



SELF-RATED HEALTH IN MOLDOVA: A STUDY BASED ON THE GENERATIONS AND GENDER LIFE-COURSE SURVEY

Vitalie STIRBA^{ID}

Academy of Economic Studies of Moldova, Chisinau, Republic of Moldova

Corresponding author: Vitalie Stirba, e-mail: stirba.vitalie@ase.md

<https://doi.org/10.38045/ohrm.20264.03>

CZU:614.1:314.144(478)

ABSTRACT

Introduction

Subjective health serves as an indicator of quality of life and is a reliable predictor of mortality trends, particularly in older age groups. Its determinants are influenced by physical and mental well-being and are positively linked to overall health. Subjective health is mainly measured using a representative sample, in which respondents rate their health, usually on a scale from very good to very bad.

Materials and methods

This research primarily relies on life-course data from the Generations and Gender Survey, conducted in two waves in 2020 and 2024–2025. Thus, a panel analysis was conducted to assess changes in subjective health across the 5-year cohorts during the period analysed.

Results

Subjective health has declined more than improved across all studied generations, with a notably greater reduction among the middle-aged group born between 1965 and 1980, in both males and females. The decline in subjective health among these groups aligns with a rising prevalence of chronic diseases as the interviewees age.

Conclusions

The research addresses a gap in the study of subjective health in Moldova by applying panel data analysis, whereas previous research has predominantly used a cross-sectional approach. The article's findings highlight the need for targeted policies to prevent morbidity and reduce mortality, particularly among vulnerable cohorts.

Keywords

Subjective health, population health, healthy life expectancy, self-rated health.

SĂNĂTATEA AUTOEVALUATĂ ÎN REPUBLICA MOLDOVA: UN STUDIU BAZAT PE CHESTIONARUL GENERAȚII ȘI GEN DE-A LUNGUL CURSULUI VIEȚII

Introducere

Sănătatea subiectivă reprezintă un indicator al calității vieții și un predictor fiabil al tendințelor mortalității, în special la grupele de vârstă înaintată. Determinanții acesteia sunt influențați de starea de bine fizică și mentală și corelează pozitiv cu starea generală de sănătate. Sănătatea subiectivă este măsurată, de regulă, pe baza unor eșantioane reprezentative, în cadrul cărora respondenții își evaluează propria stare de sănătate, de obicei pe o scală de la foarte bună la foarte rea.

Materiale și metode

Cercetarea se bazează în principal pe datele privind parcursul vieții obținute în cadrul Anchetei Generații și Gen (Generations and Gender Survey), desfășurată în două valuri, în anii 2020 și 2024–2025. Astfel, a fost realizată o analiză de tip panel pentru a evalua modificările sănătății subiective în cadrul cohortelor de 5 ani pe parcursul perioadei analizate.

Rezultate

Sănătatea subiectivă s-a deteriorat într-o măsură mai mare decât s-a îmbunătățit în toate generațiile studiate, cu o reducere semnificativ mai pronunțată în rândul persoanelor de vârstă mijlocie, născute între anii 1965 și 1980, atât la bărbați, cât și la femei. Scăderea nivelului de sănătate subiectivă în aceste grupuri este în concordanță cu creșterea prevalenței bolilor cronice odată cu înaintarea în vârstă a respondenților.

Concluzii

Studiul contribuie la acoperirea unui gol în cercetarea sănătății subiective din Republica Moldova prin utilizarea analizei datelor de tip panel, în timp ce cercetările anterioare s-au bazat predominant pe abordări transversale. Rezultatele evidențiază necesitatea elaborării unor politici țintite pentru prevenirea morbidității și reducerea mortalității, în special în rândul cohortelor vulnerabile.

Cuvinte-cheie

Sănătate subiectivă, sănătatea populației, speranța de viață sănătoasă, sănătate autoevaluată.

INTRODUCTION

Subjective health is one of the key indicators in studying population health, but also in developing health policies. Since subjective health is a self-rated state of physical and mental well-being, it may not necessarily correspond to a diagnosed or objectively measured state of health. However, given that subjective health is positively associated with overall health (1), serving as an indicator of the future mortality trends (2), its assessment is much more affordable and easier to perform than evaluating the population's objective health. Subjective health is often assessed through interviews within a nationally or locally representative sample. The questions generally concern basic demographic information, self-assessed health (rated from "very bad" to "very good"), and diagnosed conditions, if any.

The literature clearly indicates the connection between low self-rated health and the presence of chronic diseases, functional limitations or disability (3), while education, income, and other socioeconomic factors have distinct influences on self-rated health (4). On the other hand, these characteristics influence health inequalities between genders and different population strata (5, 6). Additionally, the evidence shows a connection between physical and mental well-being, overall quality of life, and self-rated health, especially among the elderly (7).

In the context of Moldova, self-rated health allows for investigating geographical differences in overall well-being since the population is registering a visible discrepancy in health, morbidity, and life expectancy between regions and rural-urban localities (8), as well as by other socioeconomic factors and education, especially among the elderly (9, 10). Of course, this also results from factors such as health system capacity, health policies, or bureaucratic efficiency (11). Additionally, in the context of outmigration in Moldova, which shapes the population's health through the 'healthy migrant effect' (12), migration remittances appear to improve the health of children and the elderly left behind (13, 14).

Moldova has registered a similar pattern of subjective health to that of countries in the region, with self-perceived health visibly worsening, particularly among the working-age population (15). Even though life expectancy in good health and without disabilities has increased at a slightly higher rate than life expectancy at birth in recent decades, the gap between Moldova and Central and Western European countries remains significant (16).

The aim of this study is to examine changes in subjective health across cohorts and over time in Moldova using longitudinal data from the Generations and Gender Survey (GGS). While previous studies on subjective health in Moldova have primarily relied on cross-sectional data, this study emphasises how self-rated health evolves longitudinally across generations. This study hypothesises that subjective health tends to worsen with age, with variations by sex and cohort due to differences in lifetime risk exposure. As the population's health is a key factor shaping cause-of-death mortality trends, studying subjective health may improve policy design to reduce the risk of developing certain conditions and address regional disparities.

MATERIALS AND METHODS

Study Design and Data Sources

The research was based on data from the GGS life-course national representative survey, conducted in two waves: the first wave in 2020 and the second wave in 2024–2025. The study used information from both survey periods to assess changes in population health status over time. Additional demographic data, including population age and sex structure and death counts by age at death, were obtained from the database of the National Bureau of Statistics.

Study Population and Variables

The selected variables included date of birth, sex, self-reported subjective health status, and self-declared health conditions. The first survey wave included 8956 observations, while the second wave included 5559 observations. A total of 4815 respondents participated in both survey waves and were included in the longitudinal analysis.

Healthy Life Expectancy Estimation

Healthy life expectancy was estimated using Sullivan's method by combining period life tables for 2020 and 2024 with the prevalence of the population reporting good health status from the GGS survey. Life tables were constructed using 5-year age groups, with the final open-ended age interval of 85 years and older. Healthy life expectancy at age x was calculated according to the following formula:

$$e_x^{\text{healthy}} = \frac{T_x^{\text{healthy}}}{l_x}; \quad T_x^{\text{healthy}} = \sum_{y \geq x} L_y^{\text{healthy}}; \quad L_y^{\text{healthy}} = L_y \times \pi_x$$

where:

e_x^{healthy} – the healthy life expectancy at age x ;

T_x^{healthy} – the sum of the life table person-years above age x ;

l_x – life table survivors at age x ;

L_y – the life table person-years lived within the age-group interval;

π_x – the prevalence of the population self-identified as healthy.

Estimation of Health Prevalence for Older Age Groups

Because the GGS sample included individuals aged 15–79 years in the first wave, the prevalence of good health status for the older age groups (80–84 and 85+ years) was estimated using a relative extrapolation method, according to the following formula:

$$\pi_{x+1} = \pi_x \times r;$$

where:

$$r = \frac{\pi_x}{\pi_{x-1}}$$

Longitudinal Analysis of Subjective Health Changes

A panel analysis was conducted among respondents who participated in both GGS waves. Incomplete questionnaires were excluded before analysis. Self-assessed health responses were recategorized into three groups: (a) “very good” and “good”; (b) “fair” and “bad”; and (c) “very bad”. Differences between responses were classified as improvement or deterioration of subjective health status. Participants were subsequently grouped into 5-year birth cohorts.

RESULTS

Table 1 presents the change in life expectancy and healthy life expectancy for 2020 and 2024 at ages 0, 15, and 65. During this period, life expectancy increased among both males and females at birth of 1.6 and 2.5 years, respectively, driven by high mortality during the COVID-19 pandemic and subsequent improvements. This increase in life expectancy was primarily driven by declines in mortality among the middle-aged and elderly, partially through the 'survivor effect'. At the same time, the healthy life expectancy, calculated for the same population sample at two time points, increased by 1.1 years in females, while it remained unchanged in males. This modest increase in healthy life expectancy is primarily related to the increase in life expectancy.

Table 1. The healthy life expectancy at the 1st and 2nd waves of the GGS Survey.

	2020			2024		
Age	0	15	65	0	15	65
Females						
e_x	73.9	59.7	14.8	76.4	62.5	16.6
e_x^{healthy}	67.3	52.3	9.8	68.4	53.4	9.7
Males						
e_x	65.9	51.7	11.3	67.5	53.6	12.9
e_x^{healthy}	62.5	47.5	8.2	62.5	47.5	8.7

Source: The National Bureau of Statistics and the GGS

Figure 1 shows a certain degree of stability in individual health perception between the first and second GGS waves. In both males and females, the largest proportion of the population within the overall sample estimated their health as 'good' and 'fair', while the number of people in 'bad' health was visibly lower. At the same time, the number of persons who reported their health as 'very good' or 'very bad' was a smaller percentage.

The results emphasise a downward transition in self-rated health among the interviewees between the GGS waves, with the largest shift from 'good' to 'fair' and from 'fair' to 'bad'. A smaller proportion of the people interviewed reported improved health, more often from 'fair' to 'good' and from 'bad' to 'good', although the number of those who reported a radical improvement or worsening of self-rated health was insignificant between the first and second GGS waves.

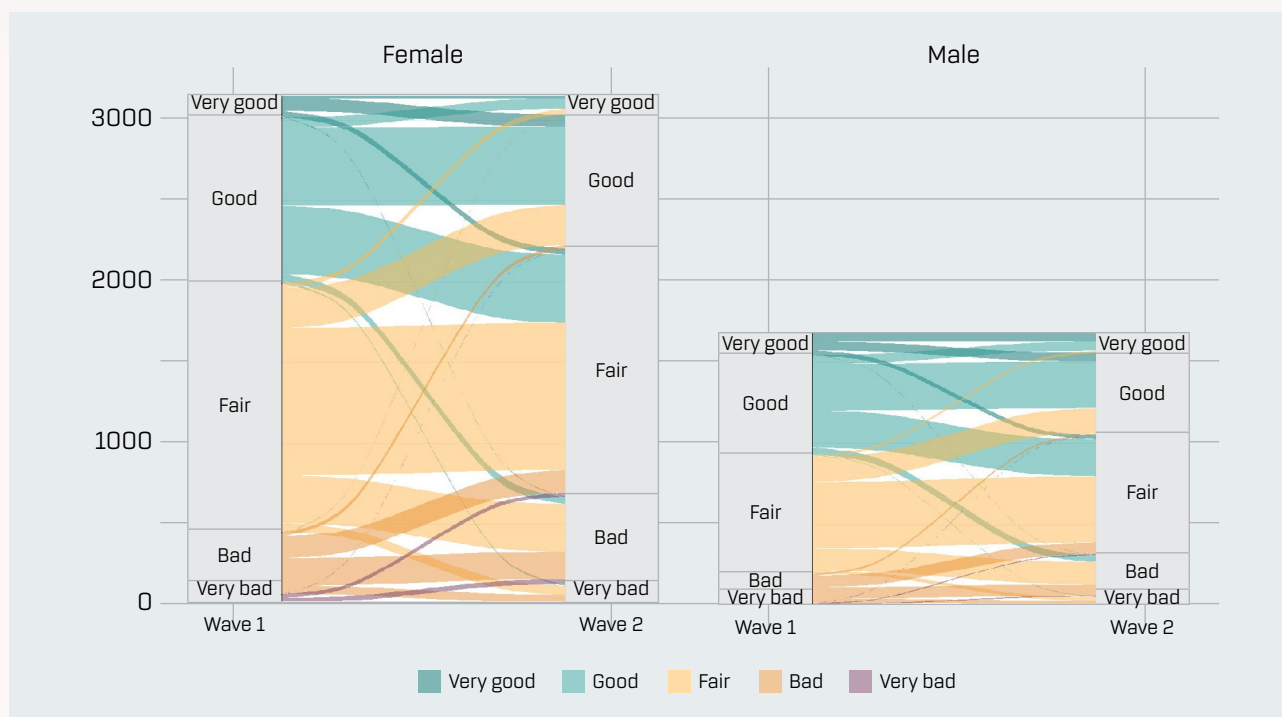


Figure 1. Changes in self-rated health between the first and second waves of the GGS Survey in Moldova.

Source: The GGS Survey

The distribution of self-rated health, from “very good” to “very bad” at both GGS waves (Figure 2) primarily depends on interviewees’ year of birth, with younger generations reporting their health as good or very good, and rarely as fair or bad. Conversely, older cohorts tend to report their health as “good” or “fair”, or as “bad” and “very bad” among the elderly. The data reveal a noticeable decline in self-rated health during the analysed period, across all generations studied.

Across both waves, a gender gap in subjective health was observed, with men reporting better health than women did at younger ages – a pattern also observed in other research (2). However, since men and women were approximately 4 years apart at the time of the interviews, the gap between the sexes narrowed.

When examining self-rated health across generations, those born before 1965 reported worse health status than younger cohorts, a shift evident when comparing the 1961-1965 and 1966-1970 cohorts. Nevertheless, a similar shift could be observed when contrasting generations born between 1971-1975 and 1976-1980.

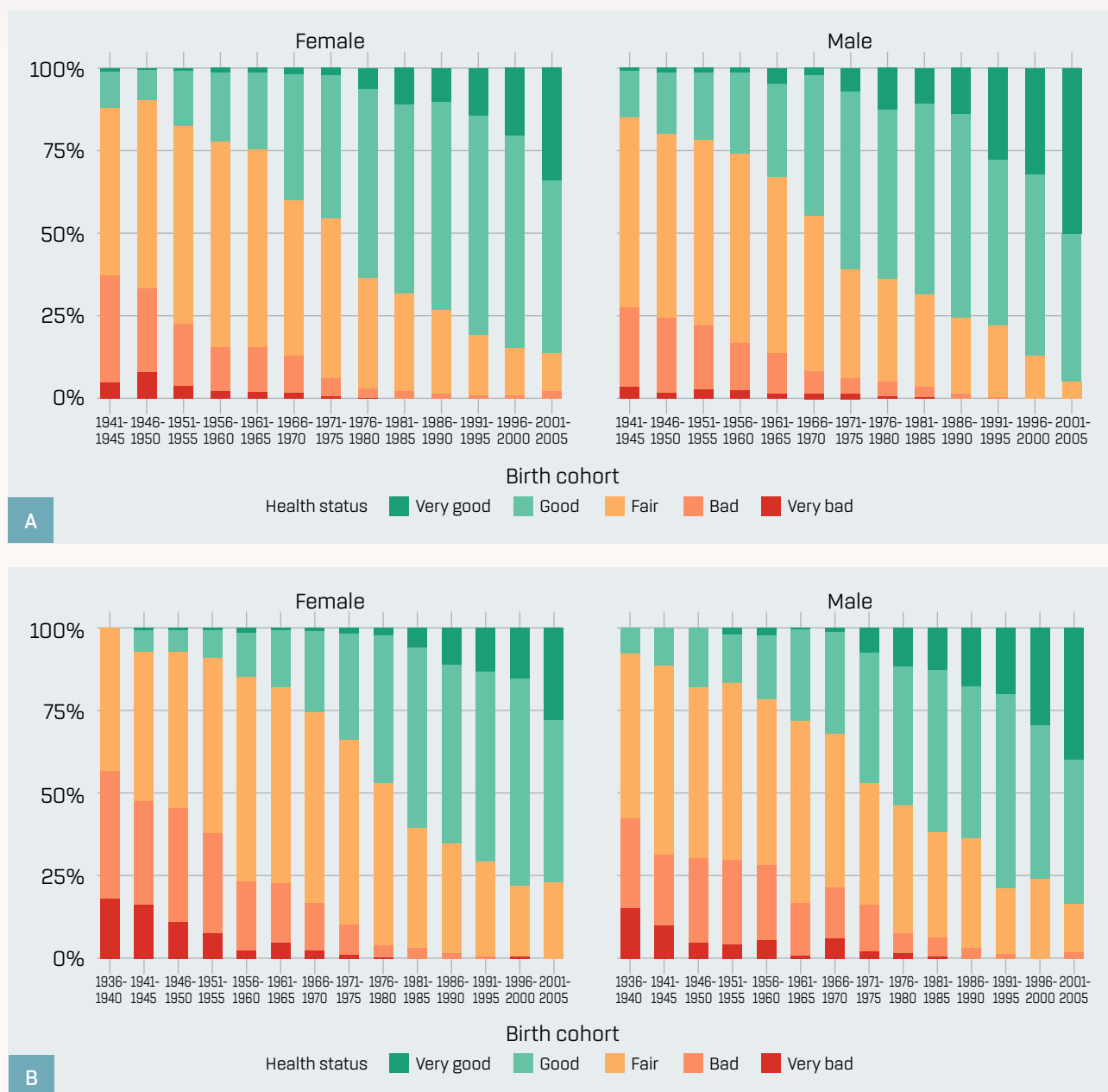


Figure 2. Self-rated health by birth cohort and sex during the first (A) and second (B) waves of the GGS Survey in Moldova.

Source: The GGS Survey

Figure 3 presents the change in subjective health during the second wave of GGS compared to the first one. During this period, the majority of respondents reported their health status as unchanged, regardless of sex. At the same time, a visible proportion of interviewees reported a decline in self-rated health, especially among older generations, while the share reporting improved health was smaller.

The largest increase in subjective health was observed among young females in the 2001-2005 birth cohorts, accompanied by a smaller decline, while a broader decline in self-reported health was observed during the period analysed among generations transitioning to middle age.

Thus, the generations born between 1965 and 1980 show the greatest worsening in subjective health. The elderly cohorts show the lowest level of health improvement but also a lower degree of health deterioration than the generations born between 1966 and 1980, given that in both waves of the study, the 1941–1965 cohorts reported a lower degree of subjective health. Therefore, differences in subjective health by year of birth highlight the effect of age on the population's health status.

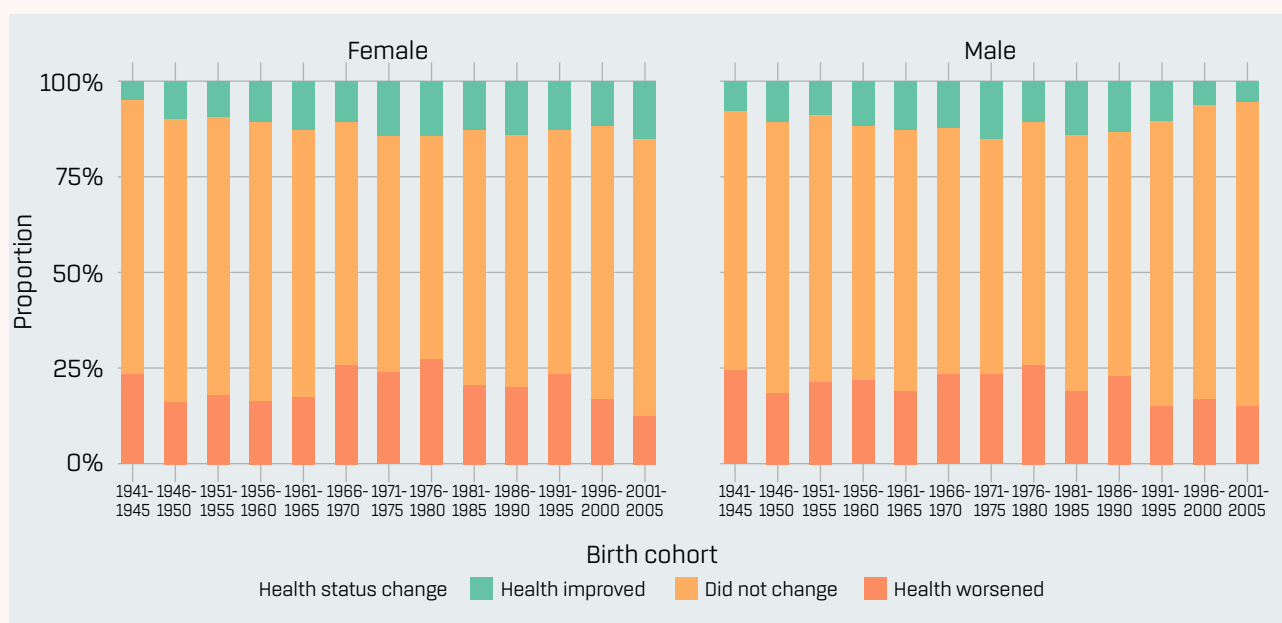


Figure 3. Change in subjective health status by birth cohort and sex between the 1st and 2nd GGS Survey waves, %.

Source: The GGS Survey

Subjective health is primarily associated with overall health and population morbidity. Figure 4 displays changes in population morbidity by age of the people interviewed during the GGS. Among the young population aged 20 years or less, over 80% of interviewees reported no conditions, as their health was predominantly rated as “good” or “very good”. However, as the population ages, the proportion of people without disease and in good health decreases sharply. With age, the prevalence of circulatory system diseases and arterial hypertension becomes more prominent, while the prevalence of diabetes, cancer, ulcers, etc., is also notable. Men tend to experience cardiovascular diseases, diabetes, and hypertension earlier than women, who develop hypertension more gradually but show high prevalence at older ages.

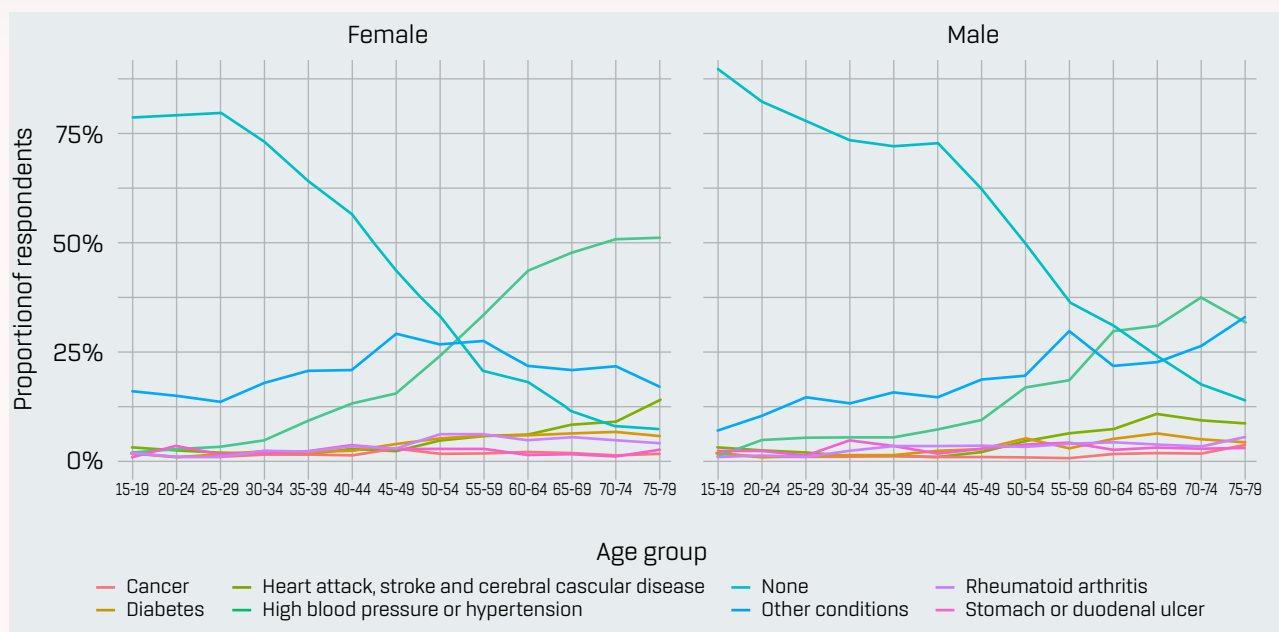


Figure 4. The prevalence of health conditions at the 1st wave of the GGS Survey, by age and sex

Source: The GGS Survey.

Note: Other conditions include asthma, cataracts, chronic lung diseases such as chronic bronchitis or emphysema, fractures, high blood cholesterol, Parkinson's disease, osteoarthritis, and other rheumatic conditions, and other conditions not declared.

The results highlight that chronic diseases are concentrated mainly in older age groups, even though some conditions, such as hypertension, are increasing sharply since the middle ages. However, as younger generations age and become less exposed to the risks that lead to chronic disease, the trend toward improving population health and reducing mortality is likely to continue.

DISCUSSION

Even though population health is challenging to investigate, since health is dynamic throughout life (20), self-rated health provides a broader view on how health and the prevalence of certain conditions evolve among individuals over time and with age. This article primarily examines changes in subjective health among the interviewees between the first and second waves of the GGS Survey, since it offers longitudinal data.

The results of the study emphasise worsening self-reported health with advancing age, with a sharper decline observed in the middle-aged population in both sexes. Particularly, the most affected population is born between 1965 and 1980, among whom an increase in the prevalence of hypertension and other circulatory system diseases is observed. Men tend to experience an earlier onset of cardiovascular diseases, diabetes, and hypertension compared to women, who develop hypertension at a slower pace but have a high prevalence in older age groups.

The observed deterioration in self-rated health among the 1965–1980 generation may be due to the age-specific progression of chronic conditions, often associated with lifestyle and exposure to risk factors over the lifetime (21). Beyond biological health, the middle-aged population may experience increased stress due to intensified role strain, which ultimately reflects on self-perceived

health. Thus, the observed decline in self-rated health might represent a combination of objective health deterioration associated with biological ageing and escalating social demands (22).

Between the two waves of the GGS Survey (2020 and 2024-2025), life expectancy increased significantly, primarily due to high mortality during the COVID-19 pandemic and its subsequent decline in the following years. The main contribution to the increase in age components of life expectancy was observed in the middle-aged and elderly populations. At the same time, the healthy life expectancy, in which people live in good health and without disabilities and chronic or degenerative diseases, has improved only in females, while in males it has remained unchanged. This might be explained through the possible 'survivor effect', especially among the elderly population, since this indicator was calculated for the same population sample.

The findings of this research align with previous studies on Eastern Europe, where differences in self-rated health by sex and across cohorts evolve unevenly, reflecting the influence of historical and socioeconomic contexts (6). Post-Soviet countries emphasise the impact of socioeconomic disruptions, as well as alcohol and tobacco consumption, on population health and mortality during the 1990s, particularly among men (23, 24). From a life-course perspective, exposure to prolonged socioeconomic adversity during critical stages of adulthood may have had lasting consequences for health, contributing to the elevated prevalence of chronic conditions observed in these cohorts (25). Further, as younger generations in these countries have greater access to higher education and are less likely to be engaged in manual occupations, widening intergenerational inequalities in self-rated health may emerge.

Previous research on Moldova has reported a gradual increase in healthy life expectancy (9, 16), largely driven by cohort replacement, as younger generations reach older ages in relatively better health. However, the findings of this study indicate an overall deterioration in self-rated health at the population level, reflecting population ageing. At the same time, younger cohorts report better subjective health compared to older generations. These results highlight the importance of addressing the needs of more vulnerable, older cohorts, while also sustaining the favourable health conditions observed among younger generations.

The presented research has several important limitations that could affect the quality of the results. Firstly, the survey did not include the localities on the left bank of the Nistru River. Secondly, since the first wave of the GGS Survey was conducted during the COVID-19 pandemic public health emergency, with a break during the lockdown, individuals interviewed during this period might have an altered perception of their subjective health (26). Thirdly, a limitation of the GGS dataset for calculating healthy life expectancy is its age range of 15-79, which excludes individuals aged 80 and older. And lastly, the absence of information regarding the reasons for non-participation in the second wave limits the possibility of analysing the subjective health of individuals who passed away between the 1st and 2nd waves.

CONCLUSIONS

The results of the study emphasise a higher decline in subjective health among the middle-aged population born between 1965 and 1980 in both males and females. However, subjective health has registered a greater decline than improvement across all generations studied. The increase in morbidity is also associated with advancement in age, registering a sharp growth since the age of 35, predominantly in circulatory system diseases (heart attack, hypertension, stroke and cerebral vascular diseases), cancer, diabetes, ulcer, and other unspecified conditions.

The GGS Survey provides a unique opportunity to observe changes in subjective health across generations, offering a longitudinal perspective on population well-being. Therefore, the research enhances the existing evidence on subjective health in Moldova by employing panel data analysis, whereas earlier studies have mainly relied on cross-sectional data from the Household Budget Survey. By using a longitudinal approach, we gain a clear understanding of how subjective health develops among individuals over time and with age. Ultimately, the results offer valuable insights for future population health policies aimed at preventing the development of certain chronic diseases and reducing morbidity and mortality, with a focus on specific cohorts. The future research will examine regional differences in subjective health.

CONFLICT OF INTEREST The authors declare no conflict of interest.

ETHICS APPROVAL This study did not require ethical approval, as the research did not involve human participants, animals, or interventions subject to ethical review by a committee.

ACKNOWLEDGMENT The article was developed within the project: Facilitating demographic policies through the exploration of data from the “Generations and Gender Study” 24.80012.0807.11TC.

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Date of receipt of the manuscript: 05.12.2025

Date of acceptance for publication: 11.07.2026

Vitalie STIRBA, SCOPUS ID: 57221497014