

INVESTIGATING THE IMPACT OF CORONAVIRUS – RELATED ISOLATION ON THE QUALITY OF LIFE, INCLUDING THE QUALITY OF STUDY, OF STUDENTS AT THE SILESIAN UNIVERSITY OF TECHNOLOGY

Patrycja KWOSEK^{1*}, Sandra HAUSMANN², Viktoria BARUCHA³,
Gabriela MOCZYDŁOWSKA⁴, Grzegorz NIEKRASZ⁵

¹ Wydział Organizacji i Zarządzania, Zabrze, Katedra Zarządzania i Logistyki; patruc565@student.polsl.pl,
ORCID: 0000-0002-0326-3426

² Wydział Organizacji i Zarządzania, Zabrze, Katedra Zarządzania i Logistyki; sandhau642@student.polsl.pl

³ Wydział Organizacji i Zarządzania, Zabrze, Katedra Zarządzania i Logistyki; viktbar508@student.polsl.pl

⁴ Wydział Organizacji i Zarządzania, Zabrze, Katedra Zarządzania i Logistyki; gabrmoc937@student.polsl.pl

⁵ Wydział Organizacji i Zarządzania, Zabrze, Katedra Zarządzania i Logistyki; grzenie484@student.polsl.pl

* Correspondence author

Purpose: The aim of the article is to present the influence of isolation associated with coronavirus on the quality of life, including the quality of studying, of students of selected faculties of Silesian University of Technology.

Design/methodology/approach: The study was conducted remotely using a web-based survey questionnaire. A diagnostic survey method was used to survey students. The research topics are related to the quality of life of students, based on the current epidemiological situation and other studies conducted related to aspects of quality of life.

Findings: The study found that the epidemic had a significant impact on the functioning of students in their personal and academic lives. The study revealed that there are many problems related to the quality of life of students during the study period.

Social implications: This study will help to notice students' problems during remote learning, deterioration of interpersonal contacts and deterioration of well-being and life satisfaction, as well as a decline in the level of teaching.

Originality/value: The study indicates that distance learning is not a good form of education, and isolation at home has a negative impact on proper functioning in the modern world.

Keywords: Quality of life, pandemic, study, research, isolation.

Category of the paper: research paper.

1. Introduction

In the 21st century, a time of developing technology and pace of life, no one expected what took over the whole world in 2020. The coronavirus epidemic took everyone by surprise while changing everyone's daily life. Citizens were involuntarily ordered to limit their activities and interpersonal contacts, organization of education, work or economy. Many restrictions were imposed on the life of every citizen, which changed the daily habits and customs of every individual. All elements of daily and professional life had to be transferred to the domestic space. Everyday life for many people has strongly changed. The main area of life became one's own home. It was where everyone had to spend most of their day. Home became a kind of work, school and university. It was at home that the most necessary professional and educational activities were performed remotely. Basic activities such as shopping and entertainment were replaced by remote forms. The society felt a kind of routine connected with staying in one place and with the same people. This involved a change in the behavior of individual family members or tenants living together. This could cause discomfort, unnecessary conflict and irritability.

The idea and concept of the study on the impact of isolation on the quality of life of students was developed by the main supervisor of the project, Dr. Mariusz Ligarski, Professor of Silesian University of Technology. Research topics, analyzed articles on quality of life, the current epidemiological situation, and my own experiences inspired me to find out what students think, to create a questionnaire, and to write this article. The research problem was the isolation of the students, which resulted in a change in the way they studied. Three most important questions were posed, aiming to present the current situation in which the students of the faculties find themselves:

The questions posed were:

1. How did isolation affect the quality of daily life of students at the Silesian University of Technology during the coronavirus outbreak?
2. How did isolation affect the quality of remote studying during the coronavirus epidemic?
3. How did studying change during the SARS-CoV-2 epidemic?

The search for answers to the formulated research questions involved conducting surveys.

2. Literature study – defining quality of life

The coronavirus pandemic has recently affected students' quality of life and quality of study. According to Cz. Bywalec's definition, quality of life is: "The degree of a person's (society's) satisfaction with the totality of his or her existence" (Bywalec, 2010, p. 42). Referring to

Cz. Bywalec's definition, quality of life is the joy of enjoying life and fulfilling one's expectations and goals. Every human being achieves his/her satisfaction from the actions taken and lower and higher order needs satisfied. In the present time, lower-order needs do not play the role of necessary for survival, but have become the dominant element of a sense of security and proper functioning for a human being. The first to describe human needs was Maslow, who created a pyramid representing a hierarchy of human needs (Griffin, 2017). Those at the bottom of the pyramid during the coronavirus outbreak became the most important. For people, satisfying physiological needs and those related to their and their family's safety became a priority. Needs that are at the top of the pyramid, i.e., needs of belonging connected with friendship, recognition, respect or self-fulfillment in the time of the epidemic have been suppressed by fear and anxiety of danger for health and life. The coronavirus pandemic aroused in people a greater interest in the need for security, including stability of employment and physiological needs, i.e., adequate remuneration, possibility of rest as well as relations with loved ones. Restrictions and prohibitions are not conducive to satisfying needs of both lower and higher order. In the current situation we are dealing with an extraordinary phenomenon since the freedom achieved in the 21st century. We are dealing only with adaptation to the existing rules, where needs do not play a superior role. The definition found in the textbook of macroeconomics by E. Skawińska, K.G. Sobiech-Grabka, K.A. Nawrot from 2010 refers to sustainable development and reads as follows: "Referring to sustainable development, the essence of the quality of human life is also emphasized, which can be defined as the formation of appropriate proportions in the generation, satisfaction and ways of realization of economic, social, natural and spiritual needs of a human being with the preservation of the criterion functions of the moral sphere" (Skawińska et al., 2010, p. 132). It draws attention to the important role of the quality of human life by shaping it in various aspects and proportions, i.e. generating economic, natural, social, spiritual needs and ways of their satisfaction and realization. The criterion function of the moral sphere must be preserved here (Skawińska et al., 2010). Nevertheless, the quality of human life can be defined in two categories. The first one concerns the general quality of life, which refers to the personal, family, social and worldview spheres. The second one concerns the quality of life at work, which refers to the spheres i.e. occupational, where a person works and where a person spends his time (Zemigala, 2008). The second sphere of quality refers to work. In relation to students, studying can be considered as work because students do a specific job at the university and spend a lot of their time there. There are three layers in the hierarchy of quality of life, they are hubris, satisfaction, pleasure (Zemigala, 2008). Table 1 shows the characteristics of each of them.

Table 1.
Quality of life layers with their characteristics

Layer	Characteristics
Hubris	<ul style="list-style-type: none"> ● deep ● stable ● least reactive ● appreciation of self ● ability to adapt to the environment ● sense of security ● protection from anxiety and depression
Satisfaction	<ul style="list-style-type: none"> ● Feelings related to emotions ● Sense of newness ● Sense of Achievement ● Forward Movement ● Commitment ● Concentration
Pleasure	<ul style="list-style-type: none"> ● Sensitivity to external factors ● Sense of satisfaction ● A sense of transient

Source: Żemigala, M. (2008). *Jakość w systemie zarządzania przedsiębiorstwem*. Warszawa: Placet, p. 16.

Table 1 shows the three layers of quality of life. Hubris refers to sustained well-being and satisfaction with life, which enables a continuous positive attitude towards the world even during adverse conditions such as an epidemic. Satisfaction refers to the realization of expectations and needs that go beyond what was previously planned, but also to achieving more than was previously expected. Pleasure is a fleeting feeling that does not require concentration of the mind and also does not require engaging energy concerning human psyche (Zemigala, 2008). Hubris will help individuals to overcome the difficult situation associated with the epidemic, restrictions and limitations that have been put in place. It will allow for a better attitude towards the world around us and an improved mental state. Satisfaction will facilitate decision making in a constantly changing world. Both layers will add up to a pleasure that can be felt in focusing on specific goals and objectives rather than the restrictions and lack of freedom to which the community is subjected. All of these elements that affect the layers presented will come together to create a quality of life that is appropriate for each individual. According to the literature, there are six basic components of quality of life. Quality of life elements include:

- psychological quality of life,
- quality of somatic life,
- quality of family life,
- quality of life in the community,
- quality of functional life,
- habitat quality of life (Kolman, 1995).

3. Literature study – quality of life research

The literature that was helpful in exploring the topic of determinants of quality of life in college students was a doctoral dissertation that addresses various approaches in the study of quality of life. It pays attention to life satisfaction, sense of happiness or well-being of each individual. These aspects were helpful in creating the research questionnaire. This dissertation focused on academic youth, or the student group, which was also taken into consideration when creating the research design (Strózik, 2009). Quality of life was also examined in an article by K. Włodarczyk, which touched on various aspects and areas of life related to satisfaction with particular areas of everyday life i.e. health, professional work, future life prospects or financial situation. The survey also focused on the values that guide people and which are most important to them (Włodarczyk, 2015). Another piece of literature that was used to expand one's knowledge about quality of life was a paper on measuring quality of life at the local level. It addressed aspects of quality of life in the local area of a city, resident satisfaction, and public services (Blonski et al., 2017). Additional source material that was used to bring the topic of quality of life, however, in a national perspective, was the research developed by the Central Statistical Office of 2017 on the quality of life in Poland (CSO, 2017). In search of inspiration to diagnose the problem, English-language literature describing the psychology of quality of life was reached. It addresses topics such as psychological well-being, life satisfaction or well-being of children, adolescents and students. An important element of quality of life described in the literature, is health well-being responsible for the proper physical and mental functioning of the human body (Sirgy, 2012).

The epidemiological situation and interest in the topic of quality of life influenced the decision to conduct a study to determine the impact of pandemic-induced isolation on students' quality of life. In terms of examining quality of life during the coronavirus pandemic, studies related to daily life, work situation, behavior change, feelings, and public behavioral assessment were conducted (Drozdowski et al., 2020). During the outbreak, survey research was also conducted with Krakow students. This research was conducted by the Institute of Philosophy and Sociology of the Pedagogical University of the National Education Commission in Krakow. They concerned the situation of the threat of coronavirus pandemic. The article dealt with the subject of interest in the SARS-COV-2 pandemic, evaluation of activities carried out to prevent the development of the epidemic. It also analyzed the psychosomatic condition of students as well as life in the digital world (Długosz, 2020).

4. Methodology of the study

The study conducted by a project team of students from the Faculty of Organization and Management of the Silesian University of Technology in Zabrze was aimed at investigating the impact of isolation on students of the Silesian University of Technology. The study began in the second wave of the COVID-19 epidemic announced in Poland during the autumn-winter period. Three pre-selected faculties were studied:

- Organization and Management.
- Mechanical Engineering Technology.
- Biomedical Engineering.

This publication describes the results from a study conducted for the period March-June 2020. The study was conducted using a survey questionnaire created in Google Forms. A CAWI method was used to obtain the results quickly, direct access to the results, and an electronic form. Electronic delivery of the survey was the only way possible in the current remote study situation. The questions concerned the degree of social isolation in particular areas, discomfort due to the pandemic, social contacts (students, family, friends), changes in the way of studying (remote, stationary), motivation to study, habits formed during the epidemic, health (physical and mental), living conditions or leisure time outside the university, and restrictions on freedom and reactions to the restrictions introduced. The questionnaire was distributed in social media on groups associating students of the Silesian University of Technology. The sample that was established was 1000 questionnaires, of which 500 from the Faculty of Organization and Management and 500 from the Faculty of Biomedical Engineering and the Faculty of Mechanical Engineering and Technology. In this way, the team received 265 feedback responses of which 50.2% were received from the Department of Organization and Management, 38.9% from the Department of Mechanical Engineering Technology, and 10.9% from the Department of Biomedical Engineering. The survey allowed us to show how the students reacted to the changes related to the introduced restrictions in their environment, in important aspects of their everyday life, i.e. studies, health, free time, work, shopping, and entertainment.

5. Discussion of the collected data

In the conducted research 265 people took part. Thanks to the answers given by the respondents, a picture of the quality of life of a student of the Silesian University of Technology in the current times was formed. The respondents gave answers to all the questions posed to them. Thanks to these answers, the final results for the analysis were obtained. First, respondents were asked how the social isolation associated with the epidemic affected the quality of each area of their lives. The following areas of students' lives were considered:

- college,
- social relationships,
- health,
- psychological well-being,
- living conditions.

The spheres listed in question one are elementary parts of everyone's life. Respondents indicated that the epidemic had a negative impact in four of the five listed spheres of life. In the given question there is a predominant answer that the epidemiological situation had a negative impact in the majority of respondents, on the quality of life in the sphere of: university, social relations and psychological well-being. In the sphere defined as "living conditions", 48% of the students surveyed indicated that the epidemic did not affect their quality of life in this area. On the other hand, regarding the positive impact on students' quality of life, it varied between 8% and 21% in each part of life. With the answers obtained, it can be concluded that the epidemic, had no impact or a negative impact on the health of more than half of the students. This may be related to the lack of physical activity caused by spending most of the time in front of the computer. The negative impact on the sphere of life that is the university, may also have negative effects in the future in the education of students. The university is an important part of every student's life, so the damage to the quality of studying is a very serious downside. The negative impact also prevailed in the answers concerning the social relations zone. By the restrictions introduced, the group contact between students was reduced and the way of communication changed. Responses to the question of how the social isolation associated with the epidemic affected the different areas of the respondents' lives are shown in Figure 1.

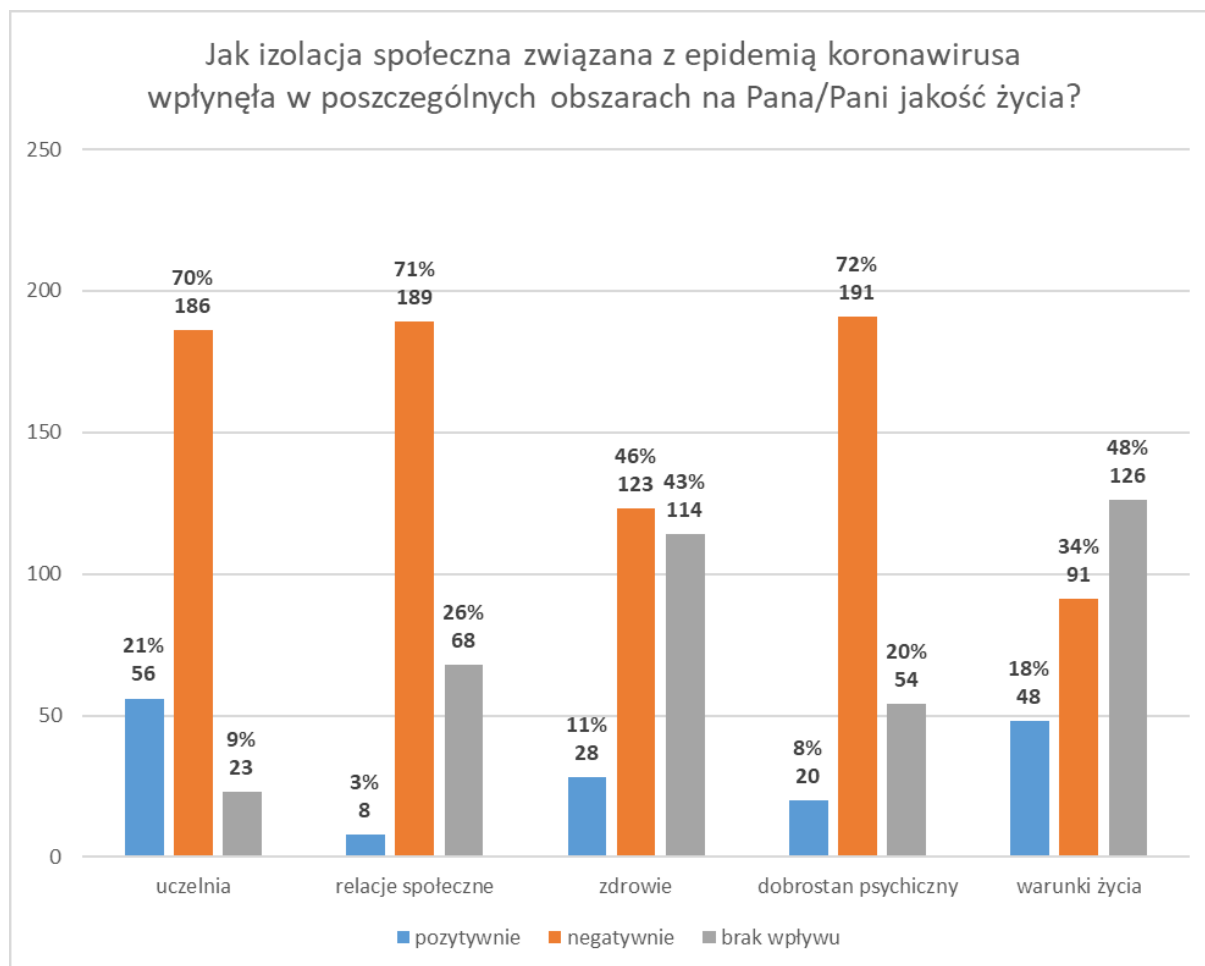


Figure 1. The influence of isolation on particular areas of life. Source: own study based on primary data.

Another topic that was addressed in the survey was the issue of contact between students. The project group asked whether the respondents felt uncomfortable about having to limit contact with other students. The responses given to this question are presented in Figure 2. From the students' responses, it was found that 75% felt uncomfortable about having to limit contact with other students. While 25% of all respondents did not feel this discomfort. Interaction with other people is a very important part of everyone's life. So far, students during breaks have had the opportunity to talk to each other touching on topics of private life, as well as topics related to university life exchanging experiences and problems. When attending the university as a full-time student, students had the opportunity to integrate and talk with the rest of the group. Due to the current situation the students stopped seeing each other and meeting each other because of the restrictions. Because of this, the contact between students began to deteriorate. Many did not socialize outside of the university. Contacts for social purposes were reduced and focused only on university related purposes. Because of this, connections within the student group diminished and narrowed to only smaller project groups. Long-term deficiency of human contact can lead to mental problems such as depression.

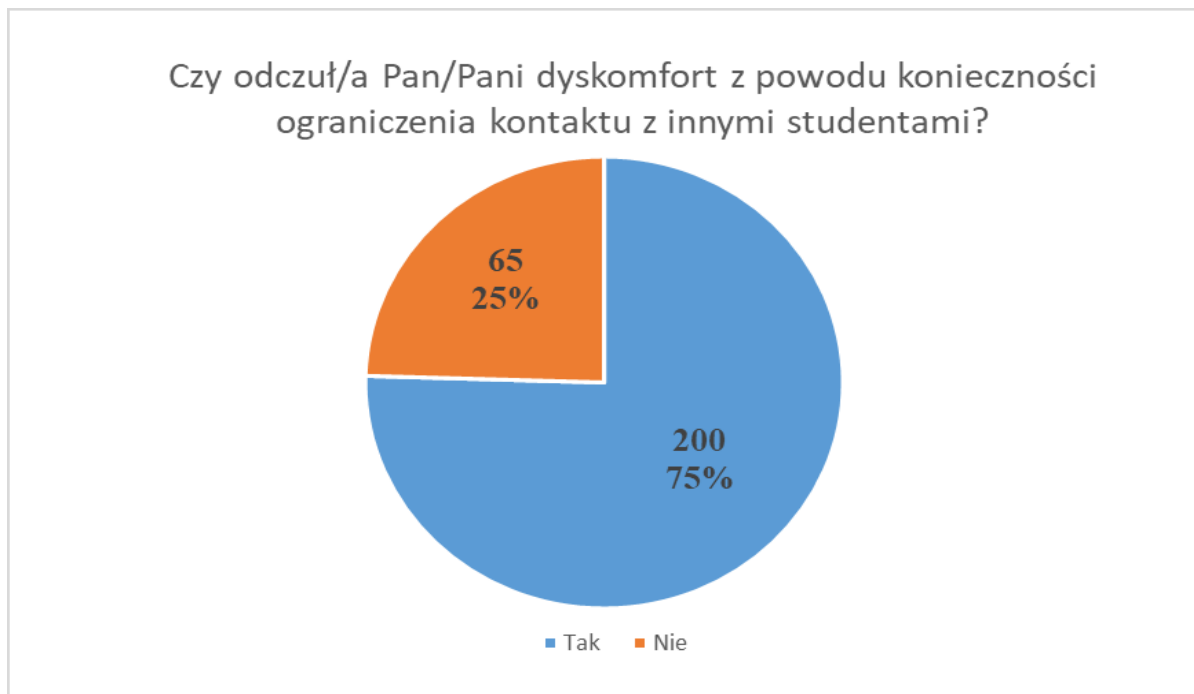


Figure 2. Discomfort with restriction. Source: own elaboration based on primary data.

For the analysis in the topic of contacts, the question of whether they have changed during the study period was also selected. The answers to this question are presented in Figure 3. From the results presented, it can be concluded that 56% of the respondents indicated that contacts with the group worsened in the social area. On the other hand, 37% indicated that contacts deteriorated in the area of collaboration in studies. Such a response indicates that the students surveyed lack contacts with others in the social area. This underscores the fact that a student's life at university does not consist solely of learning. The university plays an important role in the lives of young people as a place where they meet their future friends and strengthen ties, as well as develop interpersonal skills.

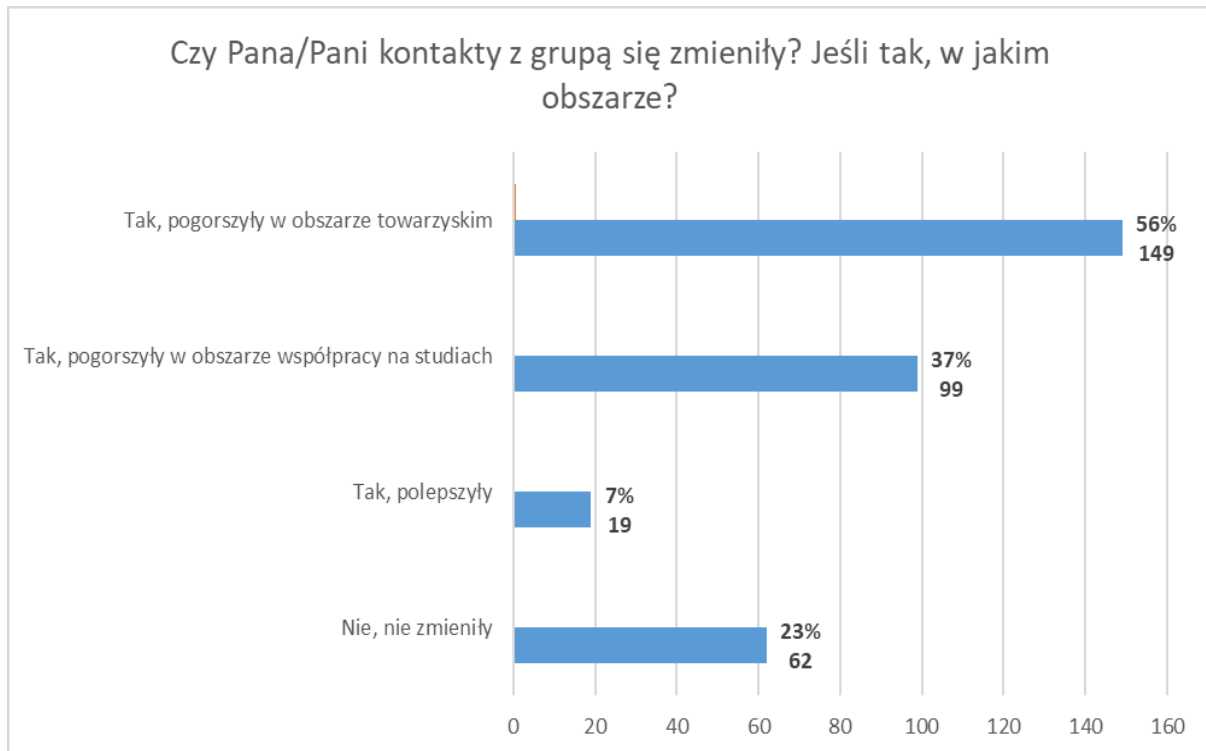


Figure 3. Contacts with the group. Source: own elaboration based on primary data.

Figure 4 and Figure 5 show the responses to the questions regarding the change in information transfer and remote contacts when transferring information. Factors that further became an issue for students during the outbreak and negatively impacted quality of life are presented. Reasons why students at 64% of the respondents felt uncomfortable with the reasons for the change in the main mode of transmission of information by lecturers include:

- Lack of information.
- Discomfort in receiving information.
- Under-information.
- Feelings of limited contact that prevented face-to-face conversations.
- Lack of care in communicating information.
- Problems in communication.

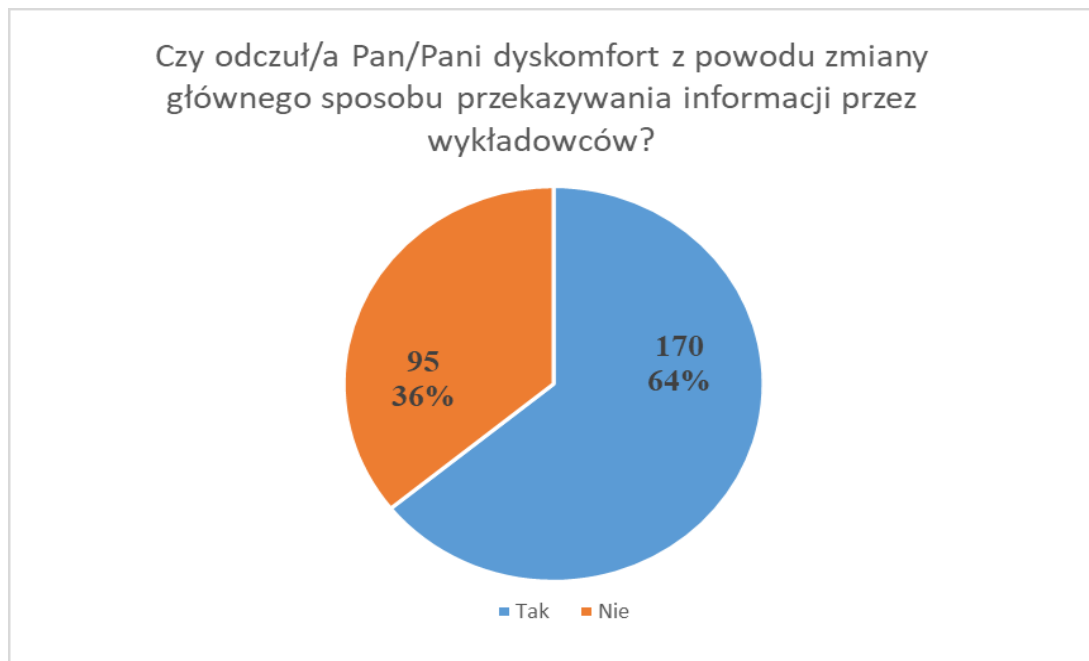


Figure 4. Discomfort with changing the way information is communicated. Source: own elaboration based on primary data.

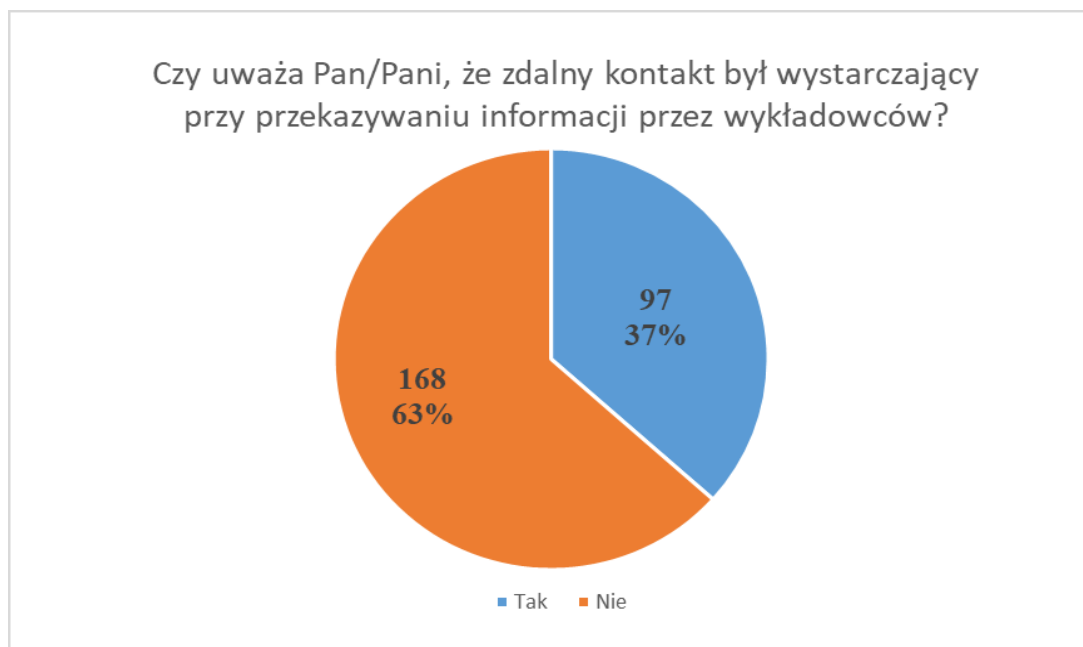


Figure 5. Remote contacts in transferring information. Source: own compilation based on primary data.

The epidemiological condition caused anxiety among the students regarding the next semesters. The results of the questionnaire are shown in Figure 6. After the first semester of distance learning, students were afraid about what the next semesters would be like. Fear is a very strong feeling that greatly affects people's quality of life, mainly their mental health.

Czy obawiał/a się Pan/Pani jak będą wyglądały kolejne semestry nauki?

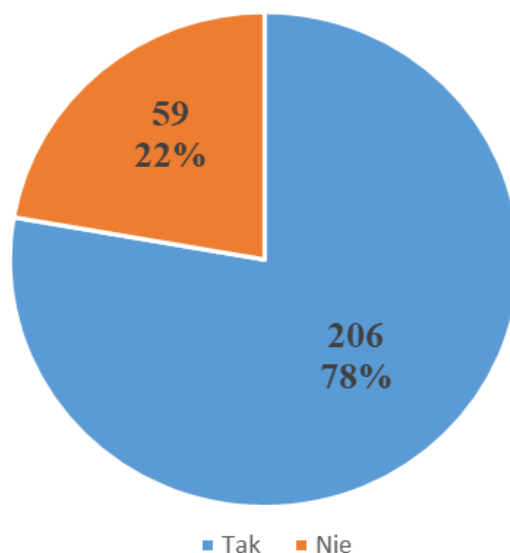


Figure 6. Concern about next semesters of study. Source: own study based on primary data.

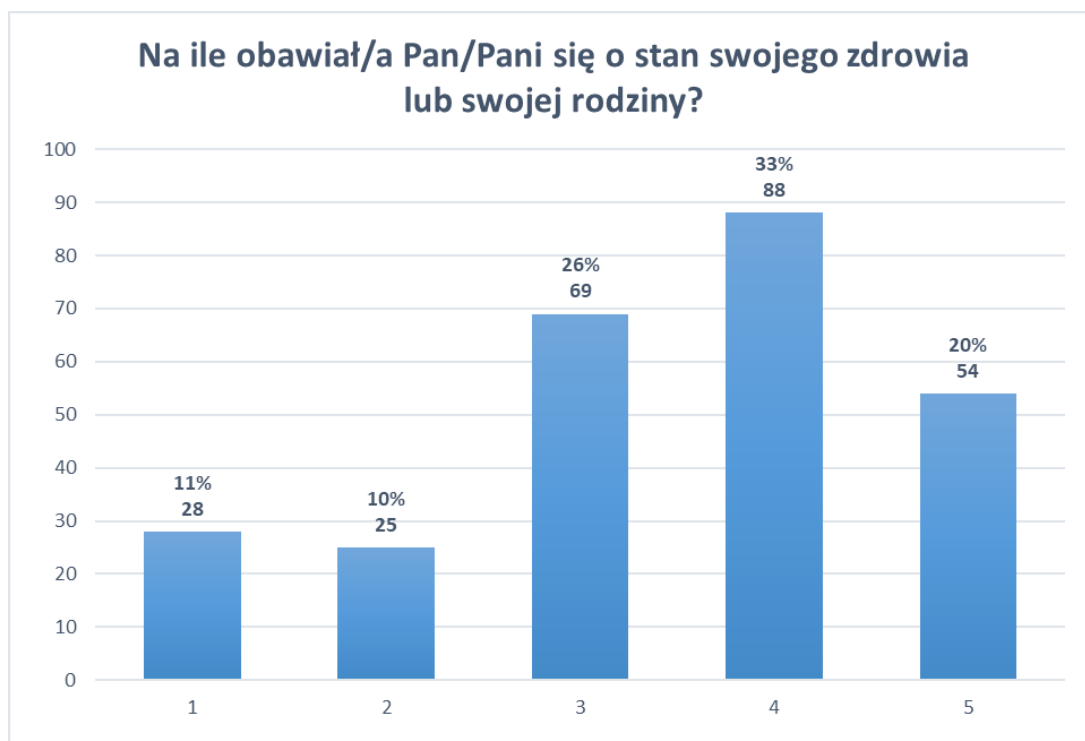


Figure 7. Concern about health. Source: own elaboration based on primary data.

Analyzing the results of the questionnaire, it can be seen that the fear of what college will be like next is not the only fear that students felt. Many of them also feared for their own and their family's health as shown in Figure 7. For the purpose of the survey, a scale was established where 1 meant very little and 5 meant very much. The results showed that 33% of those taking part in the study marked a 4 showing that they were worried about their loved ones during this period.

The study conducted analyzed the well-being and physical condition of the students. In this part of the survey, the respondents were asked to indicate the ailments they felt during the isolation. They also had the opportunity to add their own, which were not mentioned by the project group. All the answers given by the respondents are presented in Figure 8. Constant fatigue was indicated by as many as 64% of the students. It could have been caused by: a combination of homework and university duties, a lot of responsibilities at home, a lot of work for studies, a lot of news from mass media, increased hours of work at the computer. Among other complaints, 48% of the students manifested aversion to life and loneliness. These are factors that can lead to very serious mental illnesses. Due to the epidemiological situation, many people gave up their therapy with a psychologist or did not undertake it at the present time.

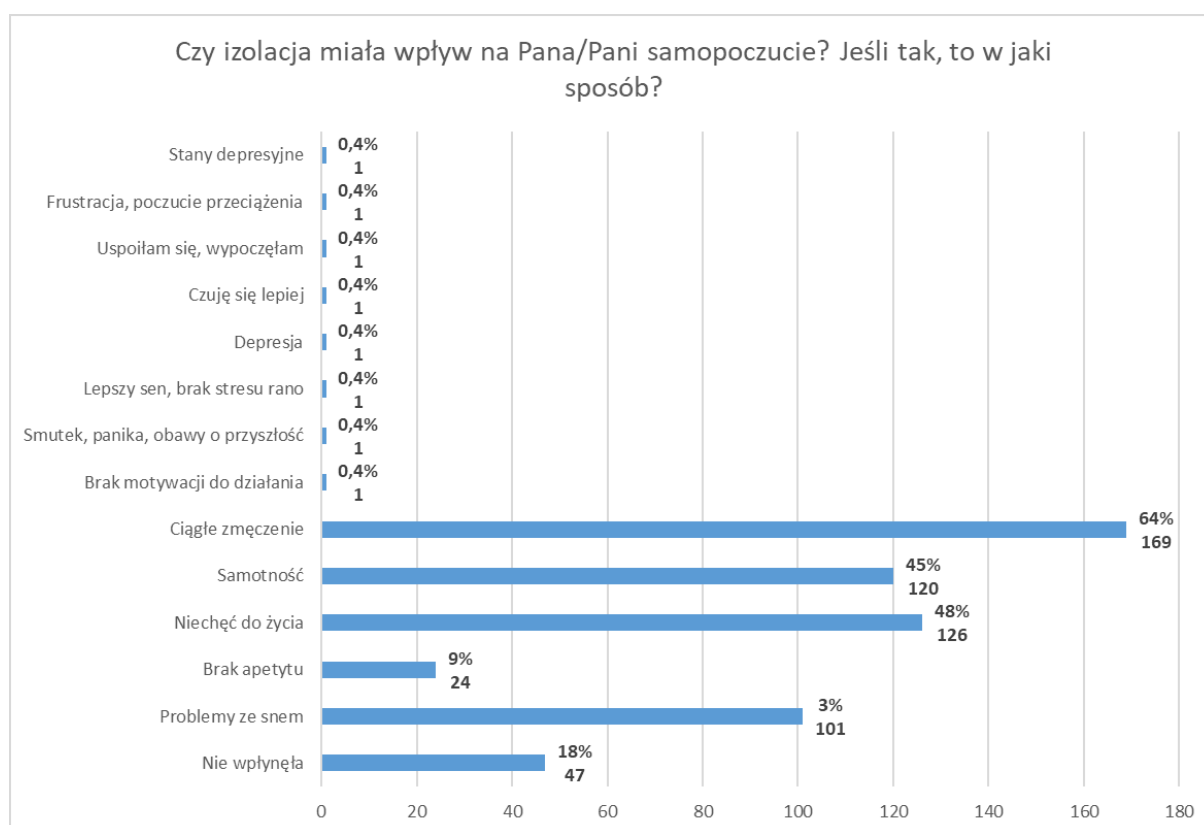


Figure 8. The impact of isolation on well-being. Source: own elaboration based on primary data.

Many have experienced physical ailments associated with studying at home that have compromised health and quality of life. The ailments mentioned are directly related to computer work. All aspects of studying have been moved to the home, and work with other students has been replaced with computer work. Due to the restriction of movement, i.e. restriction of activity caused by the necessity to go outside of the house, various health problems were created. Working long hours at a computer is not healthy for a person. Students often work in environments that are unsuitable and non-ergonomic for computer work. Unfortunately, many of these ailments may have consequences in the future (back and joint problems).

One year was enough time to form bad habits and related ailments. Information about the physical ailments experienced is shown in Figure 9.

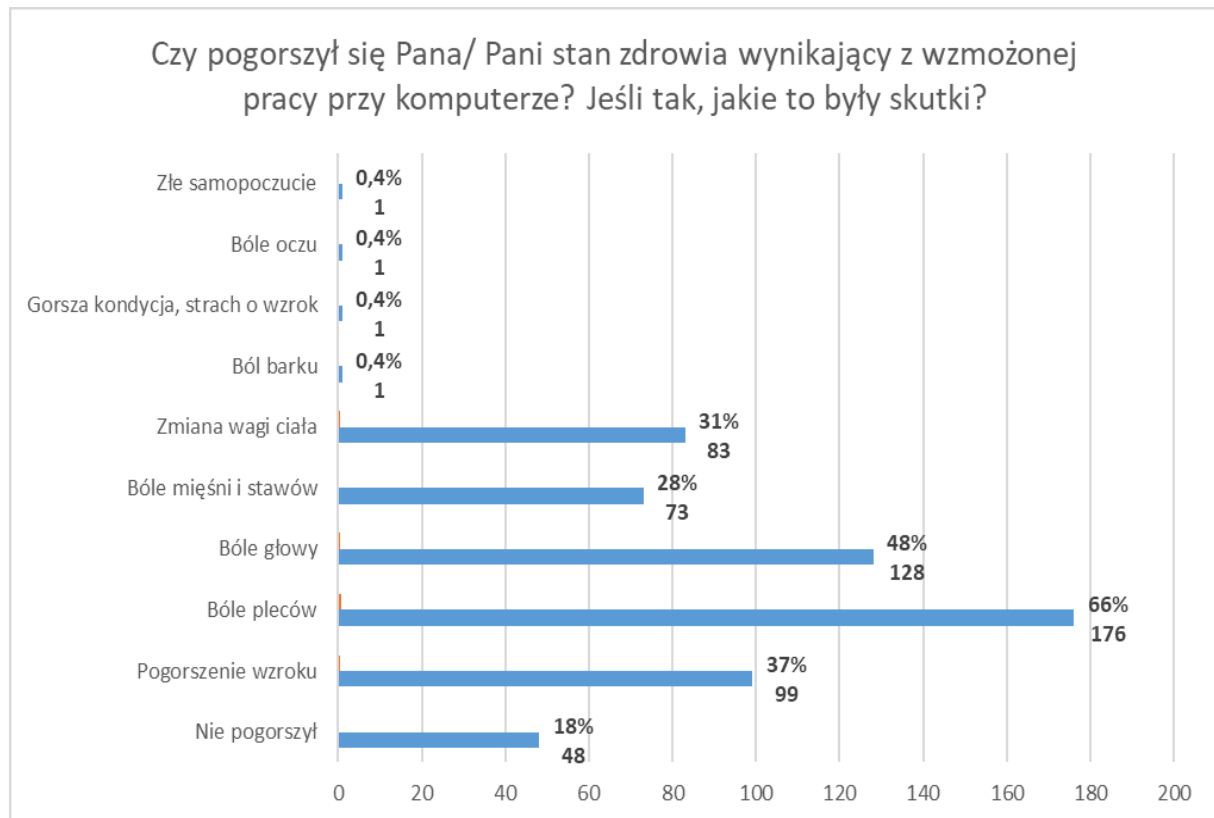


Figure 9. The impact of computer work on health. Source: own elaboration based on primary data.

6. Summary

The epidemiological situation has a very strong impact on everyone's life. The conducted research took into account the distinguished group of students, the details of studying and leisure time and the impact of the situation on the quality of life. Quality of life is a very important topic, so its areas maintained at an appropriate level contribute to the feeling of satisfaction. Quality of life is influenced by both tangible and intangible factors. This means that not everything a person needs is focused on having physical things. They are no substitute for the intangible values that contact and interaction with another person, for example, can give. The non-material and material spheres of life together form a unity and it is worth remembering to satisfy both in order to ensure the highest possible quality of life.

The current situation has had a negative impact on most spheres of the respondents' lives. In particular, it has badly affected people's social relations, their psychological well-being and the university. The university is a very important part of every student's life, so the reorganization of the way of studying has translated into a change in the perception of the

quality of life of the surveyed students. Those who conscientiously fulfill their university duties and obligations feel discomfort in receiving information. Misinformation, limited contact, lack of face-to-face conversation, and impediments to information have contributed to communication problems between students and faculty. Facilitating communication between the groups and eliminating the feeling of lack of information will reduce the current resentment and frustration of students towards studying as well as lecturers towards teaching. The resulting emotions can decrease students' motivation and commitment to their college responsibilities. Lack of organization and shortcomings in the created system for the time of remote learning, caused a lack of desire to study the studied group, which in the future may end up studying at the university earlier than planned.

The sphere of the university is not the only sphere where there have been problems recently. Social interactions have also suffered greatly. The surveyed group indicated discomfort felt due to reduced contact with other students and deterioration in social interactions. Socializing with other people is an important part of everyone's life. Lack of socialization opportunities can affect students' future lives and their interactions with other people.

Another aspect is the mental and physical health of the study group. Particularly affecting mental comfort was the perceived fear that the surveyed population indicated in a question related to further semesters of study. Many of the respondents were also worried about their job, which many students have (or about the possible lack of employment after graduation due to the current situation), as well as about the health of their loved ones.

The presented study of the research results showed that the isolation of students during the epidemic affected less e.g. in terms of living conditions, while more significantly e.g. in terms of university and social relations. The conducted research indicates the existence of many problems related to the quality of life of students during the studied period. The difficulties of the current state should not be underestimated. Both the university and the students themselves should consider how to increase the level of satisfaction with given aspects of life, which are currently perceived negatively.

The research conducted has not exhausted the topic of this article. There is still a state of pandemic in the country and the world which may prompt more research on isolation and remote studying. An interesting research related to the article could be a study showing the behavior and quality of studying in a stationary mode and its comparison with remote learning. Research could also be expanded on groups of respondents by examining lecturers and their views on remote learning. Finding out the opinions about the quality and level of students' knowledge and their interest in studying and engagement during classes.

The topic of epidemics, due to its intensity and duration, is a vexing problem of the modern world, so research in this area will be conducted and developed many more times.

References

1. Błoński, K., Burlita, A., Witek, J. (2017). *Pomiar jakości życia na poziomie lokalnym*. Szczecin: Uniwersytet Szczeciński.
2. Bywalec, Cz. (2010). *Konsumpcja a rozwój gospodarczy i społeczny*. Warszawa: C.H. Beck.
3. Długosz, P. (2020). *Krakowscy studenci w sytuacji zagrożenia pandemią koronawirusa. Raport z badań*. Kraków: Instytut Filozofii i Socjologii Uniwersytetu Pedagogicznego im. Komisji Edukacji Narodowej.
4. Drozdowski, R., Frąckowiak, M., Krajewski, M., Kubacka, M., Modrzyk, A., Rogowski, Ł., Rura, P., Stamm, A. (2020). *Życie codzienne w czasach pandemii. Raport z pierwszego etapu badań*. Poznań: Uniwersytet im. Adama Mickiewicza, Wydział Socjologii.
5. Główny Urząd Statystyczny (2017). *Jakość życia w Polsce*.
6. Griffin, R.W. (2017). *Podstawy zarządzania organizacjami*. Warszawa: PWN.
7. Kolman, R. (1995). *Poradnik o jakości dla praktyków*. Bydgoszcz: Oficyna Wydawnicza Ośrodka Postępu Organizacyjnego Sp. z o.o.
8. Sirgy, M.J. (2012). *The psychology of Quality of Life, Hedonic Well-Being, Life Satisfaction and Eudaimonia*. USA: Springer.
9. Skawińska, E., Sobiech-Grabka, K. G., Nawrot, K. A. (2010). *Makroekonomia. Teoretyczne i praktyczne aspekty gospodarki rynkowej*. Warszawa: PWE.
10. Strózik, T. (2009). *Uwarunkowania jakości życia młodzieży akademickiej. Rozprawa doktorska*. Poznań: Uniwersytet Ekonomiczny.
11. Włodarczyk, K. (2015). *Jakość życia postrzegana przez Polaków w XXI wieku*. Szczecin: Uniwersytet Szczeciński.
12. Żemigala, M. (2008). *Jakość w systemie zarządzania przedsiębiorstwie*. Warszawa: Placet.