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Optimism and Life Satisfaction of Poles during the Second and Fourth Waves of the COVID-19 pandemic

Abstract

The COVID-19 pandemic undoubtedly has had a negative impact on human psychological wellbeing, as confirmed by numerous studies. Positive psychology identifies optimism and life satisfaction as important factors having to do with the psychological wellbeing of individuals. This article aims to diagnose the level of optimism and life satisfaction of Poles during the 2nd and 4th waves of the COVID-19 pandemic, and to identify predictors of optimistic life orientation and life satisfaction in terms of demographic variables. The study was conducted on a group of 1,095 people using the snowball method, via social media. The results confirm a reduction in the level of optimism and life satisfaction of Poles during the COVID-19 pandemic. At the same time, the research confirms that resources such as marriage, having children, good education and stable work enhance a person's level of psychological wellbeing and become a guarantee for better coping during the pandemic.

Keywords

COVID-19, optimism, life satisfaction, psychological well-being, cross-sectional studies.

1. Introduction

Although more than three years have passed since the first case of SARS-CoV-2 infection in Wuhan, China, the global health situation is far from normal. New outbreaks are emerging and the virus is taking its toll in the form of more deaths. According to WHO data, 591,683,619 cases of COVID-19 have been diagnosed worldwide to date, while 6,443,306 people have lost their lives.[1]

COVID-19 is a health threat, described as a significant stressor that threatens the mental health and well-being of many people around the world.[2] Necessary public health measures taken in the context of the pandemic (masks, social distance, isolation) make the environment in which people live increasingly restricted. The health guidelines significantly reduce the social activity, work organisation and lifestyle choices of entire social groups. The pandemic is also a significant and persistent external stressor that can have a significant impact on wellbeing, which impact varies greatly between individuals.[3]

There is no doubt that the COVID-19 crisis caused unprecedented negative physical, psychological, environmental, financial impacts, leading to increased levels of anxiety and depression.[4] Findings suggest that COVID-19-related psychological distress may be triggered by a combination of environmental (e.g., social disconnection, isolation), organisational (e.g., job insecurity, availability or lack of information) and individual (e.g., threat of contagion and potential death, safety assessment, financial loss) factors. The specific pathways through

[1] https://covid19.who.int/ (19.08.2022).

[2] S. K. Brooks, R. K. Webster, L. E. Smith, L. Woodland, S. Wessely, N. Greenberg, G. J. Rubin, *The psychological impact of quarantine and how to reduce it: Rapid review of the evidence*, "Lancet" 10227 (2020), pp. 912–920; B. Satici, M. Saricali, S. A. Satici, M. D. Griffiths, *Intolerance of uncertainty and mental wellbeing: serial mediation by rumination and fear of COVID-19*, "International Journal of Mental Health Addiction" (2020).

[3] L. Waters, S. B. Algoe, J. Dutton, R. Emmons, B. L. Fredrickson, E. Heaphy, J. T. Moskowitz, K. Neff, R. Niemiec, C. Pury, M. Steger, *Positive psychology in a pandemic: buffering, bolstering, and building mental health*, "The Journal of Positive Psychology" (2021).

[4] D. Gunnell, L. Appleby, E. Arensman, K. Hawton, A. John, N. Kapur, M. Khan, R.C. O'Connor, J. Pirkis, *COVID-19 Suicide Prevention Research Collaboration. Suicide risk and prevention during the COVID-19 pandemic*, "Lancet Psychiatry" 7/6 (2020), pp. 468–471; B. Satici, M. Saricali, S. A. Satici, M. D. Griffiths, *Intolerance of uncertainty and mental wellbeing: serial mediation by rumination and fear of COVID-19*, "International Journal of Mental Health Addiction" (2020).

which a public health crisis affects mental wellbeing can be particularly devastating for people with pre-existing mental health problems.[5]

A prolonged pandemic situation creates further social problems, psychological wellbeing disorders, post-traumatic stress disorder, isolation and loneliness or suicide as observed in the general population worldwide. However, attention is drawn to the situation of specific social or professional groups where the negative effects of the pandemic are more pronounced and long-lasting. These include healthcare professionals experiencing professional burnout[6], and women[7] or young people in education and studies suffering from a lack of satisfying relationships with their peers.[8]

The aim of the study is to diagnose the level of optimism and life satisfaction of Poles during the 2nd and 4th waves of the COVID-19 pandemic. Additionally, predictors of optimistic life orientation and life satisfaction in terms of demographic variables will be identified. Furthermore, a comparison of the two measurements during the 2nd and 4th waves of the pandemic will allow us to show the dynamics of the psychological wellbeing of Poles. The discussion of the results of the study will allow conclusions to be drawn for coping

[5] V. Counted, K. I. Pargament, A. O. Bechara, S. Joynt, R. G. Cowden, *Hope and well-being in vulnerable contexts during the COVID-19 pandemic: does religious coping matter?*, "The Journal of Positive Psychology" (2020) pp. 1–1; S.L, Hagerty, L.M. Williams, *The impact of COVID-19 on mental health: the interactive roles of brain biotypes and human connection*, "Brain Behavior, & Immunity Health" 5 (2020); S. Hamouche, *COVID-19 and employees' mental health: stressors, moderators and agenda for organisational actions*, "Emerald Open Research" 15/2 (2020).

[6] Q. Chen, M. Liang, Y. Li, J. Guo, D. Fei, L. Wang, L. He, C. Sheng, Y. Cai, X. Li, et al, *Mental Health Care for Medical Staff in China during the COVID-19 Outbreak*, "Lancet Psychiatry" 7 (2020), pp. e15–e16.

[7] C. Wang, R. Pan, X. Wan, et al., *Immediate psychological responses and associated factors during the initial stage of the 2019 coronavirus disease (COVID-19) epidemic among the general population in China*, "International Journal of Environmental Research and Public Health" 17/5 (2020); R. Lathabhavan, *Covid-19 Effects on Psychological Outcomes: How Do Gender Responses Differ?*, "Psychological Reports" 0/0 (2021).

[8] S. Buecker, K. T. Horstmann, J. Krasko, S. Kritzler, S. Terwiel, T. Kaiser, M. Luhmann, *Changes in daily loneliness for German residents during the first four weeks of the COVID19 pandemic*, "Social Science & Medicine" 265 (2020); S. Van de Velde, V. Buffel, P. Bracke, G. Van Hal, N.M. Somogyi, B. Willems, E. Wouters, *The COVID-19 International Student Well-being Study*, "Scandinavian Journal of Public Health" 49/1 (2021); R. Preetz, A. Filser, A. Brömmelhaus, T. Baalmann, M. Feldhaus, *Longitudinal Changes in Life Satisfaction and Mental Health in Emerging Adulthood During the COVID-19 Pandemic. Risk and Protective Factors*, "Emerging Adulthood" 9/5 (2021).

practices in situations of prolonged life limitation and good functioning in pandemic situations.

2. Optimism and life satisfaction during a pandemic

The negative effects of the COVID-19 pandemic, diagnosed and confirmed by numerous studies worldwide, pose a serious challenge as to how to deal with the effects, not only in the area of physical health, but especially in the area of mental health. Positive psychology emphasises the importance of areas in a person's life that enhance their wellbeing and promote optimal functioning and flourishing. Knowledge of one's own emotions, strengths or the correct reading of social relationships can significantly influence coping with difficult life situations and encourage living a good life. Optimism and life satisfaction remain important factors in difficult situations.

The concept of life optimism has been operationalised by M. Scheier, Ch. Carver[9] and M. Seligman.[10] They state that when people are actively trying to solve a problem and encounter an obstacle to a given goal, they consciously or unconsciously engage in certain specific behaviours and expectations. In such a situation, expectations of the outcome are of primary importance, which make it possible to make assumptions about what will happen as a consequence of past behaviour if they continue. The expectation of positive events has a positive impact on one's evaluation of life and makes one persevere towards one's goals. Optimism also has a positive impact on an individual's physical health, subjective wellbeing and resistance to stress. Optimism and pessimism are stable personality traits. Carver and colleagues found that higher levels of optimism were associated with better subjective wellbeing in times of adversity. Optimism increases people's motivation to engage in goal-directed behaviour and is associated with a higher self-esteem.[11]

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[9] M. F. Scheier, C. S. Carver, *Effects of optimism on psychological and physical well-being: theoretical overview and empirical update*, "Cognitive Therapy and Research" 16 (1992).

[10] M. Seligman, M. Csikszentmihalyi, *Positive psychology: An introduction*, "American Psychologist" 55/1 (2000).

[11] C. S. Carver M. F. Scheier, S. C. Segerstrom, *Optimism*, "Clinical Psychology Review" 30/7 (2010), pp. 879– 889.

A global pandemic is undoubtedly a difficult time in which a reduction in people's psychological wellbeing associated with increased pessimism is evident. Research by Arslan and colleagues[12] during the COVID-19 pandemic confirms the impact of reduced optimism and psychological inflexibility in increasing stress and other psychological problems.

Surveys of tertiary students in a number of European and non-European countries (Turkey, Israel, Canada, USA and USA) provide information on their wellbeing and health behaviour.[13] The COVID-19 pandemic quickly led to a complete reorganisation of higher education in many countries: full-time lectures were converted to online classes, internships were (partly) abolished, thesis planning was adjusted, forms of examinations and assessment were changed, etc. This may have created a lot of uncertainty among students. Many social activities also came to a standstill: most student events were cancelled and many students returned to their family homes.

Numerous studies in different populations support the claim that dispositional optimism is a protective factor during the COVID-19 pandemic.[14] Puig-Perez and colleagues find that optimism is associated with lower stress levels and higher adaptive cognitive appraisal in response to a traumatic event and

[12] G. Arslan, M. Yıldırım, A. Tanhan, M. n Buluş, K-A. Allen, *Coronavirus Stress, Optimism-Pessimism, Psychological Inflexibility, and Psychological Health: Psychometric Properties of the Coronavirus Stress Measure,* "International Journal of Mental Health and Addiction" 19 (2021), pp. 2423–2439.

[13] S. Van de Velde, V. Buffel, P. Bracke, G. Van Hal, N. M. Somogyi, B. Willems, E. Wouters, *The COVID-19 International Student Well-being Study*, "Scandinavian Journal of Public Health" 49/1 (2021).

[14] S. Cervera-Torres, S. Ruiz-Fernández, H. Godbersen, L. Massó, D. Martínez-Rubio, S. Pintado-Cucarella, R. M. Baños (2021), *Influence of Resilience and Optimism on Distress and Intention to Self-Isolate: Contrasting Lower and Higher COVID-19 Illness Risk Samples From an Extended Health Belief Model*, "Frontiers Psychology" 12 (2021); F. Koliouli, L. Canellopoulos, *Dispositional optimism, stress, post-traumatic stress disorder and post-traumatic growth in Greek general population facing the COVID-19 crisis*, "European Journal of Trauma & Dissociation" 5/2 (2021); A. Maheshwari, V. Jutta, *Study of relationship between optimism and resilience in the times of COVID-19 among university students*, "The International Journal of Indian Psychology" 8/3 (2020); I. Schou-Bredal, T. Grimholt, T. Bonsaksen, L. Skogstad, T. Heir, Ø. Ekeberg, *Optimists' and pessimists' self-reported mental and global health during the COVID-19 pandemic in Norway*, "Health Psychology Report" 9/2 (2021); L. M. W. Vos, M. Habibović, I. Nyklíček, T. Smeets, G. Mertens, *Optimism, mindfulness, and resilience as potential protective factors for the mental health consequences of fear of the coronavirus*, "Psychiatry Research" 300 (2021).

acts as a protective factor against PTSD.[15] Sardella and colleagues[16] show that dispositional optimism and expressive flexibility significantly affect levels of perceived Health-Related Quality of Life in a sample of older outpatients. Dillard and colleagues, who conducted a study among women undergoing infertility treatment, conclude that although women perceived an overall negative impact of the COVID-19 pandemic on their infertility treatment and experienced various negative emotions, women with higher levels of dispositional optimism had fewer negative perceptions and emotions.[17] In contrast, Zayas and colleagues[18] show differences in levels of optimism according to age, social status, education and living-spatial conditions during the pandemic. The results show that older people and people with higher education are more optimistic and have better mental wellbeing. Wellbeing is also better in married, divorced and widowed people and those who lived in more spacious accommodation. It was also found that the most optimistic people had better psychological wellbeing and that this was enhanced by the mediation process realised through the ability to overcome adversity.

Life satisfaction is one of the most important concepts of positive psychology and is an important element in a person's subjective well-being. Life satisfaction has been defined as a person's cognitive and affective evaluation of life.[19] A high level of life satisfaction is associated with better physical and mental health and promotes communication and interpersonal relationship building or better interactions with the environment.

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[15] S. Puig Perez, I. Cano López, P. Martínez, M. W. Kozusznik, A. Alacreu Crespo, M. M. Pulopulos, A. Duque, M. Almela, M. Aliño, M. M. Garcia Rubio, A. Pollak, B. Kozusznik, *Optimism as a protective factor against the psychological impact of COVID 19 pandemic through its effects on perceived stress and infection stress anticipation*, "Current Psychology" (2022).

[16] A. Sardella, V. Lenzo, G. A. Bonanno, G. Basile, M.C. Quattropani, *Expressive Flexibility and Dispositional Optimism Contribute to the Elderly's Resilience and Health-Related Quality of Life during the COVID-19 Pandemic*, "International Journal of Environmental Research and Public Health" 18 (2021).

[17] A. J. Dillard, A. E. Weber, A. Chassee, M. Thakur, *Perceptions of the COVID-19 Pandemic among Women with Infertility: Correlations with Dispositional Optimism*, "International Journal of Environmental Research and Public Health" 19 (2022).

[18] A. Zayas, A. Merchán-Clavellino, J. A. López-Sánchez, R. Guil, *Confinement Situation of the Spanish Population during the Health Crisis of COVID-19: Resilience Mediation Process in the Relationship of Dispositional Optimism and Psychological Well-Being*, "International Journal of Environmental Research and Public Health" 18 (2021).

[19] E. Diener, E. M. Suh, R. E. Lucas, H. L. Smith, *Subjective well-being: Three decades of progress*, "Psychological Bulletin" 125/2 (1999).

Studies conducted during the COVID-19 pandemic in various corners of the world[20] report a reduction in life satisfaction in almost all age groups: primary school children[21], adolescents and especially in boys[22], students[23], and young adults.[24]

The pandemic forced greater social isolation and reduced social participation, thus caused changes in relationships with family and friends and induced feelings of loneliness, grief and reduced quality of life.[25] Studies conducted in Spain indicate that persons subjected to long enforced quarantine at home, those

[20] R. Bachmann, M. Gonschor, T. Korfhage, A. Wübker, *Covid-19 and life satisfaction across Europe*, "Applied Economics Letters" (2021); M. Gawrych, E. Cichon, A. Kiejna, *COVID-19 pandemic fear, life satisfaction and mental health at the initial stage of the pandemic in the largest cities in Poland*, "Psychology Health & Medicine" 26 (2021).

[21] J. H. Kim, Y. Shim, I. Choi, E. Choi, *The Role of Coping Strategies in Maintaining Well-Being During the COVID-19 Outbreak in South Korea*, "Social Psychological and Personality Science" 13/1 (2022); J. Choi, Y. Park, H.-E. Kim, J. Song, D. Lee, E. Lee, H. Kang, J. Lee, J. Park, J.-W. Lee et al., *Daily Life Changes and Life Satisfaction among Korean School-Aged Children in the COVID-19 Pandemic*, "International Journal of Environmental Research and Public Health" 18 (2021).

[22] S. E. I. van der Laan, C. Finkenauer, V. C. Lenters, A. L. van Harmelen, C. K. van der Ent, S. L. Nijhof, *Gender-Specific Changes in Life Satisfaction After the COVID-19-Related Lockdown in Dutch Adolescents: A Longitudinal Study*, "Journal of Adolescent Health" 69/5 (2021); N. R. Magson, J. Y. A. Freeman, R. M. Rapee, C. E. Richardson, E. L. Oar, J. Fardouly, *Risk and protective factors for prospective changes in adolescent mental health during the COVID-19 pandemic*, "Journal of Youth and Adolescence" 50 (2020).

[23] A. M. Rogowska, C. Kuśnierz, A. Bokszczanin, *Examining Anxiety, Life Satisfaction, General Health, Stress and Coping Styles During COVID-19 Pandemic in a Polish Sample of University Students*, "Psychology Research and Behavior Management" 13 (2020).

[24] S. Buecker, K. T. Horstmann, J. Krasko, S. Kritzler, S. Terwiel, T. Kaiser, M. Luhmann, *Changes in daily loneliness for German residents during the first four weeks of the COVID19 pandemic*, "Social Science & Medicine" 265 (2020); R. Preetz, A. Filser, A. Brömmelhaus, T. Baalmann, M. Feldhaus, *Longitudinal Changes in Life Satisfaction and Mental Health in Emerging Adulthood During the COVID-19 Pandemic. Risk and Protective Factors*, "Emerging Adulthood" 9/5 (2021).

[25] S. K. Brooks, R. K. Webster, L. E. Smith, L. Woodland, S. Wessely, N. Greenberg, G. J. Rubin, *The psychological impact of quarantine and how to reduce it: Rapid review of the evidence*, "Lancet" 10227 (2020); J. Qiu, B. Shen, M. Zhao et al., *A nationwide survey of psychological distress among Chinese people in the COVID-19 epidemic: implications and policy recommendations*, "General Psychiatry" 33 (2020); C. Wang, R. Pan, X. Wan et al., *Immediate psychological responses and associated factors during the initial stage of the 2019 coronavirus disease (COVID-19) epidemic among the general population in China*, "International Journal of Environmental Research and Public Health" 17/5 (2020).

of the female sex (gender), the unemployed and those without private access to the outdoors (yard, garden) had significantly lower levels of life satisfaction.[26] In addition, fear of infecting oneself or a loved one contributed to lower life satisfaction.[27] When the fear of losing loved ones, death and infection increases, both life satisfaction and happiness decrease. Researchers from Turkey further observed that existential fears among women increase significantly when compared to men. Furthermore, there is a strong correlation between life satisfaction and happiness of individuals and household income. In other words, shrinking work and employment opportunities reduce people's happiness and life satisfaction.[28]

Research in China suggests that female gender may be associated with lower life satisfaction and higher stress and anxiety. Moreover, young adults showed a higher risk of mental health disorders and alcohol use than other age categories, and the association of COVID-19 severity of illness with life satisfaction may depend on current health status and physical activity.[29] These patterns are also confirmed by studies conducted in Poland.[30]

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[26] J. J. Gonzalez-Bernal, P. Rodríguez-Fernández, M. Santamaría-Peláez, J. González-Santos, B. León-del-Barco, L.A. Minguez, R. Soto-Cámara, *Life Satisfaction during Forced Social Distancing and Home Confinement Derived from the COVID-19 Pandemic in Spain*, "International Journal of Environmental Research and Public Health" 18 (2021).

[27] Q. Chen, M. Liang, Y. Li, J. Guo, D. Fei, L. Wang, L. He, C. Sheng, Y. Cai, X. Li, et al., *Mental Health Care for Medical Staff in China during the COVID-19 Outbreak*, "Lancet Psychiatry" 7 (2020), pp. e15–e16; J. Dymecka, R. Gerymski, A. Machnik-Czerwik, *Fear of COVID-19 as a buffer in the relationship between perceived stress and life satisfaction in the Polish population at the beginning of the global pandemic*, "Health Psychology Report" 9 (2021).

[28] V. Bozkurt, S. Aytaç, *Life satisfaction and happiness during the pandemic period*, in: H. Gülerce, V. Nimehchisalem, V. Bozkurt, G. Dawes, S. Rafik-Galea (ed.), *Society in the covid-19 pandemic: inequalities, challenges, and opportunities*, Ankara 2021: Pegem Akademi.

[29] C. Wang, R. Pan, X. Wan et al., *Immediate psychological responses and associated factors during the initial stage of the 2019 coronavirus disease (COVID-19) epidemic among the general population in China*, "International Journal of Environmental Research and Public Health" 17/5 (2020); S. X. Zhang, Y. Wang, A. Rauch et al., *Unprecedented disruption of lives and work: health, distress and life satisfaction of working adults in China one month into the COVID-19 outbreak*, "Psychiatry Research" 288 (2020).

[30] A. M. Rogowska, C. Kuśnierz, A. Bokszczanin, *Examining Anxiety, Life Satisfaction, General Health, Stress and Coping Styles During COVID-19 Pandemic in a Polish Sample of University Students*, "Psychology Research and Behavior Management" 13 (2020); D. Krok, B. Zarzycka, E. Telka, *Risk of contracting COVID-19, personal resources and subjective well-being among healthcare workers: the mediating role of stress and meaning-making.* "Journal of Clinical Medicine" 10 (2021); J. Dymecka, R. Gerymski, A. Machnik-Czerwik, *Fear of COVID-19*

At the same time, many studies focus not only on demonstrating lower levels of life satisfaction during the COVID-19 pandemic, but also on presenting possible protective factors that result from a wise and mature approach to crisis situations. The study in young adults confirmed the presence of three protective factors related to positive coping with stress and mental health problems during the pandemic.[31] The authors found that people in intimate relationships showed higher levels of life satisfaction. The social support of partners may buffer the negative effects of stress and uncertainty in a pandemic situation. Being in an intimate relationship can provide individuals with stability in times of instability and reduces feelings of loneliness.

Spanish research suggests that the protective factors in a COVID-19 pandemic situation are stable employment, having a private plot of land, garden or yard, which provides opportunities for greater mobility and physical exercise during quarantine, access to reliable information about risks and support institutions, and as little isolation as possible.[32] The Polish researchers further point to a sense of coherence and health-related hardiness as protective factors and may mediate between fear of COVID-19 and life satisfaction.[33]

3. Method

Research participants

A total of 1095 participants aged between 18 and 76 years (M=31, SD=13.85) took part in the study: 595 in the first stage of the study and 500 in the second stage. A total of 834 participants were selected for further analyses with equal

as a buffer in the relationship between perceived stress and life satisfaction in the Polish population at the beginning of the global pandemic, "Health Psychology Report" 9 (2021).

[31] R. Preetz, A. Filser, A. Brömmelhaus, T. Baalmann, M. Feldhaus, *Longitudinal Changes in Life Satisfaction and Mental Health in Emerging Adulthood During the COVID-19 Pandemic. Risk and Protective Factors*, "Emerging Adulthood" 9/5 (2021).

[32] J. J. Gonzalez-Bernal, P. Rodríguez-Fernández, M. Santamaría-Peláez, J. González-Santos, B. León-del-Barco, L.A. Minguez, R. Soto-Cámara, *Life Satisfaction during Forced Social Distancing and Home Confinement Derived from the COVID-19 Pandemic in Spain*, "International Journal of Environmental Research and Public Health" 18 (2021).

[33] J. Dymecka, R. Gerymski, A. Machnik-Czerwik, R. Derbis, M. Bidzan, *Fear of COVID-19 and Life Satisfaction: The Role of the Health-Related Hardiness and Sense of Coherence*, Frontiers Psychiatry 12 (2021).

groups of 417 participants in both stages of the study. Moreover, an additional condition was introduced that the groups being compared had to be identical when it came to education and place of residence. This made it possible to obtain groups that did not differ significantly in any of the socio-demographic variables. 87% of the respondents were women, while 13% were men. A description of the demographic variables is provided in Table 1.

Table 1. Characteristics of study participants

Demographic variables	Parameter	Stage			p
		Stage 1 (N=417)	Stage 2 (N=417)	Total (N=834)	
Age [years]	mean+SD	34,29±13,81	34,38±13,9	34,34±13,85	p=0,848
	median	31	31	31	
	quartiles	22–43	22–45	22–44	
Gender	Woman	352 (84,41%)	372 (89,21%)	724 (86,81%)	p=0,052
	Male	65 (15,59%)	45 (10,79%)	110 (13,19%)	
Marital status	Not married	222 (53,24%)	238 (57,07%)	460 (55,16%)	p=0,341
	Married	165 (39,57%)	143 (34,29%)	308 (36,93%)	
	After divorce or separation	23 (5,52%)	22 (5,28%)	45 (5,40%)	
	Widow/widower	3 (0,72%)	5 (1,20%)	8 (0,96%)	
	Clergy person	4 (0,96%)	9 (2,16%)	13 (1,56%)	
Having children	No	234 (56,12%)	246 (58,99%)	480 (57,55%)	p=0,441
	Yes	183 (43,88%)	171 (41,01%)	354 (42,45%)	
Place of residence	Large city	147 (35,25%)	147 (35,25%)	294 (35,25%)	p=1
	Medium-sized city	69 (16,55%)	69 (16,55%)	138 (16,55%)	
	Small town	60 (14,39%)	60 (14,39%)	120 (14,39%)	
	Village	141 (33,81%)	141 (33,81%)	282 (33,81%)	
Education	Primary/secondary	0 (0,00%)	0 (0,00%)	0 (0,00%)	p=1
	Basic vocational	7 (1,68%)	7 (1,68%)	14 (1,68%)	
	Medium	44 (10,55%)	44 (10,55%)	88 (10,55%)	
	Higher	200 (47,96%)	200 (47,96%)	400 (47,96%)	
	I am still a student	166 (39,81%)	166 (39,81%)	332 (39,81%)	

Demo-graphic variables	Parameter	Stage			p
		Stage 1 (N=417)	Stage 2 (N=417)	Total (N=834)	
Employment	I work full time	189 (45,32%)	184 (44,12%)	373 (44,72%)	p=0,137
	I work on a casual basis	9 (2,16%)	14 (3,36%)	23 (2,76%)	
	I am a pensioner	18 (4,32%)	13 (3,12%)	31 (3,72%)	
	Pupil/student	108 (25,90%)	85 (20,38%)	193 (23,14%)	
	I am studying and working	79 (18,94%)	103 (24,70%)	182 (21,82%)	

p – for quantitative variables Mann-Whitney test, for qualitative variables chi-square test or Fisher's exact test

* Statistically significant difference (p<0.05)

The survey was conducted twice: in December 2020/January 2021 and December 2021/January 2022, using an online survey questionnaire. The survey was conducted using the snowball method via social media. Participation in the survey was voluntary, anonymous and participants could opt out of completing and submitting their responses at any time.

Research tools

Demographic variables

Demographic variables were collected using ad hoc designed questions. The demographic variables studied were: age, gender, marital status, offspring, place of residence, education, employment.

Optimism

To measure optimism, the Life Orientation Test (LOT-R) by Scheier, Carver, Bridges in the Polish adaptation by Poprawa and Juczyński was used.[34] The LOT-R contains 10 statements; the respondent assesses how much a statement

[34] Z. Juczyński, *Narzędzia Pomiaru Stresu i Radzenia Sobie ze Stresem*, Warszawa 2012: Pracownia Testów Psychologicznych Polskiego Towarzystwa Psychologicznego.

applies to him or her using a 5-point scale (from 0 – definitely does not apply to me to 4 – definitely applies to me). The total score of the test indicates life orientation (inclination towards pessimism, neutral orientation, inclination towards optimism).

Satisfaction with life

To measure life satisfaction, the Satisfaction with Life Scale (SWLS) by Diener, Emmons, Larsen and Griffin in the Polish adaptation by Juczyński was used.[35] The SWLS contains 5 statements relating to one's life. The respondent assesses the extent to which he or she agrees with each statement using a 7-point scale (from 1 – completely disagree to 7 – completely agree). The overall score indicates the degree of satisfaction with life (low, medium, high).

4. Results

Optimism

The respondents' life orientation was determined using the LOT-R questionnaire. The results were converted into stens, according to the norms given in the key to this questionnaire. Scores in stens 1–4 indicate a low level of optimism (i.e. a tendency towards pessimism), scores in stens 5–6 indicate a medium level of optimism (i.e. a neutral attitude), and scores in stens 7–10 indicate a high level of optimism (i.e. a tendency towards optimism).

In the first stage of the study, 152 out of 417 survey participants (36.45%) tended to be pessimistic, 147 respondents (35.25%) tended to be optimistic and 118 respondents (28.30%) had a neutral orientation. In contrast, in the second stage of the study, 150 of the 417 survey participants (35.97%) tended to be optimistic, 135 survey participants (32.37%) tended to be pessimistic and 132 survey participants (31.65%) had a neutral orientation (table 2).

[35] Z. Juczyński, *Narzędzia Pomiaru Stresu i Radzenia Sobie ze Stresem*, Warszawa 2012: Pracownia Testów Psychologicznych Polskiego Towarzystwa Psychologicznego.

Table 2. Optimism – stage 1 and 2

LOT-R – number of points	Interpretation	Stage 1		Stage 2	
		n	%	n	%
0–12	A tendency to pessimism	152	36,45%	135	32,37%
13–16	Neutral orientation	118	28,30%	132	31,65%
17–24	A tendency towards optimism	147	35,25%	150	35,97%

Stage 1: Mean – 14.06, SD – 4.84, median – 15 Stage 2: Mean=14.28, SD=4.8, median=15

A comparison of the groups in terms of propensity for optimism across the two study phases shows that there is no statistically significant relationship (p>0.05) (Table 3).

Table 3. Optimism stage 1 and 2 – comparison

LOT-R – number of points	Stage		p
	Stage 1 (N=417)	Stage 2 (N=417)	
mean+SD	14,06±4,84	14,28±4,8	p=0,518
median	15	15	
quartiles	11–18	11–18	

p – Mann-Whitney test. Statistically significant relationship p<0.05.

Optimism and demographic variables

The study showed a relationship between optimism and some demographic characteristics. In the case of age, a positive significant relationship is found in both stages of the study, meaning that the older the age, the greater the optimism (p<0.001). Other demographic variables are included in Table 4. Thus, in the case of gender, a statistically significant relationship is only found in the first stage of the study and indicates that optimism was significantly higher in men. When it came to marital status, optimism was significantly higher in married people than in the other groups. During both stages of the study, optimism was significantly higher in the group with children; no significant differences were found for place of residence. The level of optimism was significantly higher in those with tertiary education than in pupils and students during both stages of the study, while by employment, optimism was higher in those working full-time than in pupils and students, and in those studying/studying and working at the same time.

Table 4.Optimism and demographic variables

DEMOGRAPHIC VARIABLES		Optimism							
		Stage I				Stage II			
		mean±SD	Me	quartiles	p	mean±SD	Me	quartiles	p
SEX	WOMEN (N=352)	13,85±4,85	14	11–17,25	p=0,05 *	14,18±4,89	15	11–18	p=0,245 *
	MEN (N=65)	15,23±4,63	15	11–18		15,13±3,91	15	13–17	
MARITAL STATUS	Single A (N=222)	12,95±4,97	14	50–61	p<0,001 ** B,C>A	13,26±4,68	14	10–17	p<0.001 ** B,C>A
	Married B (N=165)	15,35±4,48	15	53–65		15,67±4,56	16	13–19	
	Others C (N=30)	15,3±3,63	15	56.5–60		15,56±4,93	16	12,75–19,25	
CHILDREN	No (N=234)	13,19±4,93	14	10–17	p<0.001 *	13,48±4,81	14	10–17	p<0.001 *
	Yes (N=184)	15,19±4,48	15	12–18		15,44±4,56	16	13–18	
RESIDENCE	Large city A (N=147)	14,84±5,04	15	12–18	p<0,05 ** A>D,B	14,65±4,89	15	12–18	p=0,361**
	Medium city B (N=69)	13,1±5,12	13	10–16		14,81±4,5	15	12–18	
	Small town C (N=60)	13,88±4,39	14	11,75–17,25		14±4,99	14	10,75–18	
	Village D (N=141)	13,8±4,59	15	11–17		13,76±4,76	14	10–17	

DEMOGRAPHIC VARIABLES		Optimism							
		Stage I				Stage II			
		mean±SD	Me	quartiles	p	mean±SD	Me	quartiles	p
EDUCATION	Secondary – A (N=51)	12,86±4	13	10,5–15,5	p<0.001 ** B>C,A	13,41±4,78	13	11–16	p<0.001 ** B>C,A
	Higher – B (N=200)	15,66±4,56	16,5	12–19		15,42±4,67	16	12,75–18,25	
	In the course of study – C (N=166)	12,51±4,8	14	9–19		13,18±4,67	14	10–17	
EMPLOYMENT	Employed – A (N=189)	15,55±4,48	17	12–19	p<0.001 ** C>E A>F,D,E,B	15,35±4,49	16	12–18	p=0.001 ** A>F,E
	Employed part time B (N=9)	12,22±3,27	12	12–14		12,93±5,68	13,5	37–51	
	Not employed – C (N=63)	15,71±5,66	14,5	12–21,75		14,5±4,82	15	11,5–15,75	
	Retired – D (N=18)	13,39±3,47	13,5	11,25–15,75		15,77±4	15	11–18,5	
	Student – E (N=108)	12,09±5,12	13	8,75–16		12,65±4,51	13	13–18	
	Employed student – F (N=79)	13,28±4,36	14	10–16		13,68±5,09	14	10–17,5	

* Mann-Whitney's p – test (2 groups),

** Kruskal-Wallis p – test + post-hoc analysis (Dunn's test) (more than 2 groups).

Life satisfaction

The SWLS questionnaire assesses the respondent's sense of life satisfaction. The questionnaire score was converted into stens, according to the norms given in the key of this tool. Scores in stens 1–4 indicate low, scores in stens 5–6 average and scores in stens 7–10 high feelings of life satisfaction.

In the first stage of the study, 148 of the 417 survey participants (35.49%) had a low sense of life satisfaction, 140 respondents (33.57%) had a medium sense of life satisfaction and 129 respondents (30.94%) had a high sense of life satisfaction. Similar results were obtained in stage 2 of the study. 156 of the 417 survey participants (37.41%) had a low sense of life satisfaction, 133 respondents (31.89%) had a high sense of life satisfaction and 128 respondents (30.70%) had a medium sense of life satisfaction.

Table 5. Life satisfaction – stage 1 and 2

SWLS – numer of points	Interpretation	Stage 1		Stage 2	
		n	%	n	%
5–17	Low sense of satisfaction with life	148	35,49%	156	37,41%
18–23	Average sense of satisfaction with life	140	33,57%	128	30,70%
24–35	High sense of satisfaction with life	129	30,94%	133	31,89%

Stage 1: Mean=19.52, SD=6.3, median=20 Stage 2: Mean=19.68, SD=6.39, median=20

A comparison of the groups in the two study phases shows that there is no statistically significant relationship (p>0.05).

Table 6. Life satisfaction – comparison – stage 1 and stage 2

SWLS [points]	Stage		p
	Stage 1 (N=417)	Stage 2 (N=417)	
mean+SD	19,52±6,3	19,68±6,39	p=0,72
median	20	20	
quartiles	15–24	15–25	

p – Mann-Whitney test. Statistically significant relationship p< 0.05.

Life satisfaction and demographic variables

The study showed an association of life satisfaction with some demographic characteristics. In the case of age, a positive significant relationship is found in both stages of the study, meaning that the older the age, the higher the life satisfaction ($p<0.001$). The remaining demographic variables are included in Table 7. Thus, in the case of gender, a statistically significant relationship is found only in the first stage of the study, meaning that life satisfaction was significantly higher in men. When it came to marital status, life satisfaction was significantly higher in married people than in the other groups. During both stages of the study, life satisfaction was significantly higher in the group with children; no significant differences were found for place of residence. Satisfaction with life was significantly higher in those with tertiary education than in students during both stages of the study, while life satisfaction by employment was significantly higher in those working full-time than in students and in those studying/studying and working at the same time.

Table 7. Life satisfaction and demographic variables

DEMOGRAPHIC VARIABLES		SWLS							
		Stage I				Stage II			
		mean±SD	Me	quartiles	p	mean±SD	Me	quartiles	p
SEX	WOMEN (N=352)	13,85±4,85	20	15–24	p<0,05 *	19,62±6,44	20	14,75–25	p=0,456 *
	MEN (N=65)	21,17±5,67	22	18–25		20,2±6,06	21	27–24	
MARITAL STATUS	Single A (N=222)	17,59±6,15	18	13–22	p<0,001 ** B>C,A	18,19±6,32	18	13–23	p<0.001 ** B,C>A
	Married B (N=165)	22,13±5,73	23	18–26		21,83±5,89	23	18–26	
	Others C (N=30)	19,47±5,3	19	17–23,5		21±6,26	21	17,5–26	
CHILDREN	No (N=234)	17,77±6,09	18,5	13–22	p<0.001 *	18,54±6,5	19	14–24	p<0.001 *
	Yes (N=184)	21,76±5,84	23	18–25		21,33±5,88	22	17–26	
RESIDENCE	Large city A (N=147)	19,71±6,36	20	15–24	p=0,955 **	19,36±6,65	19	12–18	p=0,157**
	Medium city B (N=69)	19,39±6,6	20	15–25		20,78±6,3	21	12–18	
	Small town C (N=60)	19,02±7,25	20	12,75–24		20,67±6,42	22	10,75–18	
	Village D (N=141)	19,6±5,68	20	16–24		19,06±6,1	19	10–17	

DEMOGRAPHIC VARIABLES		SWLS							
		Stage I				Stage II			
		mean±SD	Me	quartiles	p	mean±SD	Me	quartiles	p
EDUCATION	Secondary – A (N=51)	17,53±5,76	18	13–21	p<0.001 ** B>A,C	19,41±6,3	20	11–16	p<0.001 ** B>C
	Higher – B (N=200)	22,04±5,35	23	19–25		21±6,25	22	12,75–18,25	
	In the course of study – C (N=166)	17,1±6,37	17	12–22		18,18±6,29	18	10–17	
EMPLOYMENT	Employed – A (N=189)	21,59±5,68	22	18 – 25	p<0.001 ** D>E A>F,E,	20,98±6,23	22	17 – 26	p=0.001 ** A>E,F
	Employed part time B (N=9)	19,89±5,4	22	16 – 24		18,57±7,01	18	14,5 – 23	
	Not employed – C (N=63)	20±6,75	22	14,25 – 24,75		20,83±6,29	22,5	17,25 – 25	
	Retired – D (N=18)	20,67±5,29	20,5	19 – 25		21,31±5,89	22	16 – 24	
	Student – E (N=108)	16,8±6,39	17	11,75 – 21		18,49±6,13	18	14 – 24	
	Employed student – F (N=79)	17,92±6,13	18	13 – 22,5		18,08±6,45	18	13 – 24	

* Mann-Whitney's p – test (2 groups),

** Kruskal-Wallis p – test + post-hoc analysis (Dunn's test) (more than 2 groups).

Table 8. Correlations of optimism and life satisfaction

	Stage 1		Stage 2	
	LOT-R	**SWLS**	**LOT-R**	**SWLS**
LOT-R	---	r=0.498, p<0.001 *	---	r=0.538, p<0.001 *
SWLS	r=0.498, p<0.001 *	---	r=0.538, p<0.001 *	---

r – Spearman correlation coefficient
* statistically significant relationship (p<0.05)

5. Discussion

Optimism and life satisfaction are important dimensions of social wellbeing and are important in coping with difficult situations. Studies conducted in different countries, age and occupational groups show that during the COVID-19 pandemic, people's quality of life and therefore well-being, decreased significantly.[36] The present study aimed to measure levels of optimism and life satisfaction during the second and fourth waves of the pandemic. The results show that a third of surveyed Poles have low levels of optimism, both in the first and second waves of the study. The lack of significant differences indicates that the level of optimism did not change between the second and fourth waves of the pandemic. The same is true for life satisfaction, with low life satisfaction decreasing slightly in the second survey wave. The lack of statistically significant differences (deterioration or improvement in optimism and life satisfaction) can be explained primarily by the fact that these are fairly constant personality

[36] G. Arslan, M. Yıldırım, A. Tanhan, M. n Buluş, K-A. Allen, *Coronavirus Stress, Optimism-Pessimism, Psychological Inflexibility, and Psychological Health: Psychometric Properties of the Coronavirus Stress Measure*, "International Journal of Mental Health and Addiction" 19 (2021), pp. 2423–2439; S. Van de Velde, V. Buffel, P. Bracke, G. Van Hal, N. M. Somogyi, B. Willems, E. Wouters, *The COVID-19 International Student Well-being Study*, "Scandinavian Journal of Public Health" 49/1 (2021); R. Bachmann, M. Gonschor, T. Korfhage, A. Wübker, *Covid-19 and life satisfaction across Europe*, "Applied Economics Letters" (2021); M. Gawrych, E. Cichon, A. Kiejna, *COVID-19 pandemic fear, life satisfaction and mental health at the initial stage of the pandemic in the largest cities in Poland*, "Psychology Health & Medicine" 26 (2021).

traits.[37] Although the respondents declare that during the fourth wave of the pandemic their standard of living increased, their social contacts improved and their concern about the economic situation in the country decreased, this correlation is not statistically significant.[38]

When it comes to the relationship between demographic characteristics and the variables studied, analyses showed that older people scored higher, while adolescents and students showed lower levels of optimism and life satisfaction, confirming previous research.[39] Bozkurt and Aytaç[40] argue that the relationship between age and life satisfaction, which was U-shaped before the pandemic, changed after the epidemic, with the group most affected by the reduction in life satisfaction being those under 25 years of age. Gender is also an important variable that differentiates the experience of optimism and life satisfaction. The study showed that female subjects scored significantly lower than male subjects, which is in line with other studies.[41] As noted by Rostek,

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[39] A. Zayas, A. Merchán-Clavellino, J. A. López-Sánchez, R. Guil, *Confinement Situation of the Spanish Population during the Health Crisis of COVID-19: Resilience Mediation Process in the Relationship of Dispositional Optimism and Psychological Well-Being*, "International Journal of Environmental Research and Public Health" 18 (2021); C. Wang, R. Pan, X. Wan, et al., *Immediate psychological responses and associated factors during the initial stage of the 2019 coronavirus disease (COVID-19) epidemic among the general population in China*, "International Journal of Environmental Research and Public Health" 17/5 (2020).

[40] V. Bozkurt, S. Aytaç, *Life satisfaction and happiness during the pandemic period*, in: H. Gülerce, V. Nimehchisalem, V. Bozkurt, G. Dawes, S. Rafik-Galea (ed.), *Society in the covid-19 pandemic: inequalities, challenges, and opportunities*, Ankara 2021: Pegem Akademi.

[41] C. Wang, R. Pan, X. Wan, et al., *Immediate psychological responses and associated factors during the initial stage of the 2019 coronavirus disease (COVID-19) epidemic among the general population in China*, "International Journal of Environmental Research and Public Health" 17/5 (2020); S. X. Zhang, Y. Wang, A. Rauch et al., *Unprecedented disruption of lives and work: health, distress and life satisfaction of working adults in China one month into the COVID-19 outbreak*, "Psychiatry Research" 288 (2020); A. M. Rogowska, C. Kuśnierz, A. Bokszczanin, *Examining Anxiety, Life Satisfaction, General Health, Stress and Coping Styles During COVID-19 Pandemic in a Polish Sample of University Students*, "Psychology Research and Behavior Management"

Twardowska-Staszek, Biel[42], the social responsibility felt by women is a source of weakness and strength at the same time. Caring for loved ones, taking on the burden of teaching children, performing professional duties in the medical and caring professions, depletes resources, but is at the same time a source of meaning and provides an opportunity to cope constructively with the uncertainty of a pandemic tomorrow.

Higher levels of optimism and life satisfaction were also reported by married people with children. Our study is consistent with the results of other studies.[43] These variables become a guarantee of stability in stressful situations. The support of loved ones certainly becomes a buffer to reduce loneliness and provides a sense of being needed by the partner and children.

Finally, those with higher education and full-time employment have higher levels of optimism and life satisfaction. Both higher education and permanent employment provide the opportunity to face the current situation more calmly and to look more optimistically to the future.[44] These people tend to be more affluent and have greater financial reserves, enabling them to cope better with the threat of a growing economic crisis, inflation or rising prices of basic necessities of life.

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13 (2020); D. Krok, B. Zarzycka, E. Telka, *Risk of contracting COVID-19, personal resources and subjective well-being among healthcare workers: the mediating role of stress and meaning-making*. "Journal of Clinical Medicine" 10 (2021); J. Dymecka, R. Gerymski, A. Machnik-Czerwik, *Fear of COVID-19 as a buffer in the relationship between perceived stress and life satisfaction in the Polish population at the beginning of the global pandemic*, "Health Psychology Report" 9 (2021); V. Bozkurt, S. Aytaç, *Life satisfaction and happiness during the pandemic period*, in: H. Gülerce, V. Nimehchisalem, V. Bozkurt, G. Dawes, S. Rafik-Galea (ed.), *Society in the covid-19 pandemic: inequalities, challenges, and opportunities*, Ankara 2021: Pegem Akademi.

[42] I. Rostek, E. Twardowska-Staszek, K. Biel, *All Quiet on the Covid-19 Front – psychological wellbeing of women in Poland during the second and fourth wave of the pandemic*, "Archives of Women's Mental Health" (in press).

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[44] R. Preetz, A. Filser, A. Brömmelhaus, T. Baalmann, M. Feldhaus, *Longitudinal Changes in Life Satisfaction and Mental Health in Emerging Adulthood During the COVID-19 Pandemic. Risk and Protective Factors*, "Emerging Adulthood" 9/5 (2021).

Current research confirms that optimism and life satisfaction are important protective factors in situations of severe stress, ongoing social isolation and pandemic-induced uncertainty about the future. Positive interpersonal relationships, stable relationships, having children and stable employment provide a basis for mutual support and a positive attitude towards the future, which increases levels of life wellbeing. Our research confirms that resources such as marriage, having children, good education and stable work form the foundation of a person's psychological wellbeing and become a guarantee for coping with difficult life situations that, as in the case of a pandemic, fall on a person unexpectedly and require resilience and a sustainable foundation. The foundation of education in times of pandemic therefore becomes the promotion of family values, the fostering of the intellectual development of children and young people, and the teaching of a responsible approach to work. This is because these elements set the perspective for taking future-oriented action and avoiding past-oriented claiming behaviour. This is confirmed by the research of Dennis and colleagues.[45] They find that people who undertook a future-oriented or present-oriented intervention showed significantly higher levels of social wellbeing than those whose action was motivated by looking to the past. During the long isolation caused by the pandemic, there is more benefit to wellbeing from focusing on the present or future, which is related to the demographic factors outlined above.

At this point it is important to address some of the limitations of the research conducted. The analyses are based on cross-sectional data obtained using the self-report method, also the study group is not representative. Future research may focus on longitudinal studies, and include a specific study group and more data collection methods.

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