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COPING WITH CHALLENGES OF THE FIRST MONTHS OF COVID-19 PANDEMIC AMONG MEDICAL UNIVERSITY COMMUNITY: A MIXED-METHOD STUDY FROM POLAND

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Abstract
Objectives: Universities played a significant role in meeting the challenges of the COVID-19 pandemic, with both students and staff having to identify and use available coping resources. The main aim of the study was to describe the academic community's experiences of the pandemic and their impact on health and wellbeing. Related variables were also explored, such as sense of coherence (SOC), gratitude, and subjective health assessment (SHA). **Material and Methods:** During the first wave of COVID-19 pandemic, an online questionnaire was sent to the community of the Medical University of Lodz. It included 4 open-ended questions on ways to remain healthy during the pandemic. The responses (N = 144) were analyzed using a general inductive approach. For the purpose of this study, the resource utilization rate (RUR) was defined and calculated based on the number of categories with responses indicating resource usage. Additionally, a Polish adaptation of the 29-item *Sense of Coherence* scale (SOC-29), the *Gratitude Questionnaire* (GQ-6), and subjective health assessment were measured. Correlations between variables were calculated. **Results:** The main areas of resource identification and utilization were interpersonal relationships, views of reality, physical activity, pleasure activities, social contacts, and healthy diet. Physical activity has been found to be the most commonly-reported strategy of taking care of both health and emotional state more frequently among students than employees ($p < 0.01$). The RUR was strongly associated with SOC in male employees ($\rho = 0.7$, $p < 0.05$) and with GQ-6 in both male and female student groups ($\rho = 0.56$, $p < 0.05$ and $\rho = 0.28$, $p < 0.05$, respectively). **Conclusions:** Relationships between RUR and SOC seem to be gender- and age-related. The relationships between health and resource utilization are worth exploring in the university setting. Int J Occup Med Environ Health. 2023;36(3):365–78

Key words:
resources, sense of coherence, gratitude, COVID-19, university community, subjective health assessment

INTRODUCTION

Universities are complex organizations which play a significant role in enhancing and strengthening positive changes in health and well-being; they also support effective coping with the demands of daily life among the academic community [1]. The COVID-19 outbreak forced most organizations to adapt their way of working, often without providing employees with the necessary skills. At university, the pandemic has emerged as a potential stressor with widespread mental and physical health consequences for both students and faculty [2,3]. The salutogenic model of health [4] assumes that health is a function of interactions with a range of social, economic, cultural, physical, mental, and physiological stressors.

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The deterioration, maintenance or improvement of health depends on the availability of health-promoting resources and the ability to recognize and use these resources to cope with stressors. When confronted with a stressor, which a pandemic can be for many, the individual mobilizes available resources to cope with the tension. This process is mediated by an individual's sense of coherence (SOC), defined as an adaptive dispositional orientation that enables coping with adverse experience. People with a strong SOC are more motivated to cope when confronted with a stressor (meaningfulness), have a stronger sense of understanding of the challenge they face (comprehensibility) and believe that coping resources are available (manageability) [5]. In addition, a strong SOC can enable a person to activate and flexibly use resources appropriate to a specific stressor. It is associated with perceived good health, particularly mental health, which in turn affects physical health [4,6]. Lindström and Eriksson [7] use the term "salutogenesis" as an umbrella term for theories and concepts that provide an understanding of how health is maintained, enhanced or compromised. One of these is dispositional gratitude, a tendency towards "noticing and appreciating the positive in life" [5, p. 892]. Numerous links between gratitude levels and health have been observed: lower rates of depression and anxiety, lower stress levels, positive emotionality, stronger social relationships, and better cardiovascular and immune health. Recent research suggests that gratitude is an adaptive resource that promotes and maintains mental health, even in the presence of negative life events [8].

Yue et al. [9] found that dispositional gratitude positively mediated the relationship between gender and subjective well-being, while Kashdan et al. [10] report that women generally express gratitude more frequently and are less critical in their evaluation of it compared to men. This may be because men perceive expressing gratitude as a threat to their autonomy, resulting in them being less likely to experience its associated psychological and physical benefits. A higher level of gratitude is also related to better subjective health assessments (SHA). It comprises self-reported health, illness and functional status, and may focus on physical or mental health, or a combination of both [11]. Subjective health assessments can be used as a single measure of overall health status [12]. Most studies suggest SHA is more strongly linked to overall health outcomes in men than in women. In addition, there appears to be a weaker connection between SHA and health outcomes in older individuals compared to younger ones [13].

The university is not just a place of education but is also seen as a resource for promoting health and well-being among students, staff and the wider community [1]. Assuming Antonovsky's concept of salutogenesis as an approach that may help develop resilience and effective coping with the daily requirements in a university setting [1], the present study explores how the medical academic community copes with the challenges posed by a global pandemic. The main aim of the study is to describe the experiences and actions taken by university members to maintain health and well-being in relation to SOC, gratitude and SHA.

The following research questions were included:

– How did medical university students and employees comprehend their pandemic experiences and take actions to enhance health and well-being, considering factors like gender and their respective roles within the university?
– How many respondents' answers illustrate the identification and utilization of resources, and how does this number relate to SOC, gratitude, and SHA, while considering the respondents' gender and their status as students or employees?

It is hypothesized that responses indicating a higher number of resource-related categories demonstrate multiform identification and asset usage, which relates to a higher level of SOC, gratitude and SHA.

MATERIAL AND METHODS

Participants

In the first week of May 2020, during the first wave of the COVID-19 pandemic and lockdown, an online questionnaire was sent to the employees and students of the Medical University of Lodz. Information about the study was distributed via mailing lists and the university home page. The intention was to invite all employees (researchers, teachers, and administrative staff) and students from all academic Polish divisions in the university.

The inclusion criteria were as follows: voluntary consent to participate in the study, self-declaration of being >18 years old, and being a student or employee of a medical university. Online form of recruitment and data collection were planned to engage as many people as possible. Participants responded via Google Forms to unify the collection procedure. The recruitment protocol also complied with restrictions of the COVID-19 pandemic to minimize the need for direct contact. In total, 144 people participated in the study, comprising 70 employees (constituting 2.8% of the 2537 personnel), 69 students (accounting for 0.6% of the 11 000-strong student population). Five people selected both student and employee status. Each respondent provided responses to all 4 questions. The demographic characteristics of participants are presented in Table 1.

Study design

The participants were selected by purposive convenient sampling. The study employed a mixed-methods approach to data collection. A Polish adaptation of the 29-item *Sens of Coherence* scale (SOC-29) was used. It consists of 29 questions scored 1–7 pts. The total score ranges 29–203 pts. The Polish version of the SOC-29 is characterized by good internal consistency [14], with Cronbach's α in the present study being 0.91.

The *Gratitude Questionnaire* (GQ-6) consists of 6 questions to be answered on a 7-point scale from strongly disagree to strongly agree. Cronbach's α has previously been found to be 0.72 for the GQ-6 [15]; however, a value of 0.80 was obtained for the current study.

To determine a subjective value for physical and mental health and sleep quality status, the respondents gave ratings ranging from very bad (1 pt) to very good (7 pts). To obtain greater measurement reliability, the mean physical, mental, and sleep quality scores were summed up to provide an total value called the subjective health assessment (SHA). The SHA has satisfactory internal consistency (Cronbach's $\alpha = 0.69$).

Additionally, the online survey form included 4 open-ended questions in the following order:

- Q1. "What important lessons has the epidemic experience already taught you?";
- Q2. "What issues do you look at differently now?";
- Q3. "What are you currently doing to take care of your health?";
- Q4. "What are you currently doing to positively impact on your emotional state?"

Data analysis

The Statistica v. 13 (TIBCO Software Inc.) software package was used for statistical analysis. Descriptive statistics were calculated: means (M), standard deviations (SD), medians (Me), interquartile ranges. In addition, Spearman's rank correlation coefficients, t-test, or its non-parametric equivalent when appropriate, were calculated to assess the significance of differences between groups. The categories that emerged for each of the 4 open-ended questions, and percentage of responses assigned to them were presented. The "N-1" χ^2 test or Fisher's exact test were used to determine the statistical significance between proportions. All analyses assumed $p < 0.05$ as significant. Data obtained from the open-ended questions was analyzed by the researchers (JR, MK and MW) based on a 4-step procedure guided by a general inductive approach described by Thomas [16]. This procedure comprised the following. All answers to 1 question were independently read repeatedly

Table 1. Demographic characteristics of the study group of participants during the first week of May 2020, amid the first wave of the COVID-19 pandemic and lockdown (Łódź, Poland)

Variable	Participants (N = 144) [n (%)]	M±SD
Age [years]		30.5±10.76
gender[a]		
female	119 (82.6)	30.8±10.65
male	25 (17.4)	29.4±11.45
academic standing		
employee[b]	70 (48.6)	38.8±9.88
student	69 (47.9)	22.2±2.17
student and employee[c]	5 (3.5)	29.6±1.82
Education		
graduate	81 (56.3)	
undergraduate	63 (43.8)	
Marital status		
married	42 (29.2)	
unmarried	102 (67.4)	
divorced	5 (3.5)	
Children		
none	107 (74.3)	
1	15 (10.4)	
2	21 (14.6)	
≥3	1 (0.7)	
Residence		
city		
>500 000	78 (54.2)	
100 000–500 000	9 (6.3)	
<100 000	26 (18.1)	
rural area	31 (21.5)	

[a] Male employees (N = 12), male students (N = 13), female employees (N = 58), female students (N = 56).
[b] The mean age of employees was significantly higher than the mean age of students; $t(137) = 13.57$, $p < 0.0001$.
[c] These individuals (women only) were omitted from the analyses when university status was considered.

by each competent judge, who identified themes and categories. A uniform coding frame was developed for each of the 4 questions jointly by all competent judges, over the course of several discussions. Each competent judge independently assigned responses to the appropriate categories. Any discrepancies in the assignment of individual survey participant responses to the pre-agreed categories were identified and reconciled through discussion.

For the purpose of this study, based on the categories emerging from the analysis of the answers to the open questions, the resource utilization rate (RUR) was defined. This was the number of categories to which responses indicating resource usage could be assigned. Only the answers about utilization of any means which could facilitate effective healthy tension management indicated by a particular respondent were taken into account. As some of the categories overlapped between pairs of questions (Q1 with Q2, and Q3 with Q4), each resource-related response was counted once, even if it appeared twice.

Ethical aspects of the survey

The study was conducted in accordance with the Declaration of Helsinki. The project was approved by the Bioethics Committee of the Medical University of Lodz (RNN/125/20/KE). Information about the study and consent protocols were provided electronically before the questionnaire. Respondents were informed that participation in this study is voluntary, they might withdraw at any time and could have contact with its administrator when questions arise. All participants were assured of the protection of personal data, in accordance with applicable laws.

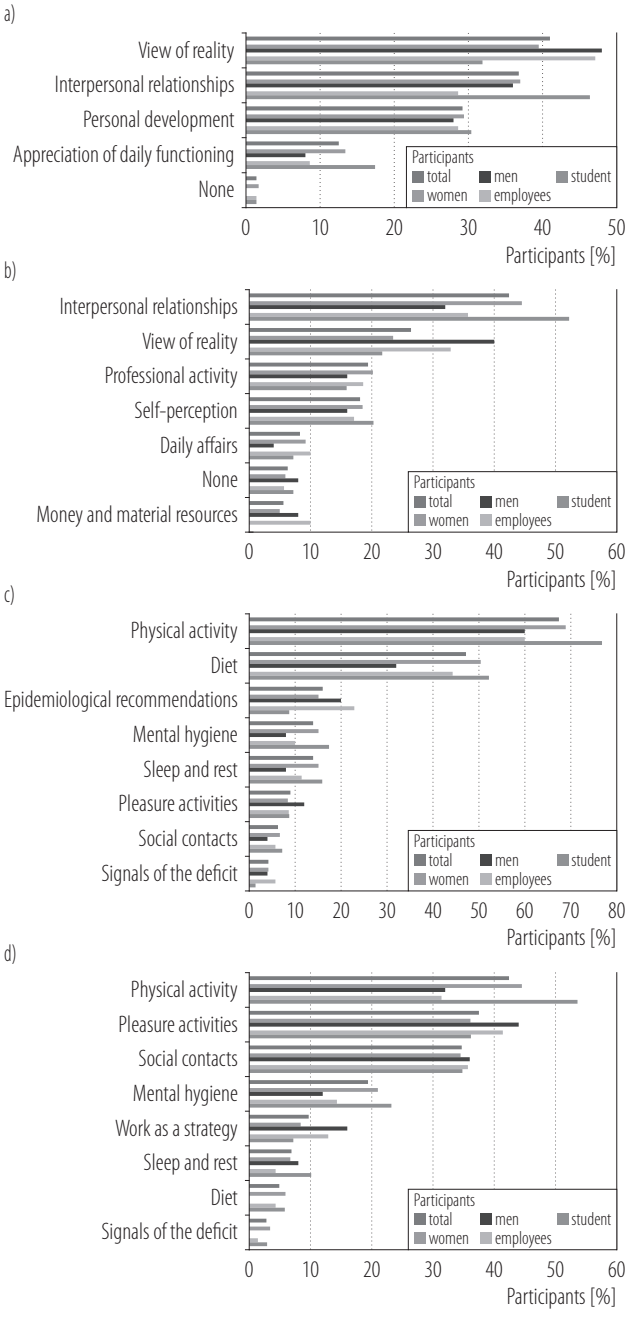
RESULTS

Open-ended questions content analysis

Q1: What important lessons has the epidemic experience already taught you?

During analysis, the following categories emerged: view of reality, interpersonal relationships, personal development, appreciation of daily functioning (Figure 1a). Only 2 people declared that they had learned nothing. Short descriptions of each category, along with sample answers, can be found in Table 2.

Changes regarding views of reality were most commonly noted (41%). Participants experienced a sense of



Five individuals, identifying as both employees and students, were excluded from the staff-student comparisons.

Figure 1. The distribution of the categories selected as part of the answer depending on the gender and the academic standing (students vs employees of the Medical University of Lodz) to the questions: a) "What important lessons has the epidemic experience already taught you?," b) "What issues do you look at differently now?," c) "What are you currently doing to take care of your health?," d) "What are you currently doing to positively impact on your emotional state?" (May 2020, Łódź, Poland)

Table 2. Categories comprising resource utilization rate (RUR) and their descriptions (May 2020, Łódź, Poland)

Category	Sq[a]	Description
View of reality	Q1–Q2	Answers related to an individual's perception, attitude or understanding of life and the world around them, e.g. : "(...) everything is possible, and everything can be dealt with somehow"; "(...) there is no need to chase so much, there are many precious moments"; [I look differently at] "The meaning and purpose of life"; "On appreciating what one has"
Interpersonal relationships	Q1–Q2	Answers related to perception of relationships with others, e.g.: "It is a great happiness to have a family, a home where I feel comfortable, (...)"; "I appreciate more often how important contact with people and those closest is to me"; "I am more cautious about interacting with people so as not to make mistakes that will result in an increased risk of infection"
Personal development and/or different self-perception	Q1–Q2	Answers related to improving oneself, increasing self-awareness, developing positive attitudes and new skills, e.g.: "patience"; "In every situation, look for the positives and focus on them"; "[I look differently now at] what is really most important in my life and what is not so important"; "My priorities have changed"
Appreciation of daily functioning and/or daily affairs	Q1–Q2	Answers related to finding meaning and value in everyday experiences and tasks, such as work, household chores, e.g.: "(...) ordinary daily activities done outside the home are interesting"; "I appreciate what I have"; "It's worth appreciating the little things"; "[I look differently] at things that previously seemed so ordinary, trivial, obvious"; "I have noticed how I miss things that before the epidemic I took for granted, normal, everyday, trivial"
Professional activity	Q2	Answers related to the perception of one's work or education, e.g.: "one should look for available solutions and not be afraid of novelty (working with students online)"; "(. . .) the profession of the medical doctor and other health care professions can be really demanding, dangerous and stressful and difficult to reconcile with family life"
Money and material resources	Q2	Answers related to financial management and resources, including earning, spending, and savings, e.g.: "[I look differently now at] personal budget"; "Financial matters"
Physical activity	Q3–Q4	Refers to maintaining a healthy lifestyle through exercise and movement, e.g.: "I exercise every other day"; "I run every day for 15 minutes"; "I started to practice yoga"; "my mood improves after exercise"; "outdoor workouts"; "sport"; "movement, long walks"
Diet	Q3–Q4	Refers to improving or maintaining healthy eating habits and a balanced diet, e.g.: "I try to eat healthy"; "I try to eat more vegetables"; "I try to eat sensibly"; "eating healthy meals"; "healthy cooking"; "healthy nutrition"
Epidemiological recommendations	Q3	Answers referring to the application of measures to reduce the risk of infection (masking, hand hygiene, limiting contacts, etc.), e.g.: "I wear a face mask and disinfect my hands"; "I observe hygiene rules, avoid concentrations of people"; "I isolate myself"
Pleasure activities	Q3–Q4	Refers to engaging in enjoyable hobbies and leisure activities, including contact with pets, e.g.: "I read"; "I work in the garden"; "I try to engage with music and other art forms"; "listening to music, watching films, playing the guitar, singing, dancing"; "DIY"; "beloved animals to cuddle with"
Mental hygiene	Q3–Q4	Encompasses various actions and practices that safeguard, maintain, and enhance an individual's mental and emotional well-being, such as engaging in prayer, meditation, psychotherapy, and limiting media consumption, e.g.: "I'm cutting off the excess information"; "I continue psychotherapy"; "I meditate"; "I devote my evenings to relaxation and rest, I don't think about studies then"; "I spend evenings offline"; "Work, free time, relaxation, all in the right proportions allows me to maintain my well-being"; "reducing the number of work responsibilities"
Sleep and rest	Q3–Q4	Refers to answers related to maintaining healthy sleep habits and getting enough rest, e.g.: "I am taking a nap or sleep longer in the morning"; "I rest"; "plenty of sleep"; "adequate amount of sleep"
Social contacts	Q3–Q4	Refers to answers related to building and maintaining social connections and relationships, e.g.: "I spend time with people who have a good influence on me"; "Meetings face-to-face or through the media with other people"; "Spending time with my husband and daughter"
Work as a strategy	Q4	Refers to answers suggesting that professional activity is a source of satisfaction and a mean of maintaining a sense of control and influence, e.g.: "I love my job and I relax at it"; "Preoccupation with learning and acquiring knowledge – allows you to set aside your own emotions"

[a] Source question: Q1: "What important lessons has the epidemic experience already taught you?"; Q2: "What issues do you look at differently now?"; Q3: "What are you currently doing to take care of your health?"; Q4: "What are you currently doing to positively impact on your emotional state?"

unpredictability; some of the responses could be categorized as pessimistic or having negative overtones, but many were also quite optimistic. Changes related to interpersonal relationships were declared by nearly 40% of participants, and the most common responses were related to the importance of support and relationships with loved ones, family members and friends. The experience of the pandemic also affected personal development, as indicated by around 1 in 3 participants. Responses included areas such as perseverance in daily life, better time management, more patience, humility, creativity and forbearance, including towards oneself.

No statistically significant differences were found in relation to gender in any category. The statements from the students were significantly more likely to indicate reflection concerning interpersonal relationships compared to employees ($\chi^2 = 4.67$, $p = 0.031$).

Q2: What issues do you look at differently now?

Content analysis identified 6 areas: interpersonal relationships, view of reality, professional activity (work, study), self-perception, daily affairs, money and material resources (Figure 1b). Only 9 people declared no change in their views. Short descriptions of each category, along with sample answers, can be found in Table 2. The largest category was, interpersonal relationships (42%).

Changes regarding views of reality were declared by 1 in 4 respondents, with most responses referring to meaning and purpose of life, temporary setbacks in life and health.

One in 5 respondents indicated an impact on their perception of issues related to their professional activity (work or study). Respondents valued having a job and job security. The students reported changing their perspective regarding their future profession as a doctor or nurse. Some people highlighted changes in the perception and appreciation of people working as doctors, nurses, teachers and shopkeepers, and in the service sector.

Nearly 1 in 5 people indicated the impact of the epidemic experience on self-perception and responses in this area included a change in life priorities.

The least popular category (5%) concerned the impact of the pandemic on their perception of finances and material resources reflected in statements about paying attention to thoughtful shopping, personal budgets, and material needs and goods.

The proportion of responses did not exhibit a statistically significant relationship with gender. Students indicated reflection concerning interpersonal relationships significantly more often compared to employees ($\chi^2 = 5.29$, $p = 0.021$).

Q3: What are you currently doing to take care of your health?

The following 8 categories were defined in relation to this question: physical activity (PA), diet, adherence to epidemiological recommendations, mental hygiene, sleep and rest, pleasure activities, social contacts, signals of deficit (Table 2). This last category included responses from 6 people indicating awareness of deficits in self-health care (e.g., "nothing"; "not much") (Figure 1c).

Physical activity and diet categories (67% and 48%, respectively), were the most frequently mentioned. The most popular forms of PA were exercising, playing sports, working out, cycling, and yoga.

Adherence to epidemiological recommendations (15%) included wearing a mask, avoiding crowded places, observing hygiene, and practicing isolation. The mental hygiene category was mentioned by almost 15% of people, while statements regarding sleep and rest were noted by nearly 14% of participants.

A variety of activities were categorized as pleasure activities and were mentioned by 13% of people. The most common activities included reading books, listening to music, singing, and watching TV.

Participants also savored contact with nature. They reported walking in the woods, including with a dog.

Some especially emphasized the opportunity to spend time in home gardens.

Behaviors associated with social contacts (6%) mostly related to meetings and online and offline conversations with family, partners and friends.

Gender had no significant impact on the frequency of responses in all mentioned categories. Academic status was found to be significantly related to 2 categories: students were 17% more likely than employees to indicate engagement in PA ($\chi^2 = 4.50$, $p = 0.034$), and employees were 14% more likely than students to report adherence to epidemiological recommendations ($\chi^2 = 5.21$, $p = 0.022$).

Q4: What are you currently doing to positively impact your emotional state?

A content analysis of the responses to this question identified the following 8 categories: PA, diet, pleasure activities, mental hygiene, work as a strategy, sleep and rest, social contacts (cf. Table 2), and signals of a recognized deficit, i.e., responses from 4 people indicated an awareness of the need for resources or competencies related to taking care of one's comfort were included in this last category (Figure 1d). One sample statement suggesting such deficits was: "I don't know, the uncertainty of my studies makes it difficult for me to experience peace of mind".

The most frequently indicated action (42%) was PA. Participants were most likely to engage in cycling, walking, exercise, running or yoga. Category labeled as diet (5%) emerged from answers such as healthy meals and cooking, use of vitamin D3 supplements and experimenting with new recipes.

Nearly 40% of respondents reported taking care of their psychological comfort through enjoyable activities such as reading, listening to music, singing, watching TV series/movies, decorating, building, and DIY. Nearly 1 in 5 respondents reported activities included in mental hygiene: attempting to distance oneself from current problems, as well as engaging in meditation, talking with a psychotherapist, or limiting anxiety-inducing information. Only 2 respondents testified to taking care of the balance between work and other aspects of life.

Slightly more than a third of respondents reported taking care of their psychological comfort through social contacts. Meeting other people directly or online, and conversations and time spent with a partner, family and loved ones were valued. Paying attention to getting enough sleep and rest or working and studying as strategy for taking care of one's psychological comfort were among the least reported (7%).

There were no statistical relations between any categories and gender. Academic status had only statistically significant impact in 1 category ($\chi^2 = 6.961$, $p = 0.008$), with students more frequently reporting PA compared to employees by a margin of 22%.

The level of RUR, SOC-29, GQ-6, and SHA in general and according to gender, academic status and relation between variables

Some responses to different open questions indicated similar resources. As a result of the judges' analysis of these overlapping themes 14 combined categories were included in the RUR index. Those categories with short descriptions, along with sample answers, are listed in Table 2.

The theoretical range for RUR was 0–14, calculated as the sum of categories indicating resources utilization. Therefore, responses or categories unrelated to resource recognition and utilization were not included in the indicator. The mean RUR score was 4.9 (SD = 1.67) and it ranged 1–9 (Table 3). The women scored significantly higher than the men: $U = 1074.00$, $p = 0.029$. No significant difference was found between employees and students: $U = 2251.00$, $p = 0.49$. The mean SOC-29 score was 124.9 (SD = 24.6). Men scored insignificantly higher than women (M±SD 130±20, N = 25; M±SD 123.9±25.4, N = 119, respectively). University employees scored sig-

Table 3. Descriptive statistics and distributions of resource utilization rate (RUR) scores according to gender and employee or student status ((May 2020, Łódź, Poland)

RUR	Participants (N = 144)														
	gender								academic standing						
	total			women*[a] (N = 119)			men*[a] (N = 25)			employees[b] (N = 70)			students[b] (N = 69)		
	n (%)	RUR score		n (%)	RUR score		n (%)	RUR score		n (%)	RUR score		n (%)	RUR score	
		M±SD	Me (IQR)		M±SD	Me (IQR)		M±SD	Me (IQR)		M±SD	Me (IQR)		M±SD	Me (IQR)
Total		4.9±1.67	5 (2)		5.1±1.65	5 (2)		4.3±1.65	4 (2)		4.8±1.62	5 (2)		5.1±1.72	5 (2)
1	1 (0.7)			1 (0.8)			0 (0.0)			1 (1.4)			0 (0.0)		
2	7 (4.9)			5 (4.2)			2 (8.0)			2 (2.9)			4 (5.8)		
3	20 (13.9)			13 (10.9)			7 (28.0)			12 (17.1)			7 (10.1)		
4	36 (25.0)			28 (23.5)			8 (32.0)			18 (25.7)			17 (24.6)		
5	30 (20.8)			28 (23.5)			2 (8.0)			12 (17.1)			17 (24.6)		
6	24 (16.7)			22 (18.5)			2 (8.0)			13 (18.6)			10 (14.5)		
7	15 (10.4)			12 (10.1)			3 (12.0)			9 (12.9)			6 (8.7)		
8	8 (5.6)			7 (5.9)			1 (4.0)			2 (2.9)			6 (8.7)		
9	3 (2.1)			3 (2.5)			0 (0.0)			1 (1.4)			2 (2.9)		

IQR – interquartile range.
* $p < 0.05$.
[a] U = 1074.00, p = 0.029. [b] U2251.00, p = 0.490.

nificantly higher than students (M±SD 133±22.8, N = 70; M±SD 118±23.7, N = 69; respectively, p = 0.0002).

The mean level of gratitude was 32.4 (SD 5.96). No significant differences were found between women (M±SD 32.3±5.86, N = 119) and men (M±SD 32.8±6.53, N = 25). This value was slightly higher among employees (M±SD 33.3±6.01, N = 70) than students (M±SD 31.9±5.62, N = 69), although not significantly p = 0.25).

The mean SHA value was 14.6 (SD = 3.46, N = 144). No significant differences were observed between women (M±SD 14.7±3.48, N = 119) and men (M±SD 14.2±3.40, N = 25). No difference was found between students (M±SD 14.7±3.47, N = 69) and employees (M±SD 14.9±3.26, N = 70; p = 0.48).

Resource utilization rate was strongly associated with SOC, but only among male employees. Additionally, RUR correlated with GQ-6 exclusively in student groups (both male and female). The difference between these latter 2 rank correlation coefficients was not significant. No correlation between RUR and other variables was observed among female employees. In female groups (both employees and students), SOC demonstrated strong to moderate associations with GQ-6 and SHA. Similarly, a strong correlation between SOC and SHA was found in the male student group. All correlations between variables are presented in Table 4.

DISCUSSION

The experience of the pandemic influenced the participants' view of the world and their lives.

The respondents emphasized the importance of relationships and a longing for everyday life, and even situations that previously irritated them. They described their emotions and difficulties related to overcoming negative experiences, especially when they were lonely.

Table 4. Spearman correlations between variables according to gender and employee or student status (May 2020, Łódź, Poland)

Variable	Spearman's correlation			
	1	2	3	4
Women				
1. SOC-29	–	0.64***	0.57***	0.21
2. GQ-6	0.64***	–	0.56***	0.28*
3. SHA	0.47***	0.18	–	–0.03
4. RUR	0.09	0.19	0.24	–
Men				
1. SOC-29	–	0.17	0.76**	0.26
2. GQ-6	0.03	–	0.53	0.56*
3. SHA	0.32	0.32	–	0.20
4. RUR	0.70*	–0.22	0.21	–

GQ-6 – *Gratitude Questionnaire,* RUR – resources utilization rate, SHA – subjective health assessment, SOC-29 – 29-item *Sense of Coherence* scale.
The table has 2 main diagonal divisions – 1 for women and 1 for men. For each gender, correlations located below the diagonal represent rank correlations for employees, while those above the diagonal indicate rank correlations for students. Five participants who declared both employee and student status were omitted from the analyses when university status was considered.
* $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$.

Their answers indicated healthy lifestyle behaviors (PA, diet, contact with nature, sleep and rest) as a way of coping with pandemic demands. Such strategies have been found to play a role in ensuring mental health during COVID-19 pandemic. The PA has been found to be the most commonly-reported strategy of taking care of both health and emotional state more frequently among students than employees what is consistent with other study [17].

Pleasure activities and social contacts (both direct and online) were mentioned by the respondents as strategies for taking care of their emotional state but were less often associated with taking care of health. A lack of social and cultural activities has previously been pointed out as negatively influencing students' mental health during pandemic [18].

In the case of health improvement, significantly more employees than students indicated the importance of complying with epidemiological recommendations. This is consistent with results obtained by Solomou and Constantinidou [19], pointing out that older adults reported higher adherence to precautionary measures than younger adults.

Another strategy for taking care of emotional state of participants is engagement and creativity in finding new solutions at work for employees, as well as paying attention to learning and acquiring knowledge for students. This coping strategy can serve as emotional regulation, i.e., by dissociating oneself from unpleasant emotions, and/or protecting a sense of control [20].

The employees reported appreciation of work and a sense of security in connection with the performance of their professional duties. The work of the people in the medical sector and in other professions, such as a teacher or salesman, was also appreciated. Intriguingly, a small number of respondents addressed financial matters, including conscientious purchasing and household budget management. It is possible that the initial phase of the pandemic was too early for participants to fully grasp the economic challenges associated with the crisis. In contrast, the stu-

dents reported changed perspectives on their future professional work as a doctor or nurse, indicating these professions to be demanding, dangerous, stressful and affecting the quality of family functioning. These results show that the pandemic has resulted in the appreciation of the value of employees who ensure daily functioning and medical services.

As the ability to recognize and use resources translates into SOC, the authors hypothesized that RUR would be related to it, and other variables of interest. A strong positive correlation between RUR and SOC was only observed among male employees, indicating that the readiness to engage in sharing self-reflections among older men was more strongly connected with quality of current coping indicated by SOC. A relationship between RUR and GQ-6 was only noted among students, suggesting recognition and utilization of resources might be more strongly associated with the level of positive affect among younger people, as broaden-and-build theory suggests [21]. Results from 88 countries obtained by Chopik et al. [22] showed curvilinear associations between age and gratitude, with higher results in the middle-age.

The lack of significant correlation between RUR and other variables could be explained as follows: the RUR score may not be able to capture the multiform nature of identification and usage of resources; other processes related to the context of the study (the ongoing crisis) effectively masked these relationships [23]; lockdown limited the ability to use certain commonly-used strategies, temporarily suspending the existing relationship [24]. These are open questions worth further investigation.

On the other hand, the authors found positive correlations between SOC and SHA among both female groups and younger males, as well as SOC and dispositional gratitude among females. This is consistent with the results obtained by Pallant and Lae [25], who found a correlation between SOC and SHA for both genders, with a stronger correlation between SOC and positive emotionality for females compared to males. Significant relationships between SOC and GQ-6 detected only among female employees and female students are consistent with findings reported by Fujitani et al. [26] and Kashdan et al. [10], suggesting that women are more likely to feel and express gratitude, and to benefit from its contribution to well-being.

Limitations

The validity, reliability, and generalizability of the results is significantly constrained by the limited sample size. The project activities were initiated at the very beginning of the pandemic in order to capture the most dynamic moment, gather information about how people were functioning in the crisis, and plan health promotion activities among the university community as soon as possible. In practice, recruitment was very difficult and limited, as this was also a time when many students and staff at the medical university were involved, even obliged, in the fight against the pandemic. Only online means were used to ensure epidemiological safety. However, the working conditions had changed (shift to remote teaching and working remotely), which may have resulted in overload and an unwillingness to continue online activities. All data were obtained by self-report measures which introduce a potential for self-report bias. It is also possible that the effectiveness of coping was a source of selection bias, i.e., people experiencing more of a decline in well-being did not volunteer to take part. Moreover, responses could be affected by the negative mood states what limited the depth of answers to open-ended questions. To overcome this bias, a mixed-method survey was implemented, which allowed for a more comprehensive understanding of the research problem.

CONCLUSIONS

Differences in perspectives on strengthening health and well-being during the pandemic were observed in relation to professional status and gender only in some

aspects. However, there is a need for the intervention development by focusing on health promotion and well-being during crisis situations. Individual resource recognition and utilization is one potential strategy [27]. Using open questions related to resource assessment can provide not only a valuable insight into the personal view of a stressful situation but allows people to reflect on available resources and the ability to use them.

For example, McGee [28] proposed a model of questions as therapeutic interventions. It was also assumed in this study that providing open questions gave the possibility to concentrate on emotion, feelings, and experiences during a new and difficult reality what had also a therapeutic significance. The authors suggest that applying a similar approach in further research has potential in creating new knowledge relevant and useful to both researchers and the communities. Self-guided gratitude interventions have been also recommended to improve well-being during quarantine and isolation [29]. Wu et al. [30] highlighted that gratitude interventions require adaptations for specific groups.

A deeper RUR analysis is also necessary. It would be valuable to examine this construct in the more representative sample, not in the context of a pandemic lockdown or based on longitudinal data. It will help to develop future mixed-methods research in the context of Antonovsky's theory.

Author contributions

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