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Physical activity, screening cancer, and savings rate as indicators of health responsibility

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Abstract:

Introduction: The health of individuals can change gradually over time as a result of the choices they make.

Aim: The study aimed to examine indicators such as physical activity levels, screening participation, and household savings in the context of their role as potential measures of individual health responsibility. The second aim was to identify cognitive barriers and motivations influencing physical activity, breast and cervical cancer screening participation, and money-saving habits.

Material and methods: The analysis used available data on physical activity, the screening level (for breast and cervical cancer), and household savings rates. Then, the data for Poland were presented against the background of available averages for the European Union. The data came from Eurostat, Eurobarometer - the official survey instrument used by the European Parliament.

Results: According to Eurobarometer data, 65% of respondents in Poland have never been physically active in 2022 (vs in the European Union 45%). In 2022, the percentage of women who were screened for cervical cancer in Poland was 34% of women. And the cervical cancer program (cytology) was used by 10.9% of people. In 2022, the household saving rate was 12.7 % in the EU, and in Poland -2.89%, where the lowest rate occurred in Greece and the highest in Germany (Eurostat data).
Conclusion: The low level of physical activity and participation in screening tests in Poland, compared to EU countries, highlights the need to intensify public health promotion activities. Additionally, promoting saving as an important element of health responsibility can not only improve the financial well-being of citizens but also have a positive impact on their mental health.
Keywords: public health, nudges, behavioral economics, mammography, cytology

Introduction

The health of individuals can change gradually over time, as a result of the choices they make. Although one-time behaviors can affect health, such as a single exposure to very high radiation levels, poor health develops over time, in the environment, and through a complex set of interactions with other people [1]. Furthermore, personal health-related life choices can have a huge impact also on the stability of the healthcare system, including public health insurance [2].

Physical activity has a positive impact on the mental and physical health of individuals, reducing the risk of non-communicable diseases – such as cardiovascular disease, type 2 diabetes, and cancer [3]. Scientific evidence suggests that physical activity/exercise reduces mortality rates and improves quality of life with minimal or no safety concerns. In contrast, physical inactivity contributes to increased morbidity and mortality. About 3.2 million deaths per year can be attributed to insufficient levels of physical activity. Lack of physical exercise also hurts the country's overall economy [3, 4].

Screening for breast, cervical, and colon cancers is associated with reduced cancer deaths. Cervical and colon cancer screening detects precancerous changes. Breast cancer screening detects early-stage cancers with a better prognosis [5]. Although screening programs play a key role in the asymptomatic detection of breast cancer and have been implemented in many countries, their use is often suboptimal. Interventions to increase screening rates have had varying degrees of effectiveness.[6].

Saving is a financial behavior that provides an individual with psychological security and increases their overall well-being [7]. Saving decisions have important implications for an individual's well-being, as they determine the ability to cope with income and health shocks [8]. Although financial security plays a protective role in emotional well-being [9], many citizens of European countries do not have enough savings and to not worry about meeting basic needs. This is considered an act of financial irresponsibility, leading to the search for ways to increase people's willingness to save money [7].

Given the complexity of factors influencing individual health behaviors, as well as limited research on measuring health responsibility in societies, the study aimed to analyze indicators such as physical activity and household savings level as potential indicators of individual health responsibility. The second aim was to identify cognitive barriers and motivations influencing physical activity, breast and cervical cancer screening participation, and money-saving habits.

Material and methods:

The analysis used available data on physical activity, the level of attendance in screening tests (for breast and cervical cancer), and household savings rates in 2022. Data on physical activity in Poland compared to data from the European Union were obtained from the European Commission report, the official survey instrument used by the European Parliament (https://europa.eu/eurobarometer/surveys/detail/2668).

Data on the level of attendance in screening tests in Poland and European Union countries were obtained from Eurostat. Colorectal cancer screening tests were excluded from the analysis due to the lack of data available for Poland in this field.

Data on the savings rate in Poland compared to the European Union countries were obtained from Eurostat: (https://ec.europa.eu/eurostat/databrowser/view/teina500/default/table?lang=en), where the gross saving rate of households is defined as gross saving divided by gross disposable income, with the latter being adjusted for the change in the net equity of households in pension funds reserves. Gross saving is the part of the gross disposable income which is not spent as final consumption expenditure.

Results

a) physical activity in Poland in comparison to the European Union

Based on data from the report Sport and physical activity with 2022 year in Poland, 65% of respondents never engage in physical activity, while the average percentage of people who

never engage in physical activity for the European Union is lower and amounts to 45%. On average, 6% of respondents in the European Union countries and 2% in Poland declare that they exercise regularly, i.e. 5 times a week.

b) Cancer screening

Breast

In 2022, 34% of women (within the age range of screening programs) in Poland had been screened for breast cancer (using mammography) within the previous 2 years. The lowest share - 28.5%, was recorded in Slovakia. On the other hand, for countries such as Denmark, Finland, and Sweden, screening rates exceeded 80%.

Cervical

In 2022, the percentage of women who were screened for cervical cancer was 10.9% in Poland. The lowest percentage was 4.5% in Romania, and the highest in Sweden at 78.8%, the Czech Republic (74.1%) and Ireland (73.1%).

c) Saving Household saving rate in comparison to the European Union

In 2022, the household saving rate was 12.7 % in the EU, and in Poland -2.89%, where the lowest rate occurred in Greece and the highest in Germany.

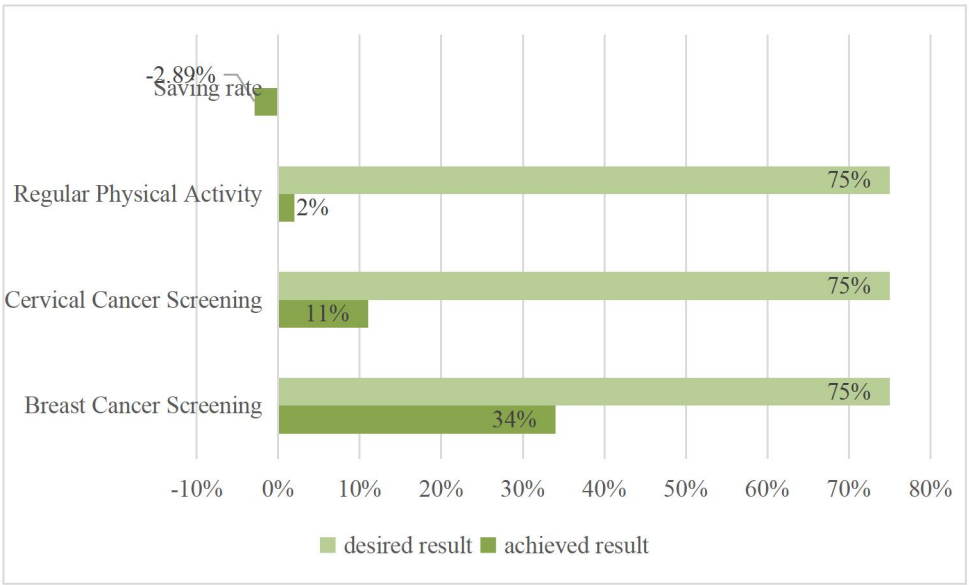

Fig. 1 Measuring indicators: physical activity, screening use, savings rate vs. desired results

Tab. 1. Barriers and motivations for physical activity, cancer screening, and saving money

Author/ year/ type of article	Barriers	Motivators
	physical activity	
Vasudevan et al. (2022) Systematic Review and Meta-synthesis [10]	• Lack of Progression of Unexpected Results • Injury and perceived risk of injury due to incorrect technique were prominent • Lack of equipment availability in the community or at home and difficulty commuting to the gym • Family constraints	• feeling of being invigorated, fulfilled, having higher energy levels, increasing awareness and alertness, being happier • Social support, words of affirmation • companionship
Pedersen (2021)[11] scoping review	• Time constraints: (6) • Fatigue and lack of energy: (5) • Low motivation: (4) • Financial constraints: (3) • Shortage of facilities: (2) • Health constraints: (2) • Religious and cultural norms: (2) • Lack of knowledge about facilities: (2) • Lack of social interaction: (1) • Uncertain future: (1) • Poor access conditions: (1) • Shortage of suitable activities: (1)	• Social Interactions: (6) • Health Benefits: (5) • Social Support: (4) • Well-being: (3) • Autonomy: (2) • Enjoyment: (2) • Self-Efficacy: (2) • Intrinsic Motivation: (1) • Competition: (1) • Physical Appearance: (1) • Readiness for Change: (1) • Increased Body Awareness: (1)
	using cancer screening	
Kirubarajan et al. (2021) [12] Systematic Review	• fear of pain/discomfort during Pap smears • lack of knowledge or awareness • embarrassment of the intimate examination • low accessibility to services • transportation	• Trusting, stronger relationships with healthcare providers, • social norms, • support from family, • self-efficacy • if friends and family members received testing
Vallone et al. (2022)[13] Systematic Review	• positive attitudes towards the benefits of screening, • perceived control over personal choices and one's health, • personal motivation, • high perceived self-efficacy and response efficacy • Type A personality (i.e. conscientiousness/industriousness)	• psychological costs of research: embarrassment, shame, discomfort, fear • fears related to an unfamiliar procedure, • previous negative experiences, • pain during the examination,
	saving rate	
Borowski	• wealth ratio (household net financial assets-to-income ratio	• younger persons and pensioners tend to dissave

(2023)[14]	• the expected deterioration in the labor market can be linked with a higher precautionary saving rate. • the qualities of “determination” and “perseverance” positively impacted forced savings.	• working-age people have a higher propensity to save. •
Fredriksson et al. (2022)[15]	• income uncertainty • unanticipated inflation	• low interest rates • predicting people, who to generate income after being retired, the necessity to save for retirement decreases their willingness to save • A pay-as-you-go social security system

Discussion

In Article 8, Section 4 of the Act on Healthcare Services Financed from Public Funds, the tasks of counties include: "stimulating activities for individual and collective responsibility for health and health protection”[16]. However, there is a lack of information on what measures to use to evaluate the actions taken, which would indicate an increase in individual and collective responsibility for health. Responsibility for health can be considered in multiple dimensions, both from the individual, societal, and institutional levels, and within the concept of shared responsibility. This study focused on individual responsibility for health. However, as Trethewey et al emphasize, it is important to balance individual responsibility with broader societal and governmental responsibility in the field of public health, and that they should be promoted simultaneously to effectively combat health inequalities [17]. As defined by the World Health Organization, individual responsibility for health refers to actions an individual takes to maintain or improve their health. This includes lifestyle choices such as nutrition, physical activity, avoiding harmful behaviors (e.g. smoking, excessive alcohol consumption), and regular screening [18]. The complexity and ambiguity of the concept of personal responsibility have led to a lack of authoritative tools for measuring it. Due to the different ways of understanding personal responsibility, other tools have been developed to measure various aspects of responsibility [19]. This study examined 3 categories of indicators (regular physical activity, use of screening tests, and having savings) and hypothesized that they could serve as indicators to measure individuals' responsibility for health.

Although the broad positive consequences of physical activity have already been proven in many scientific studies [3, 4], as shown by data from Poland, 65% of respondents never use physical activity. This is a worse result than the average in the European Union (data from 27 countries), where 45% never engage in physical activity. These results show that a significant part of society does not follow the guidelines of the World Health Organization, which recommends 150 minutes of physical activity per week. These data indicate an important public health challenge to develop and implement effective interventions that promote increased physical activity in communities. The results of two systematic reviews conducted by Forberger et al (2019) [20] and Landais et al (2020) [21] suggest that the choice architecture (nudging) approach is an effective approach to promoting physical activity among the general population.

Analyzing data on the percentage of people who benefited from breast and cervical cancer screening in Poland, they did not reach the expected minimum rate of 75%. In 2022, in Poland, only 38% of those entitled took advantage of a mammographic examination for a specific group of people. Various tools can be used to encourage patients to take screening tests. One of these is to inform patients about the benefits of screening and the risks of skipping it (leaflets, posters, and social media are used for this). However, as Acharya et al have shown, commonly used approaches that focus on explaining the consequences of not attending mammograms have often been ineffective [6].

A direct doctor-patient relationship is also important, as it can determine the decision to participate in screening, including discussing the importance of testing and personalizing the message depending on the individual needs and health history of the patient. Another tool is automatic reminder systems, but they must be tailored to the patient's preferences and include information on how and where to get tested. In addition, local organizations can act as intermediaries and health ambassadors, motivating community members to take care of their health by taking part in tests. However, it is important to systematically monitor screening participation rates and use effective tools to increase participation. In a systematic review, Acharya et al found that interventions using problem-solving were most effective in increasing mammography attendance. The greatest effect was achieved using implicit learning techniques. This raises hopes that effective strategies can be implemented on a large scale [6].

The next indicator analyzed was the household savings rate in Poland in 2022 was -2.89% and was one of the lowest in OECD countries. Across the world, greater personal responsibility for financial decision-making has begun to be promoted. Households are being encouraged to

take a more active approach to personal finances [22]. As suggested by Rahman et al, financial behaviors such as saving and managing finances affect financial well-being. The results show that healthy financial habits and financial knowledge have a positive effect on financial well-being, while financial stress harms overall well-being and mental health. This suggests that responsible health and financial behaviors are associated with better health and well-being [23]. In addition, as people live longer, it is predicted that in the future there will be a need to increase individual savings to finance upcoming needs not only for retirement but also for health [22]. This highlights the importance of health responsibility and saving as key factors influencing overall physical, mental, and financial well-being.

Introducing and maintaining positive behavioral changes in society is a challenge for public health. It is worth seeking and implementing effective health promotion tools to achieve this goal. In the literature, one can find frameworks focusing on patient motivation to improve behavioral self-control, which include: a) theory of planned behavior (TPB), b) self-efficacy theory, c) self-determination theory, d) motivational interviewing, e) communication-based on empowerment f) COM-B model [24]. The Theory of Planned Behavior (TPB) consists of 4 basic constructs that influence human behavior: a) behavioral intention, which is the degree to which an individual perceives the likelihood of actually performing the behavior; b) attitude, which is the consideration of the outcomes of the behavior and its positive/negative evaluation; c) subjective norm, which is an individual's belief about whether influential people in their life accept or disapprove of a given behavior; d) behavioral control (PBC), focuses on how an individual perceives the ease or difficulty of a given behavior [25]. Self-determination theory assumes that the forms of motivation individuals experience when performing behaviors or tasks are determined by the extent to which they satisfy their basic psychological needs for autonomy, competence, and relatedness [24]. Motivational interviewing is a useful tool for strengthening motivation to change behavior in patients with various behavioral health problems. It is a technique that involves encouraging and strengthening a relationship based on trust, which is key to successful treatment. It involves working with the patient on a partnership basis, in which the doctor does not assume the role of an expert; and an attitude of acceptance and empathy toward the needs, experiences, and points of view of the patient, ensuring the patient's autonomy of choice and decision-making about behavior change, compassion for the patient's life and experiences, and arousing motivation for change by exploring and strengthening the patient's reasons for change [26].

Empowerment in health care is characterized by active participation, conscious change, knowledge enabling problem-solving, responsibility for self-care, a sense of control, awareness, development of personal skills, autonomy, and coping [27]. The COM-B behavior change model suggests that behavior has three components: a) ability — the knowledge and skills necessary to engage in a specific behavior; b) opportunity — external factors that influence behavior; and c) motivation — internal processes that influence behavior [28].

Conclusion

The results indicate low levels of physical activity in Poland compared to the EU average, suggesting the need to intensify physical activity promotion activities at community and national levels. Increasing physical activity could significantly improve public health and reduce costs related to non-communicable diseases.

Participation rates in breast and cervical cancer screening are low in Poland compared to Scandinavian and other EU countries. More effective educational strategies, reminders and patient navigator programs should be implemented to increase participation.

The low household savings rate in Poland may indicate low financial responsibility. Promoting savings as part of health responsibility can improve the overall financial well-being and mental health of citizens.

Bibliography

1. McMillan, J., *Responsibility for health.* J Med Ethics, 2019. **45**(10): p. 627-628.
2. Friedlein, N., *Promoting Individual Health Responsibility in the Welfare State.* Eur J Health Law, 2024. **31**(3): p. 336-347.
3. Dhuli, K., et al., *Physical activity for health.* J Prev Med Hyg, 2022. **63**(2 Suppl 3): p. E150-E159.
4. Posadzki, P., et al., *Exercise/physical activity and health outcomes: an overview of Cochrane systematic reviews.* BMC Public Health, 2020. **20**(1): p. 1724.
5. Bhatia, D., et al., *Breast, cervical and colorectal cancer screening in adults with diabetes: a systematic review and meta-analysis.* Diabetologia, 2020. **63**(1): p. 34-48.
6. Acharya, A., et al., *A systematic review of interventions to improve breast cancer screening health behaviours.* Prev Med, 2021. **153**: p. 106828.
7. Maison, D., et al., *You don't have to be rich to save money: On the relationship between objective versus subjective financial situation and having savings.* Plos One, 2019. **14**(4).
8. Bucciol, A. and S. Trucchi, *Locus of control and saving: The role of saving motives.* Journal of Economic Psychology, 2021. **86**: p. 102413.
9. Bialowolski, P., J.J. Xiao, and D. Weziak-Bialowolska, *Do All Savings Matter Equally? Saving Types and Emotional Well-Being Among Older Adults: Evidence from Panel Data.* Journal of Family and Economic Issues, 2024. **45**(1): p. 88-105.
10. Vasudevan, A. and E. Ford, *Motivational Factors and Barriers Towards Initiating and Maintaining Strength Training in Women: a Systematic Review and Meta-synthesis.* Prev Sci, 2022. **23**(4): p. 674-695.
11. Pedersen, M.R.L., A.F. Hansen, and K. Elmose-Osterlund, *Motives and Barriers Related to Physical Activity and Sport across Social Backgrounds: Implications for Health Promotion.* Int J Environ Res Public Health, 2021. **18**(11).

12. Kirubarajan, A., et al., *Barriers and facilitators for cervical cancer screening among adolescents and young people: a systematic review.* BMC Womens Health, 2021. **21**(1): p. 122.
13. Vallone, F., et al., *Factors promoting breast, cervical and colorectal cancer screenings participation: A systematic review.* Psychooncology, 2022. **31**(9): p. 1435-1447.
14. Borowski, J. and K. Jaworski, *Economic and behavioral determinants of forced household savings during the COVID-19 pandemic.* Empirica (Dordr), 2023. **50**(1): p. 237-253.
15. Fredriksson, C. and K. Staal, *Determinants of Household Savings: A Cross-Country Analysis.* International Advances in Economic Research, 2021. **27**(4): p. 257-272.
16. *U S T AWA z dnia 27 sierpnia 2004 r. o świadczeniach opieki zdrowotnej finansowanych ze środków publicznych*.
17. Trethewey, S.P., E.K.M. Reynolds, and C.S. Trethewey, *Behavioural determinants of health: individual versus societal responsibility.* British Journal of General Practice, 2021. **71**(708): p. 301.
18. World Health Organization. Division of Health Promotion, E. and Communication, *Health promotion glossary*. 1998, World Health Organization: Geneva.
19. Ren, Y., J. Wu, and H. Qin, *Development and validation of a personal responsibility scale for Chinese college students.* Front Psychol, 2023. **14**: p. 1231462.
20. Forberger, S., et al., *Nudging to move: a scoping review of the use of choice architecture interventions to promote physical activity in the general population.* International Journal of Behavioral Nutrition and Physical Activity, 2019. **16**(1).
21. Landais, L.L., et al., *Choice architecture interventions to change physical activity and sedentary behavior: a systematic review of effects on intention, behavior and health outcomes during and after intervention.* International Journal of Behavioral Nutrition and Physical Activity, 2020. **17**(1).
22. Brounen, D., K.G. Koedijk, and R.A.J. Pownall, *Household financial planning and savings behavior.* Journal of International Money and Finance, 2016. **69**: p. 95-107.
23. Rahman, M., et al., *The role of financial behaviour, financial literacy, and financial stress in explaining the financial well-being of B40 group in Malaysia.* Future Business Journal, 2021. **7**(1): p. 52.
24. Hessler, D.M., et al., *Motivation and attitudes toward changing health (MATCH): A new patient-reported measure to inform clinical conversations.* J Diabetes Complications, 2018. **32**(7): p. 665-669.
25. Jha, S.S., et al., *Classroom intervention to improve behavioral intention toward regular physical activity among adolescents.* Front Public Health, 2024. **12**: p. 1260916.
26. Bischof, G., A. Bischof, and H.J. Rumpf, *Motivational Interviewing: An Evidence-Based Approach for Use in Medical Practice.* Deutsches Arzteblatt International, 2021. **118**(7): p. 109-115.
27. Fotoukian, Z., et al., *Concept analysis of empowerment in old people with chronic diseases using a hybrid model.* Asian Nurs Res (Korean Soc Nurs Sci), 2014. **8**(2): p. 118-27.
28. Williams, P., et al., *Help-seeking behaviour in women diagnosed with gynaecological cancer: a systematic review.* British Journal of General Practice, 2022. **72**(725): p. E849-E856.