge and awareness that antibiotics do not treat influenza. The younger respondents scored similarly and were better at defining the concept of antibiotic resistance. It has already been reported that women are more likely than men to be aware that antibiotics kill bacteria but are not effective against viruses (Mazińska et al., 2017). This may be due to the fact that more women than men have come across information on the proper use of these drugs (Mazińska et al., 2017).

Those with a higher education were more likely to have heard about the phenomenon and had a higher self-assessment of knowledge on the subject, but gave more accurate responses only about the ineffectiveness of antibiotics against viruses. It was previously reported that respondents with a higher education tended to give correct answers on this issue more often than those with an elementary-school education. The best-educated groups also encountered messages on this topic more often than other groups (Mazińska et al., 2017).

Place of residence was a determinant of familiarity with the term *antibiotic resistance*. Residents of urban areas were more likely to have heard about the phenomenon than rural residents. Aside from several issues that may be at play here, it is worth noting that in populations that live in higher densities, human contact intensifies and this may account for more frequent antibiotic use (Olczak-Pieńkowska & Hryniewicz, 2021).

Our study has many limitations, such as a small sample size and a convenient sampling of volunteers from only two clinics. We only surveyed patients, without considering the opinions of medical staff. We also did not verify medical records. Because the study is not representative, our findings will need to be tested in larger studies in the future. On the other hand, many of our insights are largely mirrored in the literature on the subject. Therefore, we hope that these results, despite some shortcomings in the way they were acquired, will serve to strengthen and guide health education activities in the PHC, in keeping with the recommendations of prudent antibiotic therapy and the One Health approach promoted by the authors and implementers of global, European, and national initiatives.

Conclusions

- PHC patients often report taking antibiotics for viral infections; their self-assessed knowledge of how to properly use these drugs is less than satisfactory. The topic of antibiotic resistance is rarely addressed by medical personnel. The fact that the patient has heard about this problem does not always mean that they have sound knowledge on the subject; thus, counseling should not be neglected.
- In PHC health education, it is worth informing the patient more fully about the etiological agent that caused the infection and to stress that antibiotics are not effective in viral diseases. Explaining what prudent antibiotic therapy means and pointing out that anyone who uses antibiotics has a significant impact is crucial. It is worth reinforcing the message that observing hygiene rules and properly handling expired medications are important for controlling the problem.
- Patients are not sufficiently familiar with campaigns and educational initiatives for rational antibiotic therapy and the fight against antibiotic resistance. Given the high consumption of antibiotics, it would be worth implementing solutions focused on PHC facilities, since these clinics are particularly predisposed to popularizing this knowledge.

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Doctors' Eyes: Perception of Healthcare Services During the COVID-19 Pandemic: Experience in Poznań, Poland

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Abstract

Objectives

The outbreak of the COVID-19 pandemic impacted many aspects of life among various professional groups. Healthcare workers were the first line of help and the most vulnerable to being infected with the SARS-CoV2 virus. The efforts to counter the impact of the pandemic were not helped by shortages of staff and personal protective equipment, which affected the doctors' comfort as well as the patients' access to quality healthcare services. This study investigates the perception of healthcare services during the COVID-19 pandemic from the perspective of medical doctors living in Poznań, Poland.

Material and methods

The questionnaire was distributed in paper form among doctors and dentists. Responses were received from 72 respondents, including 63 women and 9 men. The survey was conducted during Poland's third wave of the COVID-19 pandemic.

Results

Statistically significant correlations were found between access and quality of healthcare services; appointment time and online mode of admission; access to PPE and quality of healthcare services; work comfort and access to PPE; and work comfort and quality of healthcare services.

Conclusions
The work of doctors and dentists during the COVID-19 pandemic has changed their perceptions of the accessibility and quality of healthcare services. The opinions of doctors and other healthcare providers, as the professional group closest to the hardships of the pandemic, should be highlighted and widely considered.

Keywords: assessment, healthcare quality, accessibility of health services, COVID-19, pandemic, coronavirus

Introduction

The discovery of the novel SARS-CoV-2 coronavirus was announced at the end of 2019. The rapid spread of the virus was connected to it being transmitted when infected people talk or cough, as the droplet tract transmits the virus. Infection occurs when the respiratory tract secretions of infected people reach the mucous membranes of people who are still healthy (Sanyaolu et al., 2021). The number of infected people increased rapidly every day in almost every country, leading the World Health Organization to declare a global pandemic called the COVID-19 pandemic in March 2020 (Cucinotta & Vanelli, 2020). Older people with co-morbidities such as prevalent cerebrovascular disease, chronic obstructive pulmonary disease, prevalent cardiovascular disease, diabetes, and hypertension are most at risk. However, severe symptoms of the disease can be seen in people of any age, including children (Booth et al., 2021; Del Sole, 2020). The most common symptoms of the disease are fever, cough, and shortness of breath; other symptoms may include diarrhea, fatigue, and myalgia. Additionally, patients whose initial symptoms include dyspnea, hemoptysis, anorexia, diarrhea, fatigue, and especially abdominal pain should be closely monitored to prevent their condition from deteriorating (da Rosa Mesquita et al., 2021; He et al., 2021). Furthermore, elevated procalcitonin and D-dimer levels, as well as thrombocytopenia, predicted a severe outcome of infection (Violi et al., 2020).

According to the WHO, education, isolation, prevention, transmission control, and treatment of infected patients are mandatory in order to control infectious diseases such as COVID-19. The spread of infection can be minimized through the use of protective masks, social distancing, disinfectants, personal hygiene, and limited contact with infected people (Lotfi et al., 2020).

Despite the implementation of safety measures, the number of SARS-CoV2 patients was increasing (Thu et al., 2020). Doctors were essential in combating the COVID-19 pandemic and its outcomes. The huge number of patients caused doctors' working hours to be extended. Their duties were often at the limit of their abilities and they were extremely vulnerable to the risk of illness (Johnson & Butcher, 2021). Since the beginning

of the pandemic, many healthcare workers have lost their lives due to helping patients with COVID-19. Vaccination campaigns have helped protect frontline workers and reduce COVID-19-related mortality among this group. Although vaccines play a key role in preventing severe symptoms and controlling the spread of the disease caused by SARS-CoV2 infection, both vaccinated and unvaccinated people should also use personal protective equipment (PPE) (Modenese et al., 2022; WHO, 2022).

In Poland, on March 4, the first laboratory-confirmed COVID-19 case was reported. The outbreak of the epidemic was declared on March 20 (Pinkas et al., 2020). Hospital wards were converted to units for patients infected with the SARS-CoV-2 virus. Some medical facilities reduced healthcare services or even stopped admitting patients entirely. The crisis caused by COVID-19 put enormous pressure on doctors. They had to cope with many new demands and were often exhausted. During the pandemic, existing medical staff shortages were exacerbated by the infection or self-isolation of doctors (Korneta & Chmiel, 2022; Rosińska et al., 2022; Dymecka et al., 2021). From the perspective of Polish patients, access to medical services deteriorated during the COVID-19 pandemic and waiting times for appointments increased. Access to healthcare services was limited by the temporary closure of healthcare facilities for non-COVID-19 patients. Also, a lack of higher education or having at least one chronic disease was significantly associated with experiencing barriers to accessing healthcare services during the COVID-19 pandemic (Mularczyk-Tomczewska et al., 2022). The internet proved to be a helpful tool during the pandemic, used by academic institutions for e-learning and by medical facilities for telemedicine (Roszak et al., 2021). Online appointments were useful for increasing access to medical services. Although it has limitations, telemedicine is a safe and useful tool for communicating with patients; in some cases, a teleconsultation with a doctor may not have been sufficient by itself (Binder-Olibrowska et al., 2022).

The aim of the study was to outline the perception of healthcare services during the COVID-19 pandemic from the perspective of medical doctors living in Poznań, Poland.

Material and Methods

Participants

The study covered 72 medical doctors and dentists from the Poznań University of Medical Sciences. The respondents included both women (n=63) and men (n=9) who practice medicine in Poznań. Most respondents were under the age of 60 for women (n=60) and under the age of 65 for men (n=8). The purpose of the questionnaire was explained to the respondents. All of them were informed that participation in the study was voluntary and anonymous.

Study Design

The questionnaire was conducted between July 8 and July 20, 2021, corresponding to Poland's third wave of the pandemic. The questions were prepared in Polish, which is the native language of the respondents. Questionnaires were distributed in paper form to the clinical departments of the Poznań University of Medical Sciences. The questionnaire contained 32 questions, 12 of which related to the sociodemographic characteristics of the respondents, 10 to the accessibility and quality of healthcare services during the COVID-19 pandemic in Poland, and a further 10 to the organization of work during the pandemic. The questions allowed either a single answer or multiple answers or were based on the Visual Analogue Scale (VAS), ranging from 0 to 10, where 0 meant "very bad" and 10 meant "very good." The questions considered, for example, the accessibility and quality of healthcare services, the mode of working, the comfort of the work, the accessibility of PPE, and the way of seeing patients. The questionnaire was accepted by the Bioethics Committee at Poznań University of Medical Sciences (Institutional Review Board Number 484/21) in conformity with the Helsinki Declaration guidelines.

Statistical Analysis

The data analysis was based on calculations made with the software programs Statistica 13 and PQStat. Statistically significant results were defined as those where $p < 0.05$. Based on qualitative data, the statistical analysis used the Wilcoxon test, the Kruskal–Wallis test, the Mann–Whitney test, a two-sided test and Spearman's r_s rank correlation coefficient. The Wilcoxon test was used to compare the respondents' assessment of access to healthcare services before and during the pandemic. The Kruskal–Wallis test was used to compare the evaluation of access to PPE and of doctors' comfort during the pandemic between the group providing state-funded healthcare services and the group providing private healthcare services. The Mann–Whitney test was used to compare the ratings of access to healthcare services between doctors who did and did not provide online appointments and to compare the ratings of work comfort between doctors who said that appointment times were shorter as a result of the pandemic and those who did not claim that. The correlation between stating that visits were shorter and providing online appointments was based on Fisher's two-sided test. Spearman's rank correlation coefficient was used to test the correlation between the quality of healthcare services, access to PPE, and comfort at work. This test was also used to compare whether the rating of accessibility to PPE affected the change in the rating of healthcare services quality, whether the change in the rating of accessibility affected the change in the rating of the quality of healthcare services, whether the rating of comfort depended on the rating of accessibility to PPE, and whether the rating of comfort influenced the change in the rating of the quality of healthcare services.

Results

Complete questionnaires were obtained from 72 people (63 women and 9 men). Of all the respondents, only four did not provide services during the pandemic, with the remaining 68 doctors (95.8%) stating that they saw patients. Twenty-nine doctors saw patients as part of state-reimbursed services, 17 provided only private healthcare services, and 22 allowed both modes. Only 16 of the respondents had online appointments. Fifty-six respondents considered that the time for a patient to visit the doctor's office during the pandemic was not shortened (Table 1).

Table 1. Characteristics of respondents

Independent variables	Categories	N	%
Sex	Female	63	87.5
	Male	9	12.5
Healthcare services provided	State-reimbursed	29	42.6
	Private	17	25.0
	Both	22	32.4
Online appointments	Yes	16	23.5
	No	52	76.5
Appointment time perception	Reduced	12	17.6
	Not reduced	56	82.4

Access to Healthcare Services

Based on the Wilcoxon test, statistically significant differences ($p<0.001$) were observed in the doctors' assessment of access to healthcare services before and during the pandemic. The respondents assessed that access to healthcare services had decreased due to the pandemic (Figure 1). Based on Spearman's r_s rank correlation coefficient, it was found that the more the rating of accessibility changed, the more the rating of the quality of healthcare service changed ($p<0.001$) (Figure 2). Based on the Mann–Whitney test, no differences were found in the assessment of accessibility to ($p=0.597$) or quality of ($p=0.189$) healthcare services during the pandemic for those who did and those who did not provide online appointments. There was a statistically significant correlation between observing that appointment times were shorter and having online appointments ($p=0.008$).

Figure 1. Comparison of doctors' assessment of access to healthcare services

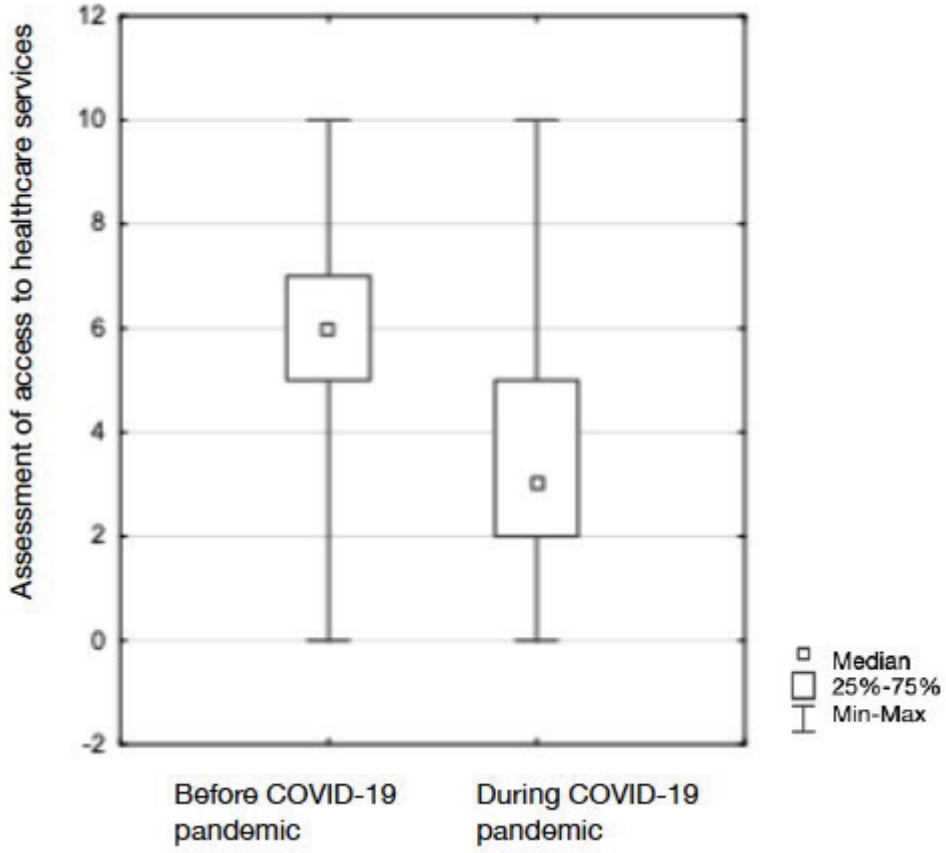
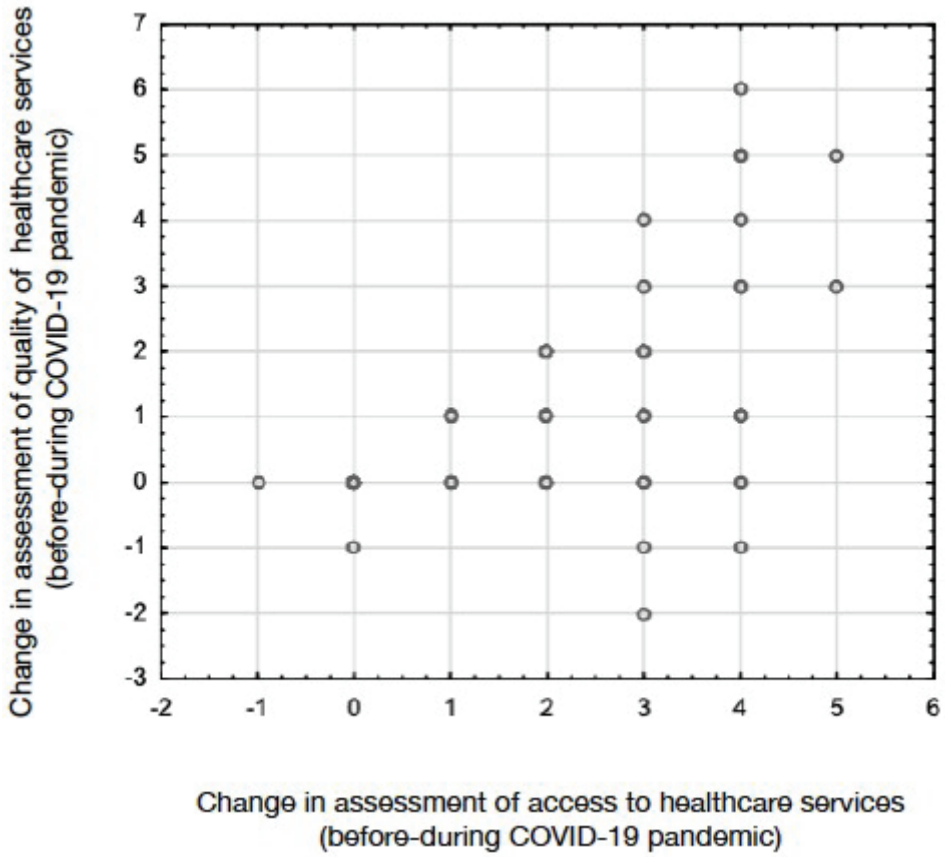


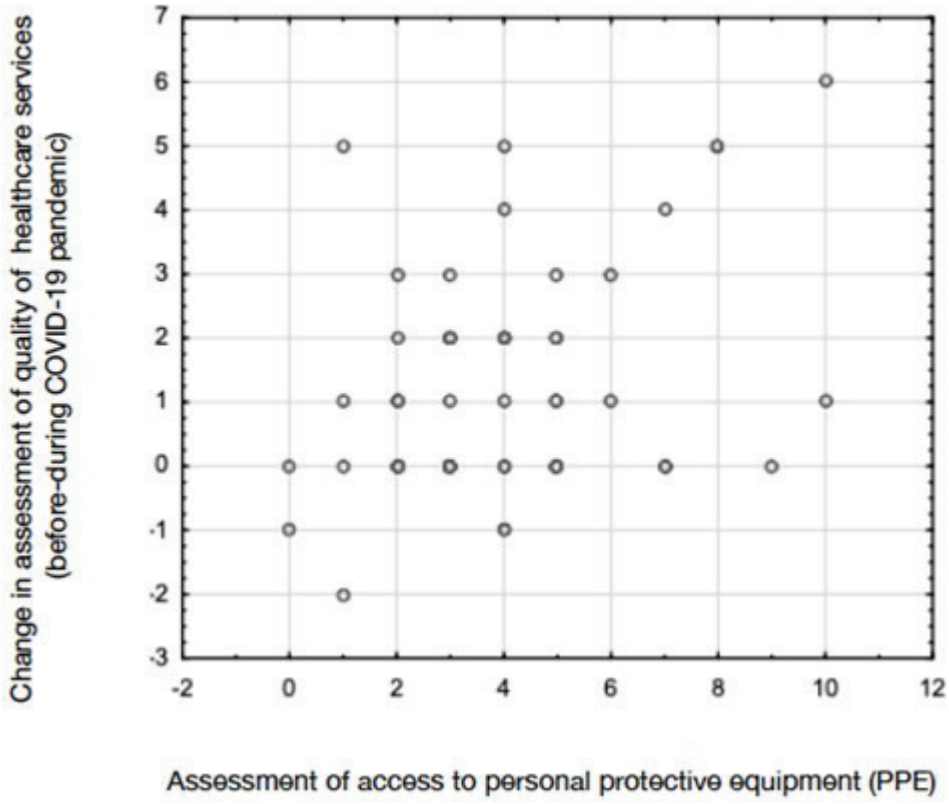
Figure 2. Correlation between accessibility to and quality of healthcare services according to doctors



Access to PPE

A correlation was found between the assessments of access to PPE and of the quality of healthcare service: the higher the rating of PPE accessibility, the higher the change (p=0.045) (Figure 3). Based on the Kruskal–Wallis test, a comparison of the doctors' assessment of access to PPE between medical facilities providing state-funded healthcare services and those providing private healthcare services showed no statistically significant differences (p=0.860). Based on Spearman's r_s rank correlation coefficient, there was no correlation between the quality of services provided and access to PPE (p=0.679).

Figure 3. Correlation between the accessibility of PPE and the quality of healthcare services



Work Comfort

Statistically significant differences in the doctors' assessment of work comfort were found between healthcare professionals who stated that appointment times were reduced (p=0.037) (Figure 4). Based on Spearman's r_s rank correlation coefficient, a correlation was found between the quality of services provided and work comfort (p=0.001): the higher the rating of one's work comfort, the higher the rating of the quality of services provided (Figure 5). Also, it was found that the higher the rating of accessibility to PPE, the higher the rating of one's comfort at work (p=0.008). There was no relationship between the assessment of work comfort and the rating of healthcare service quality (p=0.314). Also, the comparison, based on the Kruskal–Wallis test, of doctors' assessment of work comfort revealed no differences (p=0.770) (Table 2).

Figure 4. Comparison of doctors' assessment of work comfort between two groups in relation to its perceived reduction in visit time during the pandemic

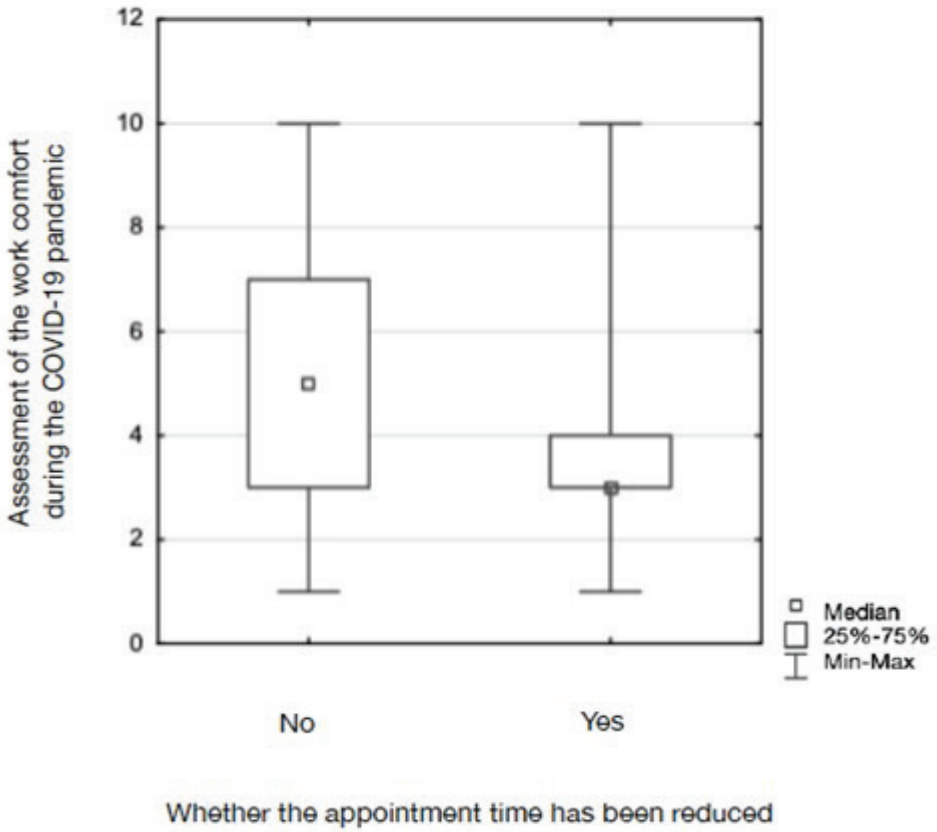


Figure 5. Correlation between healthcare service quality and work comfort

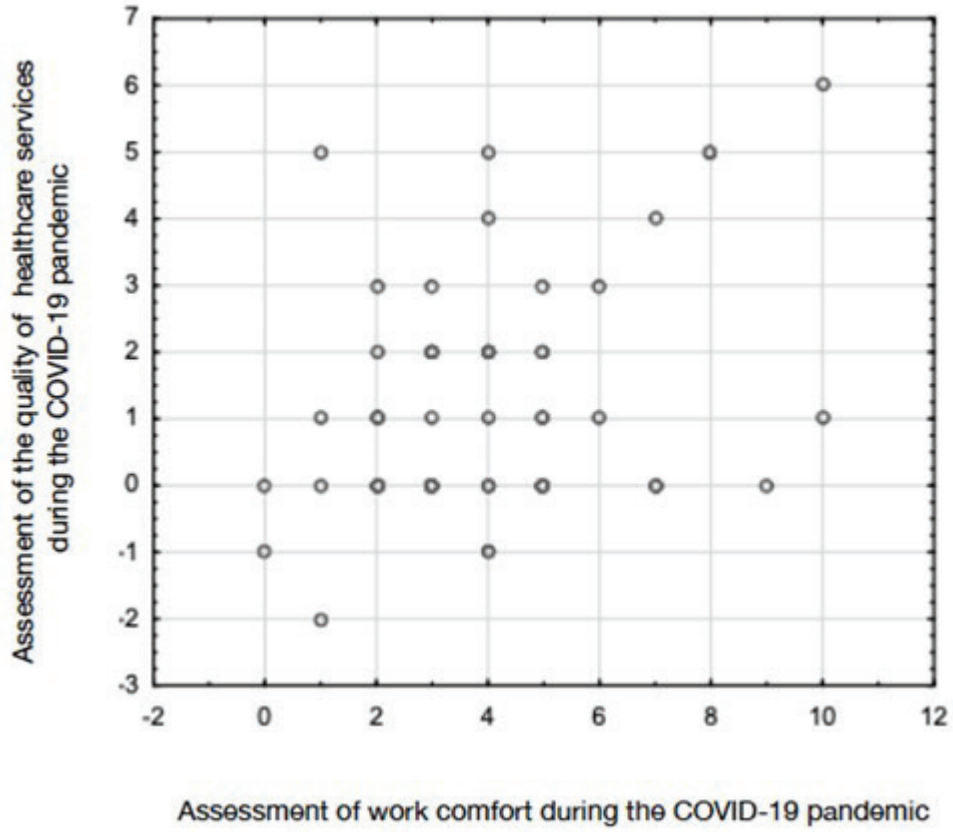


Table 2. Descriptive statistics for ordinal data

Variable	N	Median	Min	Max	Lower Quartile	Upper Quartile
Assessment of accessibility to healthcare services BEFORE the pandemic	70	6,00	0,00	10,00	5,00	7,00
Assessment of accessibility to healthcar services DURING the pandemic	70	3,00	0,00	10,00	2,00	5,00
Assessment of quality of healthcare services BEFORE the pandemic	70	7,00	1,00	10,00	5,00	8,00
Assessment of quality of healthcare services DURING the pandemic	70	5,00	0,00	10,00	3,00	7,00
Assessment of access to personal protective equipment	71	4,00	0,00	10,00	3,00	5,00
Assessment of perceptions of doctors' work comfort level during the pandemic	69	5,00	1,00	10,00	3,00	7,00

Discussion

The COVID-19 outbreak has affected almost every aspect of human life. The highly infectious nature of the virus and the high morbidity and mortality rates associated with it have caused people to fear for their own lives, including healthcare workers as well. Furthermore, reduced accessibility of personal protective equipment increased the risk of SARS-CoV-2 infection (Kim, 2021; Chemali et al., 2022). The COVID-19 pandemic also led to reduced access to non-COVID-19 healthcare services worldwide (Tuczyńska et al., 2021). Doctors had limited ability to treat those requiring urgent medical care. Preventive and follow-up appointments were postponed. Patients who suffered from COVID-19 or were quarantined and required urgent care were simply referred to special wards with epidemiological restrictions (Paszynska et al., 2022). Furthermore, doctors and dentists were asked whether they provided online appointments during the pandemic. Notably, there were no differences in the assessments of access to and quality of healthcare services between those who did and those who did not have online appointments. This finding requires comprehensive research, for although telemedicine was authorized by the Polish state relatively recently (seven years ago), there was a significant increase during the pandemic in the use of telemedicine services in the form of video calls (Binder-Olibrowska et al., 2022).

Firstly, in our study, it was revealed that physicians believe that access to healthcare services during the COVID-19 pandemic was lower than in the pre-pandemic period (Figure 1). In addition, the poor rating of the quality of healthcare services was related to the poor accessibility to these services. This is in line with other studies, which have shown that during the COVID-19 pandemic, pediatric and adult appointment times were reduced and that there were fewer diagnostic tests and admissions for elective and emergency procedures. Some patients missed out on critically needed care, such as vaccinations and life-extending interventions for cancer. Restrictions on movement, lockdowns, quarantines of healthcare workers, and staff shortages all contributed to the limited access (Pujolar et al., 2022; Moynihan et al., 2021).

Secondly, the study covered the aspect of access to personal protective equipment. The uninterrupted delivery and proper distribution of PPE to healthcare workers reduces the risk that doctors will be infected. The correct utilization of PPE is also important. There should be mandatory training in the correct use of PPE. Reports worldwide indicate that the deliveries of PPE to medical facilities were either insufficient or of poor quality. The problem affected public and private medical facilities, yet the shortage of PPE has improved over time (Razu et al., 2021; Chaka et al., 2022). That explains the correlation between the quality of healthcare services and access to PPE. The study showed that the better the access to PPE, the higher the quality of healthcare services was rated. On the other hand, no statistical differences in access to PPE between doctors providing state-funded and privately funded services were found. Healthcare professionals' perceptions

of limited support from medical institutions and local public health authorities concerning the accessibility of PPE indicate that there is still much to be done in this field (Delgado et al., 2020).

Finally, the questionnaire asked respondents to rate their work comfort during the COVID-19 pandemic. The study showed that the greater the doctors' comfort at work, the higher their rating of the quality of healthcare services provided during the pandemic (Figure 5). Comfort at work also depended on access to PPE: the better the access to PPE, the more comfort at work. Ensuring adequate working conditions for physicians during the pandemic was crucial, since they played a key role in combating the pandemic and were potentially the most vulnerable to contracting the disease due to their direct contact with people. Access to adequate information on PPE is associated with reduced risk perception and affects work comfort (Chemali et al., 2022; Savoia et al., 2020). In an epidemic, the healthcare system and medical personnel should learn about epidemic prevention and should engage in the front line of COVID-19 pandemic prevention and management (Yang et al., 2022).

This study had some limitations. Firstly, it focused on more general populations of healthcare professionals rather than those who may have had direct contact with COVID-19 patients. Secondly, the results of this study are based on a self-report questionnaire with a cross-sectional design distributed to a small number of doctors, which may not represent the true situation. Finally, the recruitment of participants was based on their willingness to participate and their direct presence at the University facilities during the distribution of questionnaires. Despite these limitations, the study demonstrates the significant issues physicians faced during the COVID-19 pandemic and provides a foundation for expanding the study to a larger, more diverse group of respondents.

Conclusions

Doctors and dentists, despite being at high risk of infection, were a key resource in combating the SARS-CoV2 virus. The comfort of doctors in the unusual, demanding conditions posed by the pandemic was affected by the accessibility of personal protective equipment. Moreover, doctors stated that the comfort of their work was impaired by the shortened appointment times. The questionnaire also revealed that doctors and dentists almost unanimously agreed that access to healthcare services had diminished, significantly impacting the quality of these services. The opinions of doctors and other healthcare providers, as the professional group closest to the difficulties of a pandemic, should be highlighted and widely considered.

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