

## Life satisfaction of nursing, midwifery and emergency medicine students during the COVID-19 pandemic

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### Abstract

**Introduction:** The COVID-19 pandemic has affected life satisfaction of students of medical and health science. The aim of this study was to assess the level of life satisfaction among undergraduate students of nursing, midwifery and emergency medicine during the COVID-19 and to evaluate the impact of adherence to COVID-19 disease prevention measures on their level of life satisfaction.

**Material and methods:** The study was conducted using a self-constructed questionnaire and a standardized psychological questionnaire, the Satisfaction with Life Scale, among students of nursing, midwifery and emergency medicine in the Pomeranian Voivodeship during the COVID-19 pandemic.

**Results:** A total of 37 men and 238 women participated in the study. The mean age of all students was 21.5 (SD±3.83, min-max 19-39). The number of 93% of respondents reported avoiding people who coughed and had a cold, and 85.5% avoided large gatherings. When it comes to 84% of the students, they were vaccinated. As far as 73% of the students are concerned, they estimated that they had a medium level of knowledge about SARS-CoV-2 infection. Most students had a low (39.3%) and medium (32.7%) level of life satisfaction. A total number of 28% of the students reported a high satisfaction with life. There was not evidence of the influence of gender, field of study, year of study and the preventive behaviours on their level of life satisfaction.

**Conclusions:** Most Polish students of nursing, midwifery and emergency medicine had a low and medium level of life satisfaction during the COVID-19 pandemic. Of the possible preventive behaviours, Polish students most often avoided people who coughed and had a cold, and they avoided large gatherings. Not all students registered for vaccination.

*Keywords:* students, life, COVID-19, personal satisfaction

### Streszczenie

**Wstęp:** Pandemia COVID-19 miała wpływ na satysfakcję z życia studentów kierunków medycznych i nauk o zdrowiu. Celem pracy była ocena stopnia satysfakcji z życia studentów studiów licencjackich kierunku pielęgniarstwa, położnictwa i ratownictwa medycznego oraz ocena wpływu przestrzegania przez nich zasad zapobiegania chorobie COVID-19 na stopień ich satysfakcji z życia.

**Materiał i metody:** Badanie przeprowadzono za pomocą kwestionariusza własnej konstrukcji oraz wystandaryzowanego kwestionariusza psychologicznego Skali Satysfakcji z Życia (*Satisfaction with Life Scale*, SWLS) u studentów pielęgniarstwa, położnictwa i ratownictwa medycznego w województwie pomorskim w czasie pandemii COVID-19.

**Dyskusja:** W badaniu wzięło udział 37 mężczyzn i 238 kobiet. Średnia wieku wszystkich studentów wyniosła 21.5 roku (SD±3,83, min-max 19-39). Dziewięćdziesiąt trzy procent ankietowanych stwierdziło, że unikało ludzi, którzy kaszlą i są przeziębieni, a 85.5% unikało miejsc, w których gromadzi się duża liczba ludzi. 84% studentów zgłosiło się na szczepienia. 73% studentów oceniło, że posiada średni poziom wiedzy na temat zakażenia wirusem SARS-CoV-2. Większość studentów miała niski (39.3%) i średni (32.7%) stopień satysfakcji z życia w czasie pandemii COVID-19. 28% studentów odczuwało wysoką satysfakcję z życia. Nie wykazano wpływu płci, kierunku studiów, roku studiów oraz przestrzegania zachowań profilaktycznych na stopień

satysfakcji z życia.

**Wnioski:** Większość polskich studentów pielęgniarstwa, położnictwa i ratownictwa medycznego miała niski i średni stopień satysfakcji z życia w czasie pandemii COVID-19. Spośród możliwych zachowań profilaktycznych polscy studenci najczęściej unikali kaszlących i przeziębionych ludzi oraz miejsc w których gromadzi się duża liczba ludzi. Nie wszyscy studenci zgłosili się na szczepienia.

*Słowa kluczowe:* studenci, życie, COVID-19, satysfakcja osobista

## Introduction

Acute respiratory disease, COVID-19, caused by SARS-CoV-2 virus, is highly contagious [1, 2].

According to the World Health Organization (WHO) data published on January 5, 2022, there were 293 750 692 confirmed cases and 5 454 131 deaths attributed to the virus globally. In Poland, there were 4 162 715 patients that proved ill along with 98 666 patients who died. By January 5, 2022, a total of 9 118 223 397 doses of vaccine were administered worldwide [3].

In Poland, as in other countries, the outbreak of the pandemic resulted in many restrictions being placed on the daily lives of the population, which affected public gatherings, social and medical services, and people's mobility and travel.

Quarantining people potentially at risk from infection was one of means of fighting the highly contagious COVID-19 disease. The aim of general quarantine was to limit contacts between people and minimizing the risk of cross infection. The complete isolation for a period of minimum 14 days was particularly difficult and gruelling on social life.

Many people found it challenging to abide by the restrictions. The negative psychological effects of quarantining usually included confusion, anger and an adaptive reaction of anxiety and depression in the general population. A longer duration of quarantine increased stress related to fear of infection and insufficient supplies or support. The most common psychological and behavioural reactions to quarantine and isolation were irritability, nervousness, frustration, emotional disturbance, sadness, guilt, exhaustion, boredom, insomnia, poor concentration and indecision, poor performance at work and financial problems. Major changes in lifestyle and daily habits, such as frequent washing hands, the use of face masks in confined spaces, not touching one's face, nose and eyes with one's hands; and maintaining social distance, were necessary to avoid infection. Unfortunately, all these changes had a significant influence on the development of various mental disorders [4-6].

Many countries allowed the students of medical and health sciences to work in medical centres during the

COVID-19 era. During that time the medical personnel and students of medical and health sciences, who cared for infected patients, were exposed to stress, high pressures at work and, as the study shows, were exposed to increased anxiety and experienced depression as well as reduced life satisfaction.

The aim of this study was to assess the level of life satisfaction among undergraduate students of nursing, midwifery and emergency medicine during the COVID-19 and to evaluate the impact of adherence to COVID-19 disease prevention measures on their level of life satisfaction.

## Material and methods

### Participants and study design

The survey was conducted during the period of general restrictions related to COVID-19, from April 2021 to June 2021.

The survey was conducted at all medical universities in the Pomeranian region.

The participants were full-time undergraduate nursing, midwifery or emergency medicine students who volunteered for this study.

The participants of this study also participated in a study about knowledge, attitudes, behaviours and actions among Faculty of Health Sciences Students [7].

### Data collection and questionnaires

The study was conducted with the use of a self-constructed questionnaire and a standardized psychological questionnaire the Satisfaction with Life Scale (SWLS) created by Diener, Emmons, Larsen and Griffin from the Department of Psychology at the University of Illinois (adapted to Polish conditions by Z. Juczyński) [8, 9]. The questionnaire SWLS created by Diener, Emmons, Larsen and Griffin was used in different study [10].

### *The self-constructed questionnaire*

The questionnaire provided the participants with information regarding the study, an invitation to participate, questions on sociodemographic data (gender, field of study, academic level), possible preventive

behaviours (avoiding meetings, avoiding crowded places, avoiding visits to closed areas where they would be at risk of infection, avoiding the use of public transportation, avoiding people with symptoms of respiratory tract infections, hand washing, disinfection of items that are touched frequently (e.g., door handles and other surfaces). Additionally, it included information regarding the infection, preventing measures and a question enabling the self-assessment of participants' knowledge of SARS-CoV-2 infection.

#### *Satisfaction with Life Scale (SWLS)*

The SWLS contains five statements: 1. In most ways my life is close to my ideal. 2. The conditions of my life are excellent. 3. I am satisfied with my life. 4. Thus far, I have gotten the important things I want in life. 5. If I could live my life over, I would change almost nothing [8, 10].

Each student participating in the survey indicated to what extent each statement related to his or her current life situation. Each statement can be scored from 1 to 7, where 1 means definitely not in agreement with the statement given, and 7 means strongly in agreement with the statement given. Cronbach's alpha for the original version of the scale was 0.87 [8, 10]. The total SWLS score is calculated as the sum of all five items. The students' scores were calculated.

The result of the assessment indicates the level of satisfaction with one's own life. The results range from 5 to 35 points. This is a raw result. The higher the score, the higher the subject's sense of satisfaction with life [8, 10].

Raw scores were transformed into standard units on the sten scale. Properties characterizing the sten scale should be observed when interpreting the results. The results within 1-4 stens are considered low, and those within 7-10 are considered high. The results between 5 and 6 are considered medium [8, 10].

The electronic version of the Satisfaction with Life Scale was used with the permission of the Psychological Test Laboratory of the Polish Psychological Association.

The data were obtained using an online psychological survey and questionnaire created in Google forms. A link to the survey and to the questionnaire was sent to all students via emails. The survey was anonymous.

#### **Statistical Methods**

For each parameter mean (X), median (M), standard deviation (SD, range (min, max), lower and upper quartile (25Q, 75Q) were calculated. Statistical significance between means for different groups was calculated by one-way analysis of variance (ANOVA), alternatively using the non-parametrical U Mann-Whitney test (for two groups) or Kruskal-Wallis test (for more than two groups), when the variances in groups were not homogeneous (the

homogeneity of variance was determined by the Levene's test).

Statistical significance between frequencies was calculated by the chi-square test  $\chi^2_{df}$  with corresponding degree of freedom df ( $df=(m-1)*(n-1)$ , where m – number of rows, n – number of columns).

A p value of less than 0.05 was required to reject the null hypothesis. Statistical analysis was performed using EPIINFO Ver. 7.2.3.1 and Statistica Ver. 13.3. software packages.

#### **Ethical consideration**

The study was conducted according to the guidelines of the Declaration of Helsinki and approved by the each individual University and by Independent Bioethics Committee for Scientific Research at the Medical University of Gdansk (protocol code NKBBN/364/2021, date of acceptance—31 March 2021).

#### **Results**

##### *Characteristics of the students*

A total number of 275 students took part in the study, including 37 men and 238 women. The average age of all participants was 21.5 (SD±3.83, min-max 19-39).

The control group in the Pomeranian region consisted of 623 nursing students, 139 midwifery students, and 102 emergency medicine students. One hundred and seventy five nursing students (63.5%), sixty midwifery students (22%), and forty (14.5%) emergency medicine students responded to the survey. The number of 97 students who participated in the study were in their first year, 88 students were in their second year and 90 students were in their third year.

When it comes to 93% of respondents, they reported avoiding people with symptoms of respiratory tract infections, whereas 85.5% avoided large gatherings. A total of 85.5% of students washed their hands more often than usual, 85% explained to their families and friends the ways and means of preventing COVID-19 disease, 77.5% limited their visits to closed areas and 59% limited their use of public transportation. As few as 53% of the students increased their frequency of washing hands and started disinfecting items that they frequently came into contact with. Only 41% of the students stated they avoided meeting friends. Only 84% of the students were vaccinated.

A total of 73% of the participants assessed themselves as having a medium level of knowledge about SARS-CoV-2 infection. Only 19% of the students reported high levels of knowledge and 7% of them reported low level of knowledge.

**Life satisfaction**

The results of the SWLS for individual students were thoroughly analysed and presented in Table 1.

Table 1. Students' responses to the statements of the satisfaction with life scale

Answer Statement	Strongly disagree	Disagree	Slightly disagree	Neither agree nor disagree	Slightly agree	Agree	Strongly agree
In most ways my life is close to my ideal.	35 (12.7%)	49 (17.8%)	48 (17.5%)	73 (26.6%)	47 (17.1%)	21 (7.6%)	2 (0.7%)
The conditions of my life are excellent.	18 (6.6%)	41 (14.9%)	37 (13.5%)	48 (17.5%)	87 (31.6%)	30 (10.9%)	14 (5%)
I am satisfied with my life.	13 (4.7%)	29 (10.6%)	27 (9.8%)	30 (10.9%)	90 (32.7%)	64 (23.3%)	22 (8%)
Thus far, I have gotten the important things I want in life.	20 (7.3%)	53 (19.3%)	41 (14.9%)	72 (26.2%)	63 (22.9%)	24 (8.7%)	2 (0.7%)
If I could live my life over, I would change almost nothing.	50 (18.2%)	50 (18.2%)	39 (14.2%)	53 (19.3%)	48 (17.5%)	25 (9%)	10 (3.6%)

The average raw score and sten score of students' answers to statements of the SWLS psychological questionnaire were 19.2 and 5.06, respectively (raw score: SD±6.3, min-max 5-35; sten score: SD ±2.15, min-max 1-10).

The distribution of the students' responses to the SWLS is presented in Table 2.

Only 28% of students felt a high satisfaction with life.

Table 2. Results of the Satisfaction with Life Scale for students of nursing, midwifery and emergency medicine

Life satisfaction level	Sten score (raw score)	N (%)	Level of satisfaction with life in respondents
Low	1 (5-9)	18 (6.6%)	39.3%
	2 (10-11)	19 (6.9%)	
	3 (12-14)	33 (12%)	
	4 (15-17)	38 (13.8%)	
Medium	5 (18-20)	41 (14.9%)	32.7%
	6 (21-23)	49 (17.8%)	
High	7 (24-26)	49 (17.8%)	28%
	8 (27-28)	14 (5.1%)	
	9 (29-30)	9 (3.3%)	
	10 (31-35)	5 (1.8%)	

**Influence of various factors on satisfaction with life**

There was no evidence of the influence of gender (raw score  $p=0.676$ , sten score  $p=0.725$ ), field of study (raw score  $p=0.957$ , sten score  $p=0.950$ ) or year of study (year of study: raw score  $p=0.202$ , sten score  $p=0.145$ ) on the level of life satisfaction.

There is no evidence that the preventive behaviours had any impact on their level of life satisfaction (Table 3).

Table 3. Preventive behaviours of nursing, midwifery and emergency medicine students and the level of life satisfaction

Satisfaction with Life Scale	Raw score					Sten score				
	N	No Mean±SD/ Median (25Q÷75Q)	N	Yes Mean±SD/ Median (25Q÷75Q)	P	N	No Mean±SD/ Median (25Q÷75Q)	N	Yes Mean±SD/ Median (25Q÷75Q)	P
1. I gave up meeting with other people.	161	19.7±6.1	114	18.3±6.5	0.049	161	5.26±2.08	114	4.78±2.23	0.068

2. I limited my use of public transportation.	112	19.5±6.0	163	19.0±6.5	0.520	112	5.13±2.04	163	5.01±2.22	0.646
3. I limited my visits to confined spaces (e.g., I rarely go shopping, to the library, or to church).	62	20.2±5.8	213	18.9±6.4	0.155	62	5.4±1.98	213	4.96±2.19	0.156
4. Whenever possible, I avoid people who had symptoms of respiratory tract infections.	18	19.0 (15.0÷26.0)	257	20 (14.0÷24.0)	0.432	18	5.0 (4.0÷7.0)	257	5.0 (3.0÷7.0)	0.430
5. I avoid large gatherings.	40	19.7±5.8	235	19.1±6.4	0.577	40	5.2±2.02	235	5.04±2.18	0.661
6. I increased the frequency of washing and introduced disinfection of items that are frequently touched (e.g., door handles and surfaces).	128	19.1±6.2	147	19.2±6.4	0.841	128	5.05±2.14	147	5.07±2.17	0.915
7. I wash my hands more often than usual.	40	17.4±6.6	235	19.5±6.2	0.059	40	4.55±2.23	235	5.15±2.13	0.104
8. I have explained to family and friends the ways and means of preventing COVID-19 disease.	39	19.2±6.4	236	19.2±6.3	0.983	39	5.1±2.07	236	5.06±2.17	0.899
9. I have been vaccinated.	43	19.1±5.9	232	19.2±6.4	0.961	43	5.09±1.94	232	5.06±2.19	0.918

## Discussion

The SARS-CoV-2 infection and COVID-19 disease due to the serious global health problems arouse many emotions. Polish students of health sciences presented many different behaviours towards the existing problem.

The objective of this study was to assess the level of life satisfaction among undergraduate nursing, midwifery and emergency medicine students and to evaluate the impact of adherence to COVID-19 prevention measures on their level of life satisfaction.

The study was conducted in the form of a questionnaire and was carried out during the period of remote-learning that was implemented as a result of the epidemiological restrictions introduced by the Polish Ministry of Health.

Students' knowledge and its compliance with severe acute respiratory syndrome coronavirus 2 infection prevention guidelines have been studied in several countries. The results of previously conducted studies are presented in Table 4.

Table 4. Studies of students' compliance SARS-CoV-2 infection prevention guidelines by country

Author and year of publication/ Country	Respondents	The compliance with infection prevention guidelines – results
Albaqawi H.M. et al., 2020 [11]. Country: Saudi Arabia	- 1226 nursing students (7 universities)	- 99% were aware of the pandemic; - most students followed the preventive measures listed in the questionnaire except for the procedure of washing hands with water and soap for at least 20 seconds after blowing the nose, sneezing and coughing (39.2%) and the procedure of daily cleaning and disinfection of frequently touched surfaces (41.6%)
Mena-Tudela D. et al., 2021 [12]. Country: Spain	- 170 nursing students and 67 medical students (21 universities); - nursing and medical students were compared; - 86.9% female respondents	- nursing students felt more prepared to treat COVID-19 patients, they wore surgical masks more often when in contact with a patient infected with SARS-CoV-2
Ayed A. et al., 2021 [13]. Country: Palestine	- 218 nursing students (Arab American University and Al-Quds University); - 65.6% female respondents; - 60.6% of the respondents were in their third academic year; - mean age of the respondents 22.10±4.185	- 21.6% the students were convinced of the validity of compliance with SARS-CoV-2 infection prevention guidelines
Fakhri N. et al., 2021 [14]. Country: Marocco	- 1216 nursing students; - 77.4% female students; - 95.6% students aged 18 to 23	- almost all participants reported that they often avoided crowded places; - 93.4% of the respondents confirmed frequent wearing of face masks when leaving home; - 85.5% maintained social distancing; - 47.4% frequently washed their hands
Baniyas N. et al., 2021 [15]. Country: United Arab Emirates	- 431 (56%) medical students; - 117 (15%) nursing students; - 49 (6%) pharmacy students; - 45 (6%) physiotherapy students; - 44 (5.5%) dentistry students; - 21 (3%) radiology students; - 66 (8.5%) students of other medical faculties; - a total of 712 questionnaires were collected	- 60% (N=407/677) of the students didn't attend family meetings and didn't go to shopping malls, cafes, industrial areas, hospitals or COVID-19 facilities as a volunteer; - 97% (N=655) of the respondents took precautionary measures when receiving home deliveries, 94% (N=637) washed their hands more often, and 95% (N=643) wore face masks

In our study 93% of the respondents reported avoiding people who had symptoms of respiratory tract infections. Only 41% of the participants gave up on meeting friends. As few as 53% of the respondents increased the frequency of washing hands and introduced the disinfection of items that were frequently touched (e.g., door handles and other surfaces). Only 84% of the Polish students were vaccinated. When it comes to 73% of the students, they assessed that they had a medium level of knowledge related to SARS-CoV-2 infection while only 19% performed a high level of knowledge; 7% reported a low level of knowledge.

The pandemic has had an important, significant

impact on the lives and levels of life satisfaction of many social groups, including those of students in the health sciences. In the available literature, two studies were found assessing the level of life satisfaction among students of health sciences during the pandemic [5, 16].

Surveys on the assessment of life satisfaction among students of health sciences were conducted in Poland and Turkey during the COVID-19 pandemic. These studies were carried out using the Satisfaction with Life Scale (SWLS) psychological questionnaire.

Aslan et al. studied the life satisfaction of students at Turkish universities. An electronic survey conducted in Turkey, from May 16 to June 10, 2020, covered 358

students from 13 Turkish universities located in 10 cities: Bingol University, Bingöl (N=151, 42%); Atatürk University, Erzurum (N=153, 43%); Muğla Sıtkı Koçman University, Muğla (N=35, 10%); Başkent University (N=3, 0.8%), Beykoz University (N=1, 0.3%), Boğaziçi University (N=1, 0.3%), Istanbul University, Istanbul (N=1, 0.3%); Ağrı İbrahim Çeçen University, Ağrı (N=5, 1.4%); Adnan Menderes University, Aydın (N=1, 0.3%); Fırat University, Elazığ (N=3, 0.8%); Akdeniz University, Antalya (N=1, 0.3%); Dicle University, Diyarbakır (N=1, 0.3%); and Kırıkkale University, Kırıkkale (N=1, 0.3%). The aim of this study was to show the prevalence of stress, to assess mental health among students during the pandemic, and to examine predictors of stress levels. Students represented were mainly undergraduates, and the most frequently represented fields of study were social sciences (53.07%) and health sciences (45.81%). Life satisfaction was low for 56% of students and high for only for 19% of them [16].

The Polish study conducted by Rogowska et al. involved 350 students in physical education and physiotherapy and 564 students in engineering at the Opole University of Technology, aged from 18 to 40 (M=23.04, SD=2.60), with a predominance of men (N=520, 56.89%). The study was conducted from March 30 to April 30, 2020, during the national quarantine. Most participants were satisfied with their lives (responses ranged from slight to extreme (N=569, 63%), and only 5% of the ones surveyed had a neutral attitude toward their satisfaction with life (N=50), and 32% were dissatisfied with their lives (responses ranged from slightly to extremely (N=295) [5].

In our study only 28% of the students reported high life satisfaction, 32.7% reported medium satisfaction, and 39% reported low satisfaction. An interesting issue is the comparison of life satisfaction scores of the students of health sciences before and during the pandemic. Life satisfaction of Polish students of health sciences was assessed before the pandemic.

The Polish study conducted in the 2018/2019 academic year involved 307 undergraduate nursing students from the Faculty of Health Sciences of the Jagiellonian University Medical College. Questionnaires were distributed among the students during meetings preceding lectures. Of the respondents, 96.1% were women (N=295) and 3.9% were men (N=12). The mean age of the respondents was 20.82±1.53 years, the range of ages was 19 (N=49) to 34 (N=1). A low level of satisfaction with life was reported by 27% of students (N=83). Medium satisfaction levels were reported by 42% of the students (N=129), and high satisfaction levels were reported by 30.9% of the students (N=95). The average level of satisfaction with life was 20.82±5.72 points, with a range from 5 to 35 points. The average sten score was

5.64±2.00 points, with a range from 1-10 points. A high level of satisfaction with life was reflected more often among second-year students (40.86%) than among other students. A medium level of life satisfaction was more often reported by students from the 1st year (45.52%) and 3rd year of studies (42.02%). The differences were statistically significant (p=0.009) [17].

Our study showed that the mean raw score of life satisfaction was 19.2±6.3 and that it ranged from 5 to 35, with a mean sten score of 5.06±2.15.

In 2020, a study was published comparing the level of life satisfaction of students of nursing professions in Poland, Spain and Slovakia before the pandemic. Twenty-four percent of Polish students had a low level of life satisfaction, 38% had a medium level of satisfaction, and 38% had a high level of satisfaction.

Research has shown that the COVID-19 pandemic has increased the percentage of students with low life satisfaction scores to 39% and decreased the percentage of students with a high level of life satisfaction to 28%.

The study by Kupcewicz et al. clearly showed that before the pandemic, the percentage of Spanish students reporting higher life satisfaction scores was greater than that of Polish and Slovak students (65% vs. 47%) [18].

To answer the question of whether the COVID-19 pandemic changed the level of life satisfaction of nursing, midwifery and emergency medicine students, studies should be conducted comparing the level of life satisfaction of these students in individual countries before and during the pandemic.

### **Study limitations**

The main limitation of the work was carrying it out in the period of remote-learning. The data were collected using an online survey and via an electronic psychological questionnaire. The number of both sexes was unequal and the authors were not able to compare the level of life satisfaction between sexes.

### **Conclusions**

Most Polish students of health sciences had a low and medium level of life satisfaction during the COVID-19 pandemic. Of the possible preventive behaviours, Polish students most often avoided people who had symptoms of respiratory tract infections, and they avoided large gatherings. Not all students registered for vaccination.

### **Acknowledgments**

The authors wish to thank all students who participated in this study.

### **Conflict of interest**

The authors have declared no conflict of interest.

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Otrzymano: 05.01.2023

Zrecenzowano: 22.01.2023

Przyjęto do publikacji: 28.02.2023