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Sex and Mortality: Changes in the Age Distribution of the Deceased According to Polish Press Obituaries, 1845–1939

Plęć a wymieranie. Zmiany struktury wieku umierających według polskich nekrologów prasowych z lat 1845–1939

Abstract

The paper traces the gradual transition from a society in which the age structure graph for female deaths has two distinct peaks punctuated by an area of low mortality at menopause (as if menopause reverses the trend, giving women a new life expectancy), to a model in which the age structure for men and women is similar, but women die later. The change observed was that the local minimum for female deaths (aged 41–45) remained the same, but one of the maxima (the group of women for whom life expectancy ended at the end of childbearing age) disappeared. Male deaths do not exhibit such a pattern, which can account for why men have benefited much less from the increase in life expectancy.

The analysis is based on 470,000 Polish newspaper obituaries from 1845 to 1939

Abstrakt

W artykule ukazano, jak wyglądało stopniowe przejście od społeczeństwa, w którym wykres struktury wieku umierających kobiet ma dwa wyraźne szczyty przedzielone obszarem niskiej umieralności w okresie menopauzy (tak jakby menopauza odwracała trend, dając kobiecie nowy potencjał życiowy), do modelu, w którym struktura wieku dla kobiet i mężczyzn wygląda podobnie, ale kobiety wymierają później. Obserwowana zmiana polegała na tym, że lokalne minimum zgonów kobiet (wiek 41–45) pozostawało w tym samym miejscu, ale zanikało jedno z maksimum (ta grupa kobiet, dla których potencjał życiowy kończył się wraz z końcem wieku rozrodczego). Obserwacja zgonów męskich takiego zjawiska nie wykazuje, czym można tłumaczyć, dlaczego mężczyźni w znacznie

in which 205,000 people were listed, and from these 165,000 were selected for whom the age at death is known.

mniejszym stopniu stali się beneficjentami wydłużenia oczekiwanej długości życia. Podstawą analizy jest 470 tys. polskich nekrologów prasowych z lat 1845–1939, w których znaleziono 205 tys. osób, a z nich wybrano 165 tys. takich, dla których znany jest wiek w chwili zgonu.

Keywords

age of the deceased, mortality, menopause, patriarchy, sex differences, feminism, sex, gender

Słowa kluczowe

wiek zmarłych, wymieranie, menopauza, patriarchy, różnice międzypłciowe, feminizm, płeć, gender

Introduction

An analysis of male and female death rates in the nineteenth and first half of the twentieth century is thoroughly and theoretically discussed by Agnieszka Fihel in her book *Gender and Life Expectancy: A Demographic Analysis*.¹ She used data from several European countries and made a comprehensive review of the literature on the subject.² Her conclusion was that “the difference in life expectancy between men and women has not been a constant value over time, but has increased significantly during the period of modernization both in absolute (number of years) and percentage terms.”³ The paradigm, in which the tool for analyzing mortality is the notion of life expectancy, is an extrapolation into the past of the paradigm of demography for the latter half of the 20th century; Fihel even writes that, apart from a singular analysis for France for the years 1925–1978, no studies existed prior to the second half of the 20th century.

However, we must ask whether it is at all legitimate to reduce such an analysis to a single parameter, in this case “average life expectancy,” which is viewed interchangeably with the term “life potential.” After all, it may turn out that during the period under study not only did this parameter change, but the function describing it changed; that the mortality graph for the 19th century cannot be treated

¹ Agnieszka Fihel, *Płeć a trwanie życia: analiza demograficzna* (Warszawa: Wydawnictwa Uniwersytetu Warszawskiego, 2011).

² This was her doctoral dissertation under the supervision of Prof. M. Okólski, with whom she jointly published an academic textbook in 2012: Marek Okólski and Agnieszka Fihel, *Demografia: współczesne zjawiska i teorie* (Warszawa: Wydawnictwo Naukowe Scholar, 2012).

³ Fihel, *Płeć*, 8 (translated from the original).

like the corresponding graph for the 20th century, in which there was a change in the value (but not the formula of the function), but as completely different graphs (whose functions are described by a different formula). Moreover, it may turn out that the functions were different for men and women; that in the time before the first demographic transition, the mortality of men and women followed substantially different rules.

The research featured in this paper is empirical in nature. Its purpose is to show what the actual death rate charts looked like for a particular substantial, coherent and large social group living in the vast majority of the area of today's Poland. There were 165,000 events (deaths of people with known age and date of death), and the period studied is 1845–1939.

Before we move on to analyze the data, however, we will give you an idea of the demographic situation in Poland before and after the period under study.

The demographic situation of Polish society in the twentieth century (after the end of the period under study) was described by A. Gawryszewski in his monograph *Ludność polska XX wieku (The Polish Population in the 20th Century)*.⁴ He includes a table of deaths by sex and age from 1950–2000, which shows that the death rate for men is much higher than for women in all age groups. He comments on this as follows:

While as recently as the 1950s, the mortality rate for men over the age of 20 was only a few dozen percent higher than that of women of the same age, by the mid-1960s, the mortality rate for men aged 15–34 had reached twice that of women of the same age. In the following decades, the mortality rate for men aged 20–34 was already 3–4 times higher than for women in the same age group. (Translated from the original.)

Here we have a situation where the course of the mortality function for women and men are identical, but in all categories of adults, women die later. The difference is only in the coefficients, which change over time to the disadvantage of men.

It was not possible to find a synthetic analysis of the structure of male and female deaths immediately before the period under review, but there is such a description for a period about a half century earlier. This is a table of deaths by sex and age in the Holy Cross Parish in Warsaw for the years 1775–1801, included in Cezary Kukło's book *Rodzina w osiemnastowiecznej Warszawie (The Family in 18th-century Warsaw)*.⁵ In this work, he explains:

⁴ Andrzej Gawryszewski, *Ludność Polski w XX wieku* (Warszawa: Instytut Geografii i Przestrzennego Zagospodarowania im. Stanisława Leszczyckiego PAN, 2005), 180.

⁵ Cezary Kukło, *Rodzina w osiemnastowiecznej Warszawie* (Białystok: Dział Wydawnictw Filii Uniwersytetu Warszawskiego, 1991), <https://pbc.biaman.pl/dlibra/show-content/publication/edition/5152?id=5152>.

In the following age groups up to the age of 20, a higher excess mortality in boys was noted in the early 19th century (in the late 18th century, only in the 5–9 age group). In both of the next two groups (ages 20–24 and 25–34), the opposite occurred, i.e., excess female mortality. A crucial role was played in their deaths by pregnancy and childbirth, as well as general exhaustion (physical labor, successive pregnancies), which reduced their immunity levels. Thus, women's childbearing age was characterized by an increased mortality rate relative to that of men. This can also be gleaned from early 19th-century data on burials in the Holy Cross Cemetery, in which both of the next two age groups, i.e., 35–44 and 45–54, were characterized by a relatively low masculinization rate of 104–105. (Translated from the original.)

The data underlying the analysis in this paper do not allow a sufficiently reliable examination of the period between 1801 (when the period analyzed by C. Kuklo ends) and 1845 (when the first modern newspaper obituaries begin). However, we can probably assume that basic demographic patterns (fertility, mortality, etc.) did not change radically during this period. Just in case, we will examine what, for the same population (Parish of the Holy Cross in Warsaw), the data relied on by C. Kuklo looked like during the years 1838–39. For the avoidance of doubt, from the data that formed the basis for Kuklo's conclusions, we should discard the extreme cases—children and people of unknown age—and do the same for the deaths in the Holy Cross Parish in Warsaw for the years 1838–1839 (own calculations based on data in the *Geneteka* database⁶). Analysis of the graph (figure 1) shows that indeed the graph shapes do differ for men and women. For 1800–01, there can still be some uncertainty: the sample is small, and the total for all deaths is 1,202, but after excluding children under 10 and people of undetermined age, 551 people remain. But for the period 1838–39, the total number of deaths is 3,042, and after excluding the deaths of people of undetermined age, 2,272 people remain: 1,280 men and 992 women, which yield more reliable results. The shapes of the graphs for men and women differ significantly, not only confirming but also reinforcing what Kuklo noted.

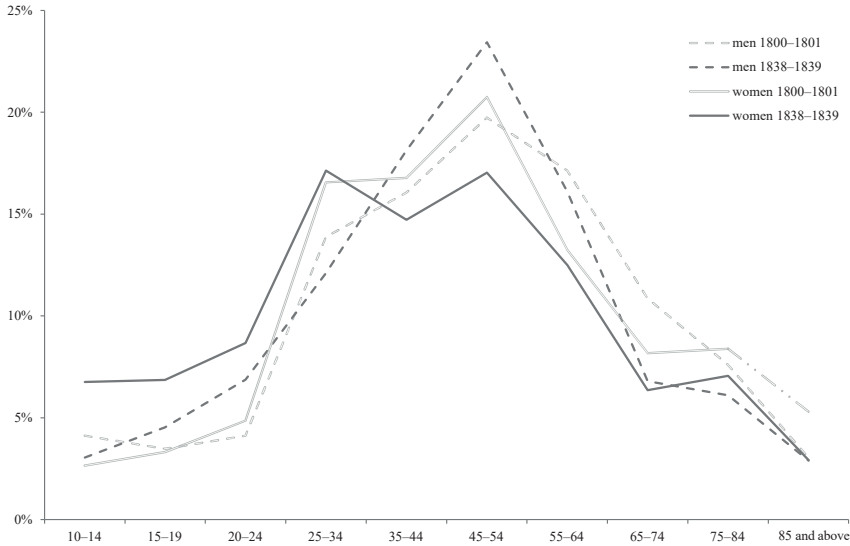
That some women used to die during their childbearing years due to complications from pregnancy, childbirth and the postpartum period is obvious. However, Fihel⁷ considers this circumstance in detail and concludes that this only had a limited influence on the differences in life expectancy between men and women. She addresses maternal exhaustion in a similar way; for example, she found the relationship between the number of postpartum periods and life expectancy to be inconclusive. Similar findings were reached by D. Chojecki, who analyzed

⁶ *Geneteka* – the database of the Polish Genealogical Society, accessed September 7, 2018, <http://geneteka.genealodzy.pl/>.

⁷ Fihel, *Pleć*, 12.

deaths in Szczecin and reported that in the years 1891–1900, for deceased women of procreative age from 15–49, an average of 7.5% had died during the perinatal period.⁸ These findings show that Kuklo’s explanation is only partial.

Figure 1. Age distribution of deceased persons aged 10 years and over for Holy Cross Parish in Warsaw by sex. Sample: for 1800–1801: 286 men and 265 women; for 1839–1838: 1,280 men and 992 women. Values for each series total 100%.



Source: Years 1800–1801 as per Kuklo, *Rodzina*, years 1838–1839 own calculations according to data currently available in the *Geneteka* database.

The sources used in this paper offer no insight into the causes of death in the 19th century: neither civil registers nor obituaries contain them. Nor are there even indirect clues as to e.g., simultaneous deaths or funerals of a mother and her newborn (no such cases could be found for the data discussed here). For the purposes of this paper, therefore, we will assume that there were some latent variables of which we have no direct knowledge, but of which we can see the outcomes.

To break down life expectancy (life potential) by sex and age, Fihel needs a rather complex mathematical approach.⁹ One might ask whether this could not be done more simply. As we will see later in this article, the characteristic

⁸ Dariusz K. Chojecki, “Starzenie się ludności i ludzie starzy w wielkomijskim Szczecinie w dobie transformacji demograficznej w latach 1890–1939. Przekrojowe spojrzenie,” in *Ludzie starzy i starość na ziemiach polskich od XVIII do XXI wieku (na tle porównawczym)*, eds. Agnieszka Janiak-Jasińska, Katarzyna Sierakowska, and Andrzej Szwarz, vol. 1 (Warszawa: DiG, 2016), 195.

⁹ Fihel, *Pleć*, 68, for an analysis of other literature on the subject.

two-peak age distribution of deceased women seen in figure 1 above (particularly pronounced in the “women 1838–1839” series) is not a coincidence. However, instead of considering it a variation of the “male” graph (and the deviation being explained by the questionable significance of the impact of maternal deaths and the equally questionable occurrence of maternal exhaustion), it can be interpreted as the sum of two functions. So, let us assume that while men have one life potential, women have two separate ones. Then, instead of one curve with two apexes, we can have two bell-shaped curves for women that intersect around the time of menopause. It is as if menopause marks the end of a woman’s first life (as a mother) and the beginning of her second life (as a grandmother). At first glance such an explanation may seem bizarre, but according to a significant number of evolutionary biologists, this is the evolutionary explanation for menopause.¹⁰ This is referred to as the “grandmother effect.”¹¹ Men, who do not go through menopause, would thus have a mortality age shaped as a single bell, and women as two bells. If one were to remain in the paradigm of “life potential” (as equivalent to the concept of “life expectancy”), one could assume that a woman has a separate life potential for life as a mother, and a separate one (activated after surviving to menopause) for life as a grandmother. That only by considering these two separate parameters will it be possible to clearly describe this phenomenon.

For the purposes of this paper, we will not be considering whether the hypothesis of two female life potentials makes sense and has biological justification, but we will use it as a useful theoretical construct – a convenient tool to describe what we will be seeing in the pages that follow.¹²

In addition to the works cited above, numerous other studies on deaths during this period in Poland have been published in recent years, such as works on Cracow,¹³

¹⁰ For a current review of the literature, see Madelon M. E. Riem et al., “Grandparental Support and Maternal Postpartum Mental Health,” *Human Nature* 34 (2023), 1: 25–45.

¹¹ Kristen Hawkes, “The Grandmother Effect,” *Nature* 428 (2004), 6979: 128–129. The hypothesis of menopause as an evolutionary adaptation was first proposed in George C. Williams, “Pleiotropy, Natural Selection, and the Evolution of Senescence,” *Evolution* 11, no. 4 (1957): 391–411, <https://doi.org/10.2307/2406060>.

¹² Although it should be mentioned that a bolder, biologicistic, stance would be in line with Beata Pułaska-Turina’s position, expressed back in 1990: “It can be assumed that in the coming years the research of both demographers and experts from other academic disciplines will revolve around (...) cognition, understanding and possible interference in the operation of the body’s biological clock (...).” Beata Pułaska-Turyna, “Teorie umieralności,” in *Teoria przejścia demograficznego*, ed. Marek Okólski (Warszawa: Państwowe Wydawnictwo Ekonomiczne, 1990), 164–89. (Translated from the original.)

¹³ Bartosz Ogórek, *Niezatarte piętno? Wpływ I wojny światowej na ludność miasta Krakowa* (Kraków: Universitas, 2018); Lidia A. Zyblikiewicz, *Ludność Krakowa w drugiej połowie XIX wieku. Struktura demograficzna, zawodowowa i społeczna* (Kraków: Historia Iagellonica, 2014).

the Lublin area,¹⁴ Lviv,¹⁵ Rzeszów¹⁶ or Szczecin.¹⁷ It would, however, be extremely difficult to use the data in these works to analyze the relationship between sex and the age structure of the deceased. This is due to the nature of the sources used in these studies. Census data will be of no use here, because although they give information on the age pyramid, they refer to living people. Nor will data on the contents of civil registers (number of funerals) by year and parish be of any use, because they contain no data on sex and age. Data on the ages of the deceased will also be of little use if they are not broken down by sex. Data for short time windows or those that operate on insufficient numbers will also be inadequate. In order to properly comprehend the subject under study, we need a set of comparable data by age of the deceased and by sex, over a period of several decades, both before the start of Phase II of the demographic transition (around 1865) and at least near the end of Phase III, until at least the outbreak of World War II.¹⁸

We will answer the above question by analyzing obituaries published in six major newspaper titles appearing from the mid 19th century until the outbreak of World War II. This set of more than one million newspaper pages contains almost half a million obituaries reporting the deaths of more than two hundred thousand people, covering a significant portion of the “printed class” that is, the social class defined by its active use of print media (corresponding to the upper classes of the intelligentsia, landed gentry and bourgeoisie). We will omit here the qualitative dimension (how the deceased were referred to), focusing on the quantitative dimension: the age of the deceased as in the obituary or found in a supplementary source. A special feature of this analysis will be that we will use a chart comparable to an age pyramid in place of the usual aggregate measures (mean, median, quartiles or life expectancy).

However, an analysis based on obituaries will not be complete either. It will virtually ignore the deaths of newborns and infants and a significant proportion of young children, the deaths of whom, after all, had a huge impact on life expectancy at birth in the 19th century. Nor will it address the country’s entire

¹⁴ Piotr Rachwał, *Ruch naturalny ludności rzymskokatolickiej w Lubelskiem w świetle rejestracji metrykalnej* (Lublin: Katolicki Uniwersytet Lubelski Jana Pawła II, 2019).

¹⁵ Konrad Wnęk, Lidia A. Zyblikiewicz, and Ewa Callahan, *Ludność nowoczesnego Lwowa w latach 1857–1938* (Kraków: Towarzystwo Naukowe Societas Vistulana, 2006).

¹⁶ Sabina Rejman, “Zgony i ich uwarunkowania w parafii farnej w Rzeszowie w latach 1876–1913 w kontekście pierwszego przejścia demograficznego,” *Przeszłość Demograficzna Polski – Poland’s Demographic Past* 40 (2018): 245–72, <https://doi.org/10.18276/pdp.2018.40-11>.

¹⁷ Chojecki, “Starzenie się.”

¹⁸ Józef Pocięcha, “The Process of Demographic Transition in Lands of the Former Polish-Lithuanian Commonwealth and Other Areas with Polish-Speaking Populations, 1865–1912,” *Przeszłość Demograficzna Polski – Poland’s Demographic Past* 42 (2020): 123–46, <https://doi.org/10.18276/pdp.2020.42-05>.

population, but only its upper strata, in addition, mainly those living in the largest cities (with the dominant influence of Warsaw). However, it still seems a worthwhile undertaking.

Obituaries as a large-scale source

The pioneer of large-scale research on obituaries in Poland was Włodzimierz Dworzaczek. In his textbook *Genealogia* [*Genealogy*] he included a discussion of newspaper obituaries in the chapter “Prywatne zapiski genealogiczne” [“Private Genealogical Notes”] between panegyric publications and medieval chronicles.¹⁹ He wrote of the “journalistic obituary,” “Not much different in exaggeration from the panegyrics of the previous era but, like them, bringing valuable genealogical material, especially as far as dates are concerned.”²⁰ He went on, “Notices of deaths given to newspapers in the form of advertisements [here a footnote: “Most numerous in the pre-war *Kurier Warszawski*”], death notices posted on the walls of churches [here a footnote: “[A] custom practiced in the former Russian and Austrian partition, unknown in the Prussian partition”], notices of weddings, births and deaths sent to friends, all of which are also private genealogical records with the function of a source.”

The vast majority of newspaper obituaries used in this paper are notices given as advertisements. They did not feature in the *Kurier Warszawski*'s first period of publication (at that time, death notices were published as editorial news). They first appeared in February 1845. In the issue dated Wednesday, February 19, 1845, on page 1, we read that “Franciszek Stankiewicz, former Vice-Regent in the Kingdom, having lived 92 years, departed this life yesterday. A close friend of the deceased invites his friends to the removal of his remains tomorrow at 3 o'clock in the afternoon from the 20th Bernardine Chapel to Powązki cemetery.”²¹ Also on the front page, in the Saturday, February 22 issue, we read that, “Wiktoria Karłowicz, née Frankiewicz, aged 60, departed this life yesterday. The remaining Family invites Relatives and Friends to attend the removal of her body the day after tomorrow at 4 o'clock in the afternoon from House No. 1915, Przyrynek Street, to Powązki cemetery.” As can be seen, the purpose of these announcements was primarily to invite the family and friends of the deceased to a joint celebration, and to that extent their function was to replace notices sent directly to family and friends. In the Cracow-based *Czas*, advertisements of this type first began appearing in November 1854, with

¹⁹ Włodzimierz Dworzaczek, *Genealogia* (Warszawa: PWN, 1959). (Translated from the original Polish.)

²⁰ *Ibidem*, 54.

²¹ Translated from the original Polish.

the first (November 4, 1854, page 4) being an invitation to Mass on the anniversary of the death of Karolina Mycielska, née Wodzicka (who had died on June 15, 1849). However, this one was outlined in the familiar black frame. By the next anniversary of her death (June 15, 1855), the frame included the number of the advertisement. In the *Kurier Warszawski* the advertisement numbers in the obituaries would not appear until April 1864. In the *Dziennik Poznański* (published from 1859), the first obituary (by now including the advertisement number, and in a black frame with a crucifix) was an invitation to a Mass for the soul of General Jan Skrzynecki, to be held on February 29, 1860, at 10 am in the post-Franciscan church in Gniezno.

Dworzaczek not only covered the topic, but also compiled the first database of obituaries. His posthumously published CD-ROM portfolios,²² *The Dworzaczek Files*, included three documents: *Newspapers of the 18th Century* (1,026 cuttings from the *Gazeta Warszawska* and *Kurier Polski*) and, in the other two, a total of 11,855 cuttings from the *Dziennik Poznański* from the years 1859–1897 and 1901–1916.

The obituaries for the *Kurier Warszawski* (and these, as Dworzaczek himself noted, were the most numerous) were initially compiled by Andrzej Tadeusz Tyszka in his work *Obituaries of the Kurier Warszawski 1821–1939*.²³ The title of the work suggested an intention to compile the entire series (119 years, from January 1, 1821, to September 23, 1939), but only volumes covering the period up to December 31, 1861, have been published. A total of 18,043 obituaries were included in these four volumes. Before his death (on September 22, 2018)²⁴ Tyszka was kind enough to provide me with an electronic version of his publication, which became the groundwork for a study of the social network of 19th century Warsaw.²⁵

In the 21st century, with the development of the amateur genealogical movement, obituary indexes began to appear on the internet, usually containing the name of the deceased and the date of death or the date of obituary publication. Of particular note are the database of Warsaw obituaries by Ewa Rokicka-Ślusarska²⁶ and the data-

²² Rafał Tadeusz Prinke et. al., *Teki Dworzaczka. Materiały historyczno-genealogiczne do dziejów szlachty wielkopolskiej XV–XX w.* (Kórnik–Poznań: Biblioteka Kórnicka PAN, 1997).

²³ Andrzej Tadeusz Tyszka, ed. *Nekrologi "Kuriera Warszawskiego" 1821–1939*, vol. 1: *1821–1845* (Warszawa: Biblioteka Publiczna m.st. Warszawy, Biblioteka Główna Województwa Mazowieckiego, 2001).

²⁴ Ewa Piskurewicz, *Pan Andrzej – wspomnienie o Andrzeju Tyszce*, BuwLOG (blog), February 12, 2019, accessed March 21, 2023, <https://buwlog.uw.edu.pl/pan-andrzej-wspomnienie-o-andrzeju-tyszcze/>.

²⁵ Marek Jerzy Minakowski, "Sieć społeczna wokół *Kuriera Warszawskiego* na podstawie jego nekrologów z lat 1821–1861," *Przeszłość Demograficzna Polski – Poland's Demographic Past* 39 (2017): 209–51, <https://doi.org/10.18276/pdp.2017.39-09>. There is a broader analysis of obituaries from the first period of *Kurier Warszawski*.

²⁶ *Nekrologi Warszawskie – Baza Nekrologów*, accessed March 21, 2023, <http://www.nekrologi-baza.pl/>.

base of the Wielkopolska Genealogical Society *Gniazdo* [*The Nest*].²⁷ However, these databases do not provide a direct way to determine the age of the deceased, so they were of no use to this research.

Method

To research this issue, *Minakowski's Obituaries Database*,²⁸ containing 470,000 newspaper obituaries from six major Polish-language print titles published between 1845 and 1939 was used. This database was created by collecting all the death notices and conventional obituaries that appeared in the following newspapers:

- *Kurier Warszawski* [Warsaw] 1845–1939 (only from February 1845 did separate obituaries begin to be published),
- *Dziennik Poznański* [Poznań] 1859–1939 (in its entirety),
- *Czas* [Cracow] 1848–1939 (in its entirety),
- *Słowo* [Vilnius] 1922–1939 (in its entirety),
- *Ilustrowany Kurier Codzienny* [Cracow] 1910–1939 (in its entirety),
- *Dziennik Kijowski* [Kiev] 1906–1918 (the last years had gaps due to the unavailability of issues published during the war and revolution).

The choice of titles was dictated primarily by their uninterrupted circulation and geographic coverage. The intention of the *Obituaries* database author was to seek newspapers that had appeared regularly in all the partition countries for as long as possible (which disqualified, for example, the *Gazeta Warszawska*), and in addition they should contain a significant number of obituaries (the last requirement disqualified, for example, the *Gazeta Lwowska*).

All the obituaries were cataloged by listing first and last names, date of death, date of publication (including the exact bibliographical address which included the position on the page). Key words such as place of death and burial, occupation and the deceased's social status were also partially extracted. All genealogical data (e.g., information on the deceased's parents and spouse) were used.

The clippings thus cataloged were then combined into personal records, which resulted in a catalog of 205,000 people, which is the number of all the different people whose deaths were recorded in the selected titles over the entire period (with the exception of the first 24 years of the *Kurier Warszawski*, this means their entire contents from the first to the last issue).

At the time of writing this paper, 30% of all these people have not only obituaries, but also a scanned death certificate (vital records). The juxtaposition of newspaper

²⁷ Wielkopolskie Towarzystwo Genealogiczne "Gniazdo" – Wyszukiwarka nekrologów, accessed March 21, 2023, <http://www.wtg-gniazdo.org/nekrologi.php>.

²⁸ Marek Jerzy Minakowski, *Nekrologia Minakowskiego*, 2022, <http://wielcy.pl/nekrologia>.

obituaries with civil registration records helped corroborate the accuracy of the former. The *Nekrologia* is also linked to *Minakowski's Great Genealogy* database,²⁹ which uses obituary data to reconstruct family ties within what I have called the “printed class” (i.e., the social class that uses the printed press for ongoing family and social communication).³⁰

The following analysis will use those personal records for which it was possible to determine (from the obituaries or using additional sources) basic demographic data: sex, date of death and age at death. This is a total of 165,000 people (80% of the whole database). For 145,400 people, these data are contained in the obituaries themselves, for another 8,800 they were obtained using the death certificate, while another 1,600 are the ages of the deceased recorded on their headstones at the Powązki cemetery in Warsaw. For another 500 people, their date of birth was obtained from their birth certificate, and finally, for the remaining 8,500 people, other sources such as marriage records (where the age of the spouses was given), birth records of the deceased or their children (in these records the age of the parents was given) and biographies from encyclopedic sources (especially from the Polish Biographical Dictionary) provided the data. Given that the obituary almost always gave the day of death (if not explicitly then in the form of “died yesterday”), this additional information served almost exclusively one purpose: to determine a person’s exact age at their death.

Results and discussion

Data Aggregation

The data were divided into age cohorts: infants who died in the same year they were born (age 0) were grouped separately, then for five-year periods of 1–5, 6–10, etc., up to 96–100, and finally those aged 101 and over.

The analysis was carried out for ten-year periods, slightly modified due to the historical settings. The first period is the years 1845–1849. In February 1845, the *Kurier Warszawski* began publishing the first obituaries consisting of a separate paragraph (before that, mentions of deaths were in continuous text; from this

²⁹ Marek Jerzy Minakowski, *Wielka Genealogia Minakowskiego*, 2005–2023, <http://wielcy.pl/>.

³⁰ The term “printed class” was first defined in the work Marek Jerzy Minakowski and Rafał Smoczyński, “A nyomtatott osztály: munkajegyzetek a lengyel értelmiségről és a kulturális tőkéről,” *Székelyföld – Kulturális folyóirat* 26, no. 7 (2022): 41–56. This concept is modeled on Karl Marx’s notion of class, but instead of defining class by its relation to the means of production, it is defined by its relation to the means of mass communication, which makes much more sense under Polish conditions.

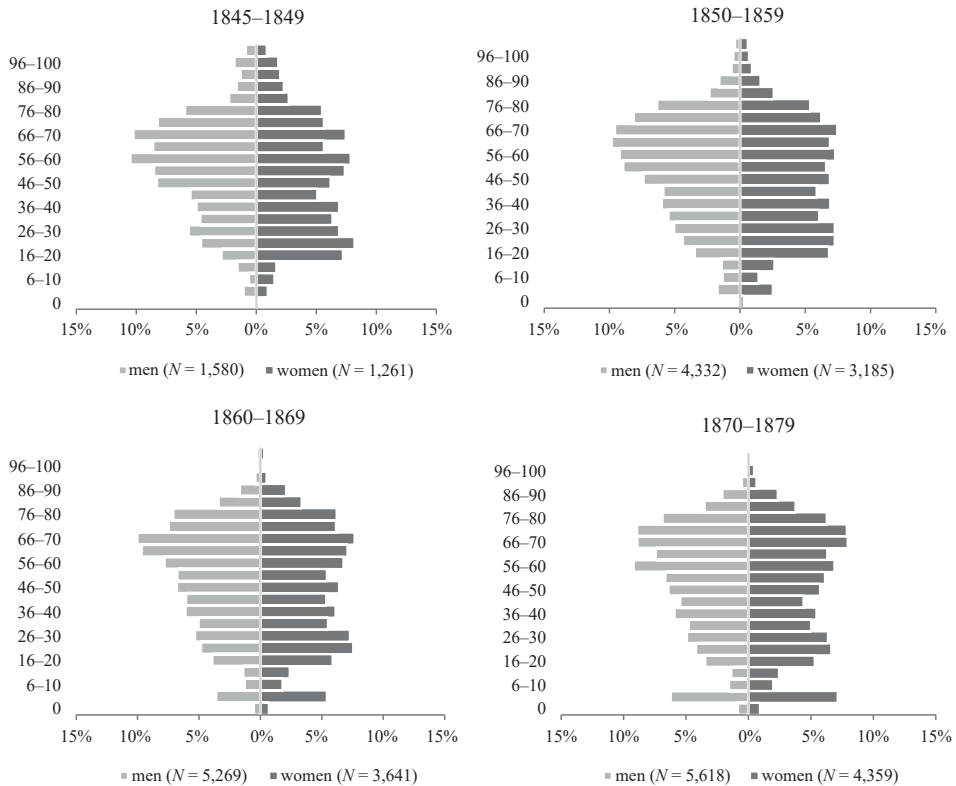
date we can say that the publication of separate obituaries begins). Meanwhile, on November 3, 1848, the first issue of *Czas* was published in Cracow.

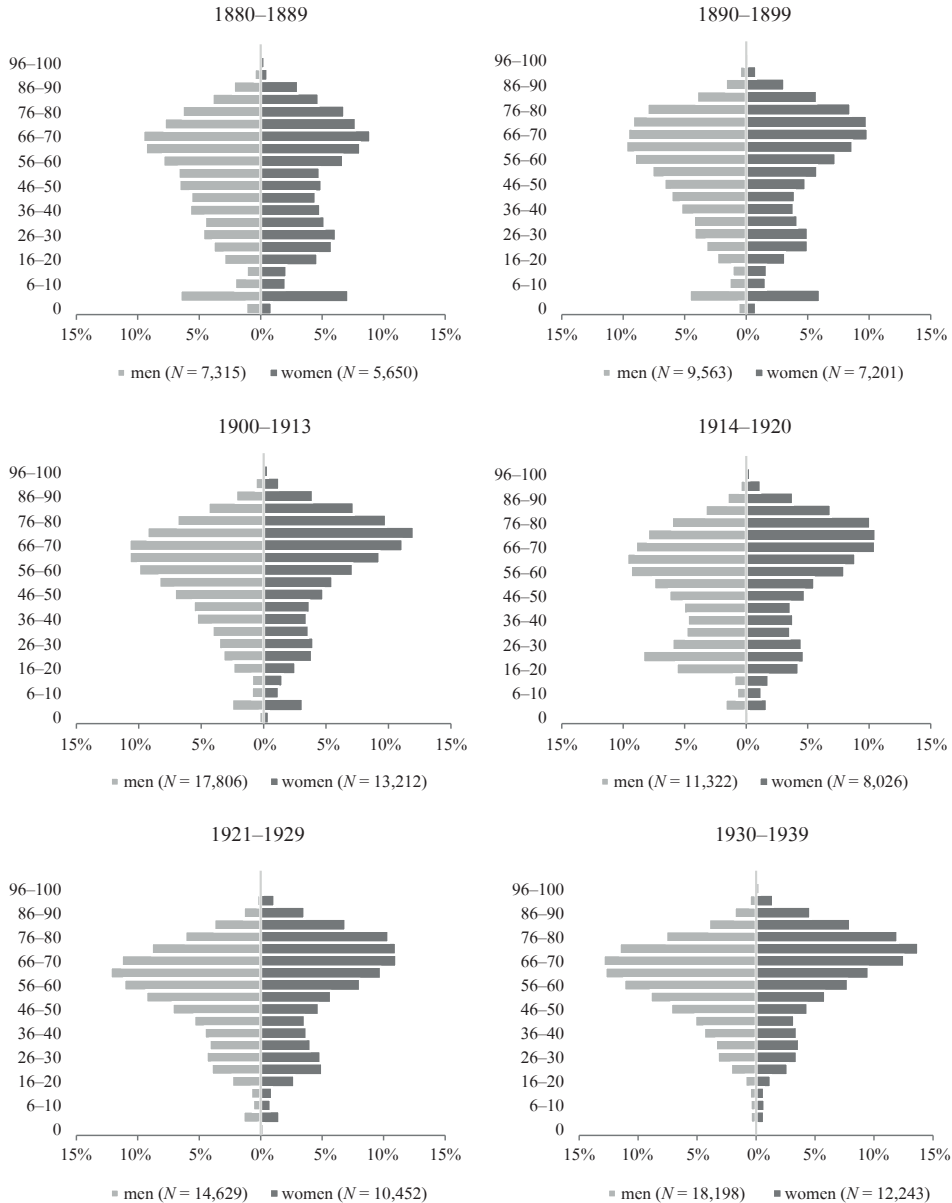
The subsequent periods are 1850–1859, 1860–1869, 1870–1879, 1880–1889 and 1890–1899. The next period leads up to the year preceding World War I (1900–1913). Next comes a period of war from 1914–1920, which particularly affected the mortality rate of young men. The interwar period is divided into 1921–1929 and 1930–1939 (to the end of August 1939).

With the exception of the initial period, 1845–1849, when the data list 1,580 male and 1,261 female deaths, the subsequent periods feature significantly higher numbers, with the maximum recorded for the extended *belle époque* period of 1900–1913, when there were 17,800 male and 13,200 female deaths, and 1930–1939, with 18,200 male and 12,200 female deaths.

A table showing the data can be found in appendix 1. The same data, in graphical form (age pyramids) are shown in appendix 2. It is these age pyramids that are the main conclusion of this article, so we will focus on them here.

Figure 2. Comparison of death pyramids for ten periods from 1845–1939 based on obituaries.





Data for men and women add up separately to 100%. Negative scale (left): men, positive scale (right): women. Total number of people: 164,862 (95,632 men and 69,230 women).

Source: own calculations based on accompanying data.

Share of women in obituaries

We should still refer to the chart given in appendix 3, which shows the distribution of the deaths analyzed on an annual basis (along with the source table). It shows that of the 164,800, 42% were women and 58% were men. The share of women fluctuates slightly on an annual basis, but excluding the war years of 1863 and 1920 (when it drops to 37%) and the years 1849, 1874 and 1845 (when it reaches 49%, 48% and 47%, respectively), it falls steadily within the 39–46% range. Of course, this is not due to lower female mortality, but to cultural conditions (such as the easier availability of advancement through political, economic and scientific merit for men at the time).

Male mortality: wars

In absolute numbers, the January Uprising of 1863–1864 is not highly visible, because although obituaries of the insurgents were published at the time in Cracow's *Czas* and Poznań's *Dziennik Poznański*, they were subject to censorship and self-censorship in the Russian partition. Much more interestingly, there is very little coverage of World War I. Although recruits from the three partitions were involved in the fighting right from the outset, very few of their obituaries found their way into the Polish press. It was only in 1918 that a dramatic change occurred, which lasted until 1920.

This difference between the figures for 1914–1917 and 1918–1920 seems to explain why, in the minds of the Polish intelligentsia, World War I is an insignificant prelude to the Polish-Ukrainian struggle for Lwów (1918–1919) and the Polish-Bolshevik War of 1920. The real war began when soldiers of the Academic Legion and Polish uhlans and *chevau-légers* began to be killed in it, and the Polish landed gentry began to fall victim to Bolshevik murders. What had happened earlier, while affecting the families of rank-and-file recruits, had not had any impact on the families of the intelligentsia and landed gentry, who under the traditional system would become officers, where the mortality rate was much lower and, moreover, access to promotion in Russian, Austrian and German armies was hard for Poles. Incidentally, we can also add that the Spanish flu pandemic of 1918–1920 left no trace in the newspaper obituaries, while quite a few reports can be found of deaths of young doctors and nurses who contracted typhus while serving at the front and “fell victim to their profession.”

The two lives of a woman: before and after menopause

As outlined in the introduction, the hypothesis of excess female mortality associated with childbirth has numerous weaknesses, most notably little support in the available data on the actual causes of death. As stated, we will be adopting the hypothesis of the key role played by the menopause (the “grandmother effect”³¹).

So let us adopt the following explanatory hypothesis, consistent with the theory of the grandmother effect:

1. Humans are animals, and animals live to reproduce, so males and females (men and women) live for as long as they are able to procreate (in almost every mammal species, females can give birth until they die).
2. For some reason, evolution in humans has resulted in the menopause, meaning that women over 40 start losing their ability to bear children; those who live to do so become a second, infertile generation (presumably evolutionarily destined to help younger women care for their children; at least, this is what the “grandmother effect” theory says).
3. Men do not go through the menopause.

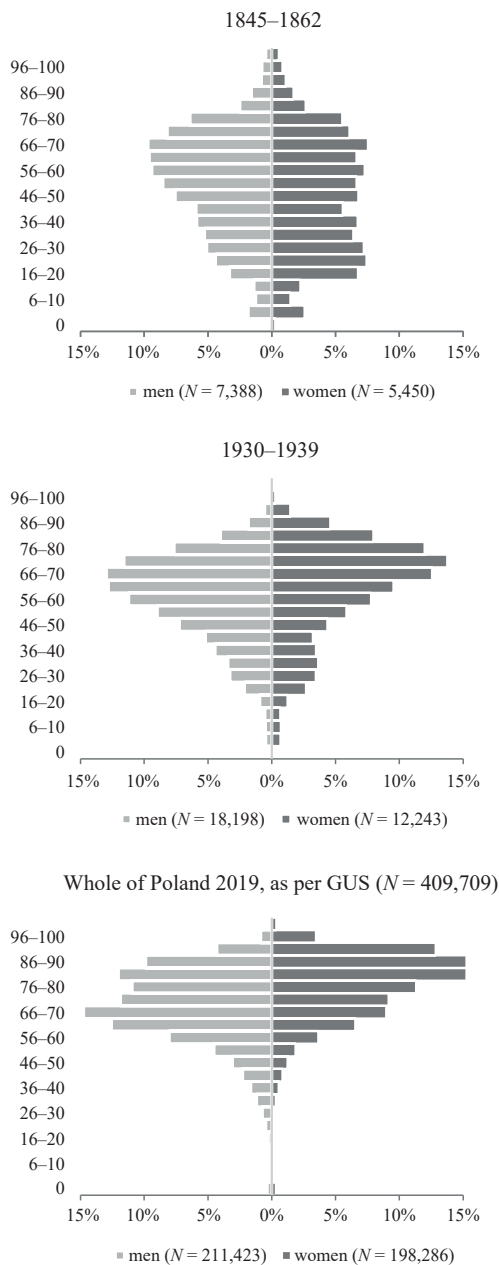
We will not be explaining the hypothesis here at all (that is a task for biologists), but we will use it to describe what is seen in the demographic data. Accepting the hypothesis relieves us of the burden of explaining why young women died so often—we now reverse the problem and show that it was the other way round: it was women around menopause who died so rarely.

Figure 3 shows three characteristic death pyramids, as reported in obituaries for the years 1845–1862, 1930–1939 and according to GUS (Główny Urząd Statystyczny—the Central Statistics Office) for 2019.³² We can see that the shape of the pyramid for men is quite similar, with the difference that in the years 1845–1862, the highest number of male deaths was from the 51 to 75 age group (a total of 45% of recorded deaths), while in 1930–1939 (before the war) it was from 56 to 85 (a total of 64% of recorded deaths). The age range of 16–40 was 24% of the men recorded in the 1845–62 obituaries, 14% of the men recorded in the 1930–1939 obituaries, and only 4% of all the men who died in 2019.

³¹ Hawkes, “The Grandmother Effect.”

³² The post-1939 period is not included in this analysis, but the chart is included to show perspective (the direction of the trend in the following decades).

Figure 3. Deaths according to obituaries for 1845–1862 and 1930–1939 and according to GUS data for 2019

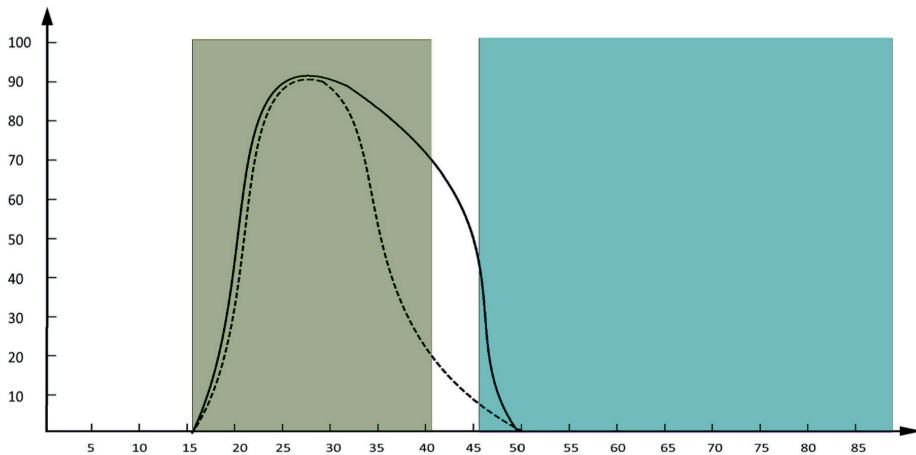


Data for men and women add up separately to 100%. Negative scale (left): men, positive scale (right): women.

Source: own calculations based on the accompanying data.

While for men the difference is in quantity (scale), for women the significant difference is in the shape of the graph. These graphs show a characteristic indentation – women aged 41–45 died significantly less often than younger women (16–40) and older women (46 and older). For the purposes of the following analysis, we will adopt the following terms: we will refer to women aged 16–40 as the “mother generation,” women aged 41–45 as the “transition group,” and older women (46+) as the “grandmother generation.” The mother generation is a 25-year period in a woman’s life, and the grandmother generation is indefinite in length, so in order to be able to comfortably compare the mother generation with the grandmother generation, let us additionally define the term “grandmother generation up to 70” to mean the 25-year period in a woman’s life between the ages of 46 and 70.

Figure 4. Total fertility by age in traditional and modern society, according to A.J. Coale



Solid line: traditional society. Dashed line: modern society. Horizontal axis: age in years. Vertical axis: level = 100 determines biological capacity for procreation.

The areas marked on the graph are the mother generation and the grandmother generation, with the transition group between them.

Source: Beata Pulaska-Turyna, “Wzorzec rozrodczości w kolejnych fazach przejścia,” in *Teoria przejścia demograficznego*, ed. Marek Okólski (Warszawa: Państwowe Wydawnictwo Ekonomiczne, 1990), 203.

In the early period (1845–1862), the mother generation accounted for 34.5% of female deaths, while the grandmother generation accounted for 53.4% of female deaths. As the mother generation spans 25 years of life, each 1-year cohort accounted for an average of 1.4% of total deaths. The transition group is five 1-year cohorts, accounting for 5.6% of deaths (1.1% of deaths per 1-year cohort). In contrast,

the grandmother generation up to the age of 70 (also 25 1-year cohort) accounted for almost exactly the same number of deaths as the mother generation (34.9% of deaths, or 1.4 deaths per 1-year cohort).

In 1860–1869, the situation was similar. The mother generation was responsible for 32.3% and the grandmother generation for 52.0% of female deaths. Per 1-year cohort the figures were: for mothers, 1.3%; for grandmothers under 70, also 1.3%; and for the transition group, 1.1%. Thus, it is still clear that the ages of 41–45 were the safest period in a woman's life between the ages of sixteen and seventy.

For the last three decades of the 19th century, the transition group accounted for 4.0–4.5% of female deaths, with 0.8–0.9% of deaths per 1-year cohort. Meanwhile, the mother generation began to lose its share of female deaths to the grandmother generation. While mothers accounted for 28.7% of female deaths in the decade between 1870–1879 and slightly less, 26.6%, in the decade between 1880–1889, it was as low as 21.2% from 1890–1899 and only 17.5% in 1900–1913. The latter period was also the first when there were more deaths in the transition group in the 1-year cohort than in the entire mother generation—due, in the first place, to a significant decline in the youngest women recorded in that generation, who were just entering adulthood: women aged 16–20, in the 1845–1862 period, still accounted for 6.8% of the deaths recorded in the obituaries, while in 1900–1913 they were only 2.6% of female deaths.

The First World War period and the first post-war decade (i.e., the 1914–1929 period) distorted the situation: at that time, the mother generation accounted for more than 20% of female deaths; on average, there were slightly more than 0.8% of female deaths per 1-year cohort, similar to the 1890–1899 decade. Again, per 1-year cohort there was a larger share than for the transition group. Only the last decade before the war (January 1930–August 1939) saw a reversal in the situation: the mother generation was then responsible for 14.5%, the transition group for 3.2%, and the grandmother generation for 80.1% of female deaths.

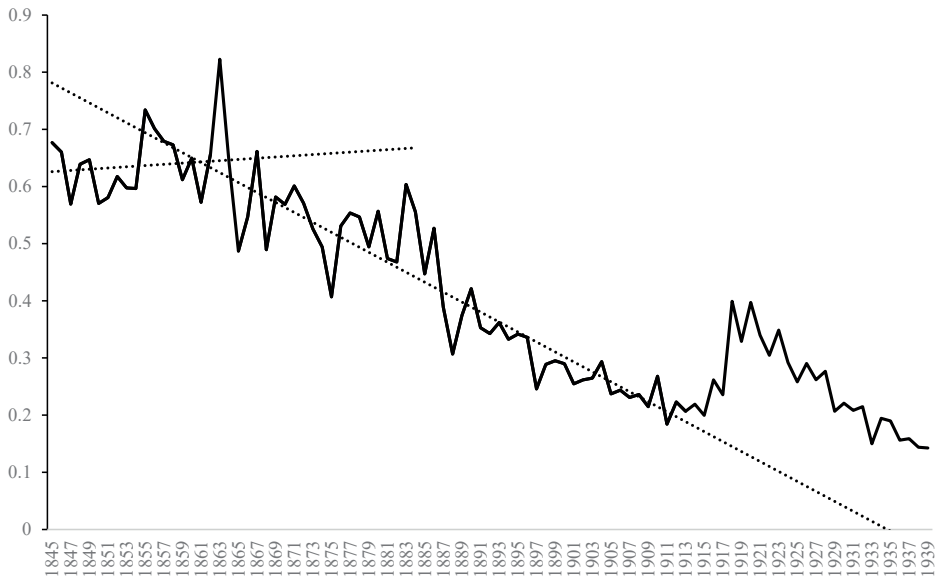
That the choice of 41–45 years of age to define the transition group is appropriate is illustrated by the fact that while women of this age still accounted for 3.2% of deaths in obituaries in the latter pre-war period (0.65% per 1-year cohort), the two adjacent 15-year cohorts, women aged 26–40 and 46–60, are still more numerous, at 0.70% and 1.20% per 1-year cohort respectively.³³

The ratio of mother to grandmother deaths, that is women aged 16–40 to women aged 46 or more, is shown in figure 5. As can be seen from the graph, the beginning of the downward trend can be located around 1865, which in the literature is also the year when Poland entered the second phase of its demographic

³³ Okólski and Fihel, *Demografia*, 79–81.

transition.³⁴ A linear trend line calculated for 1845–1962 and an exponential trend line calculated for 1865–1913 were added to the graph.

Figure 5. Ratio of deaths in women from the mother generation (age 16–40) to deaths in the grandmother generation (age 46+) and extrapolated trend lines determined for the years 1845–1862 and 1865–1913



Source: own calculations.

Child and infant mortality

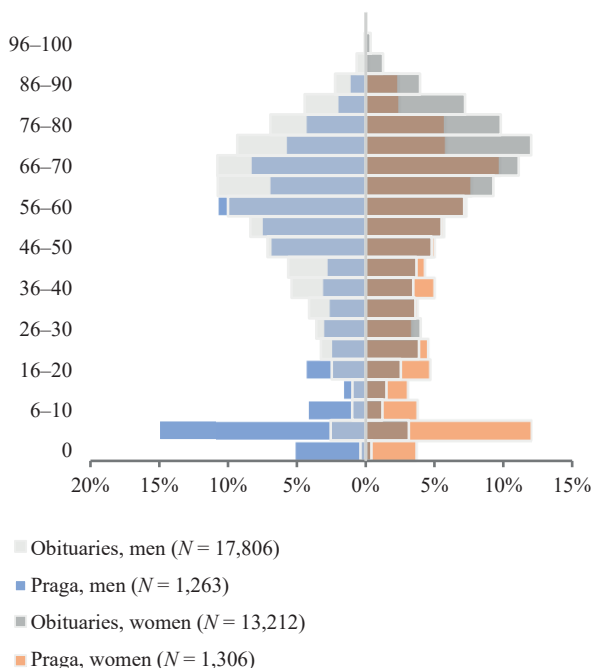
A major flaw in the analysis of obituaries is the omission of infant and child deaths. Infant mortality (in the first year of life) is negligibly low for all the time periods analyzed. This may not be surprising, since the infant had no friends yet, and infant funerals were not and could not be social events. Infant deaths were so common that no effort was made to inform the public of them.

The issue of infant mortality in Polish historical research has recently been discussed by Dawid Dziuba³⁵ and readers interested in a reliable analysis of this topic should refer there.

³⁴ Pocięcha, “The Process.”

³⁵ Dawid Dziuba, “The Issue of Infant Mortality in Polish Historical Research,” *Przeszłość Demograficzna Polski – Poland’s Demographic Past* 42 (2020): 9–35, <https://doi.org/10.18276/pdp.2020.42-01>.

Figure 6. Deaths for the parish of Warsaw-Praga (Our Lady of Loretto) in 1917 in 5-year age groups superimposed over scaled deaths from the obituary database for 1900–1913



Source: own calculations based on the accompanying data.

A similar situation initially also applied to children aged 1–5. However, they quickly began to be recognized, and in the last quarter of the nineteenth century approximately 7% of all obituaries listing deaths by age were specifically for children aged 1–5. When child deaths were acknowledged, their number began to decline, which was probably related to the objective decline in child mortality, which today is almost imperceptible in absolute numbers (in 2019, GUS recorded only 269 deaths in children of this age in the whole of Poland, which is 0.07% of all deaths that year).

Figure 6 shows data for 1917 for the Warsaw-Praga Parish (Our Lady of Loretto). This is the largest set of complete data for a single parish with the ages of the deceased that we were able to find in the *Geneteka* database. There were 2,574 deaths (1,263 males and 1,306 females) recorded that year, which allows us to draw some conclusions. In the graph background, for comparison, are the data for the obituary database for the period 1900–1913 ($N = 31,018$) scaled so that the deaths of people aged 26–70 most closely match each other. It can be seen that for those aged 0–10, the obituaries are completely unreliable.

At the same time, it can be said that for adults, the data shown here lend credence to the data from the obituaries. Admittedly, the graph for Praga Parish deaths in those older than 70 differs markedly from the obituary database, but this can be explained by social differences: people from the “printed class,” with higher social status, were already living to an older age during the *belle époque* than average Praga residents during the crisis years of WWI.

Conclusion

Examining the data contained in 470,000 Polish newspaper obituaries from 1845–1939 reveals how the age structure of people dying during this period changed. Although the data is limited to the “printed class,” i.e., that part of the population (subpopulation) whose deaths may have been of interest to the readers of the major Polish-language dailies of the time, it is, as it seems, consistent throughout the near century-long period of 1845–1939, and thus allows an analysis of a multi-generational trend unavailable by other means.

The data show a fundamental difference in the pattern of male and female mortality. While these differences have usually been interpreted as the result of excessive maternal mortality, here—with insufficient arguments to confirm or disprove this hypothesis—we adopted as our basis for interpretation the so-called “grandmother theory,” according to which a woman, after the end of her reproductive period, becomes a kind of new, infertile generation (like worker bees), whose task, determined by evolution, is to help mothers raise their offspring.

In the article, we did not venture into assessing whether the “grandmother theory” made objective sense, but we adopted it because it allowed us to describe clearly what the empirical data showed. And these data showed that throughout the entire period analyzed, two clear groups could be distinguished on the basis of an analysis of obituaries: women in the 16–40 age range (called the “mother generation” here) and women aged 46 and over (the “grandmother generation”). The two groups were separated by a “transition group,” i.e., women who died between the ages of 41 and 45. For almost the entire period under review, women in the transition group died less frequently than women younger and older than them.

Up to the outbreak of the January Uprising (to 1862), the ratio of deaths of women from the mother generation to women from the grandmother generation was more or less constant (even slightly increasing), in the region of 0.65. After the January Uprising, for half a century, until the outbreak of World War I, the ratio declined in a roughly linear fashion, to a magnitude of about 0.20. As a result of the war, the situation regressed to that observed 30 years previously, but once

the war ended, the downward trend resumed, reaching 0.14 at the end of the period under study.

Male deaths differed completely in this regard. For adult men, apart from the period of the wars of independence for a revived Polish state (1918–1920) no significant pattern is evident. Male deaths underwent much smaller changes over the 1845–1939 period. In both 1845–1862 and 1930–1939 (and even in 2019), the most numerous five-year cohort of deceased adult males is the same: 66–70 years of age.

Thus, in light of the above, the mechanism explaining the increase in the average life expectancy of women was not to be found in direct causes (a reduction in the number of perinatal deaths), but rather in enabling them to live to menopause, after which point the woman's body acquired greater immunity (we can speculate that it may have been that simply being of childbearing age – the mother generation – blocked some life-protecting mechanisms for women, mechanisms which only became active after this period ended).

The data given above would seem to argue for considering the following hypothesis: “The demographic transition gave all women the chance to enjoy the benefits of menopause, which gave them, as it were, a second life, which men, who seemed to have stopped in the previous era, did not have the chance to enjoy.”

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Sex and Mortality: Changes in the Age Distribution of the Deceased According to Polish Press Obituaries, 1845–1939

Summary

The article compares the shape of the age pyramid of people dying between 1845 and 1939, separated into men and women. Data from 470,000 obituaries published in the Polish press during all three partitions and the Second Republic were used. The data primarily reveal a shift in the circumstances of adult women. While for adult men the dominant age at death throughout the entire period was between 65 and 70 years of age, and the graph shows no significant local maxima (except in 1918–1820), the graph for the age distribution of deceased women can be seen as the sum of two separate bell-shaped graphs: for a generation of mothers (dying aged 16–40) and a generation of grandmothers (dying aged 46 and above). The intermediate group of women dying at the ages of 41–45 is noticeably less numerous: the graphs for successive decades systematically, throughout the entire period under study, show a local minimum here. This gives grounds to interpret the data in accordance with the theory of the adaptive, evolutionary sense of menopause, which, while depriving a woman of fertility, at the same time gives her the potential to live a much longer life, this time as a grandmother raising her grandchildren. And this, in turn, may explain why, since women have stopped dying at childbearing age, they have a life expectancy that is much longer than that of men.

Płeć a wymieranie. Zmiany struktury wieku umierających według polskich nekrologów prasowych z lat 1845–1939

Streszczenie

W artykule porównano kształt piramidy wieku osób umierających w latach 1845–1939 w rozbiciu na kobiety i mężczyzn. Wykorzystano dane z 470 000 nekrologów opublikowanych w polskiej prasie z okresu trzech zaborów i II Rzeczypospolitej. Zgromadzone dane ukazują przede wszystkim zmianę sytuacji dorosłych kobiet. O ile dla dorosłych mężczyzn dominanta wieku śmierci przez cały badany okres przypadała na wiek 65–70 lat, a wykres nie pokazuje istotnych maksimów lokalnych (poza latami 1918–1920), o tyle wykres rozkładu wieku umierających kobiet wygodnie jest traktować jako sumę dwóch osobnych wykresów o kształcie dzwonu: dla pokolenia matek (umierających w wieku 16–40 lat) i pokolenia babek (umierających w wieku 46 lat i więcej). Grupa pośrednia, umierająca w wieku 41–45 lat, jest wyraźnie mniej liczna: wykresy dla kolejnych dziesięcioleci systematycznie, przez cały badany okres, pokazują tu minimum lokalne. Daje to podstawy do interpretacji uzyskanych danych zgodnie z teorią o przystosowawczym, ewolucyjnym sensie menopauzy, która odbierając kobiecie płodność, daje zarazem potencjał do przeżycia znacznie dłuższego życia, tym razem jako babcia wychowująca wnuki. To z kolei może tłumaczyć, dlaczego, odkąd kobiety przestały umierać w wieku rozrodczym, mają oczekiwane trwanie życia znacznie dłuższe niż mężczyźni.

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