Gratitude as a salutogenic asset among students and employees at the medical university during the pandemic

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Abstract

The aim of this study is to analyze the levels of Gratitude and Sense of Coherence (SOC) among students and employees of the medical university during the Covid-19 pandemic. Correlations between SOC and Gratitude, including sociodemographic variables were also taken into consideration. The total number of participants was 144 (69 students, 70 employees, 5 both), aged from 19 to 62 years old. The SOC – 29 was used and GQ-6 was performed to analyze the Gratitude level. The survey was conducted during COVID-19 pandemic at one of the Polish Medical Universities.

The average level of SOC was 124.9 (SD=24.6) and was positively correlated with age (r=0.42). There were no significant disparities in SOC according to gender. The mean level of GQ-6 was 32.4 (SD=5.96). The levels of all variables were positively correlated with age in the general group and among women.

Our study confirmed that gratitude can be considered a salutogenic asset but mainly among women, and different mechanism are responsible for developing the relationship between SOC and Gratitude according to gender. Further research on associations between SOC, Gratitude and gender are necessary during and after the pandemic.

Key words: sense of coherence, gratitude, pandemic

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A grateful perspective during the COVID – 19 pandemic could be one of the best practice to sustain our positive approach in coping with

stress due to this crisis (Fishman, 2020). Gratitude is known as cognitive-affective state connected with the perception that someone received personal benefits as a result of the good intention of another person (Emmons, McCullough, 2003). On the other hand, Lambert et al. (2009a, 2011) claim that gratitude is a broader concept and it is characterized by being "grateful for something or someone".

Gratitude is connected with positive emotions what is a crucial point to build and develop our health and wellbeing during pandemic (Fishman, 2020). Moreover, gratitude is related to positive coping with uncertainty and has an impact on our perspective, our values or what is in our control (Emmons, 2013a; Waters, Stokes, 2015). It was shown that expressing gratitude in written or spoken form or giving a gift not only can lower blood pressure or improve the effectiveness of our immune system but it also plays a role in reinforcing mental health by reducing the risk of depression, anxiety or substance abuse (Wood et.al 2008; Emmons, Stern, 2013 b; Lundberg, Peck, 1994).

It should be noted that gratitude is a universal human attribute and it is expressed in different ways by people of all cultures in the world (Emmons, Stern, 2013 b). It was also confirmed that direct gratitude can be more helpful in enhancing our and others well-being by concentrating on emotions, happiness or satisfaction. However, it is expressed in a completely different way during the pandemic. On-line activities in social media, writing e-mails or meeting by different platforms are the most frequent mean of expressing emotion today (Fishman, 2020).

The salutogenic theory includes two aspects: Sense of Coherence (SOC) and generalized resistance resources (GRRs). SOC is a global orientation that expresses the extent to which someone has a pervasive, enduring though dynamic feeling of confidence in three dimensions: comprehensibility, manageability, meaningfulness (Antonovsky, 1993). Comprehensibility has a cognitive aspect including internal and external stimuli that is perceived as being understandable in a rational way. Manageability is a behavioral aspect and refers to the degree to which someone has a conviction about resources at their disposal and they might be used in coping with demands posed by these stimuli. A meaningfulness aspect includes a motivational aspect, and it concerns the feeling that these demands are changeable and worthy of investment and engagement if someone faces some sort of a problem or challenge (Antonovsky, 1993; Eriksson, Mittelmark, 2016). GRRs concerns the way people identify and use their resources to develop and maintain their health (Eriksson, Lindström, 2007).

Universities are complex systems with significant potential for enhancing well-being, resilience and coping perspectives in guiding future development. Universities are also an important setting for health promotion actions by strengthening positive changes in health and creation conditions for well-being of their society, and they enable cohesion, inclusion, sustainability with their local communities (Dooris et al. 2017). Salutogenetic approach is recommended to be applied at universities by focusing a particular attention to help society in developing resilience and effective coping with the demands of every aspect of daily life (Dooris et al. 2017). Student group should be especially covered by mental health promotion programs due to the fact that early stage of life would be more effective in using limited resources (Bíró et al. 2019). Moreover, employees with strong SOC are aware of their necessary resources and they tend to choose a more effective strategy in coping with work demand (Pijpker et al., 2018).

To sum up, persons with a high level of gratitude usually tend to use positive reframing to interpret negative events. SOC has an impact on our life outcomes and the study showed that it correlates with positive psycho-emotional resources such as interpersonal relationships, self-esteem or optimism (Pallant, Lae, 2002; Volanen et al.2004). It is also predicted that gratitude is one of the SOC determinants and it is proved that increased level of gratitude could reduce those symptoms related with a low level of SOC (Lampert, Graham, 2009b).

From 12th of March, 2020 the Polish Medical University of Lodz was closed for students and employees because of COVID-19. It was a sudden and massive change for everyone. Student classes and office working moved on-line. Analysis of the SOC and gratitude level was a starting point to develop a health promotion strategy dedicated to university society during the pandemic. Hence, the main aim of this study is to analyze the levels of gratitude and SOC including the general value and its dimensions: comprehensibility, manageability, meaningfulness among medical university students and employees during pandemic. Correlation between SOC and gratitude including selected sociodemographic variables were also taken into consideration.

Material and methods

The Internet survey among Polish students and employees of Medical University of Lodz was conducted between 1 and 8 of May 2020.

	Ger	General (<i>n</i> =144)		en	Women (n=119)			
Variables	(<i>n</i> =			=25)				
	М	SD	М	SD	М	SD	Т	
Age	30.5	10.76	29.4	11.45	30.8	10.65	0.592	
SOC-29	124.9	24.60	130.0	20.03	123.9	25.40	1.143	
Comprehensibility	38.6	12.18	41.3	11.53	38.0	12.29	1.213	
Manageability	42.2	12.39	44.9	11.27	41.6	12.58	1.215	
Meaningfulness	37.4	13.41	37.4	13.23	37.4	13.51	-0.015	
GQ-6	32.4	5.96	32.8	6.53	32.3	5.86	0.335	

Table 1 Descriptive Statistics and Independent t-tests for Men and Women

Note. SOC-29 = Sense of Coherence – 29 Item Form; Comprehensibility, Manageability, Meaningfulness = SOC-29 Subscales; GQ-6 = The Gratitude Questionnaire-Six Item Form; *p<0.05

Variables	1	2	3	4	5
1. Age					
2. SOC-29	0.42**				
3. Comprehensibility	0.25**	0.52**			
4. Manageability	0.22**	0.67**	0.26**		
5. Meaningfulness	0.33**	0.55**	0.20*	0.40**	
6. GQ-6	0.20*	0.59**	0.11	0.43**	0.51**

Note. n = 144; *p<0.05, **p<0.01; SOC-29 = Sense of Coherence – 29 Item Form; Comprehensibility, Manageability, Meaningfulness = SOC-29 Subscales; GQ-6 = The Gratitude Questionnaire-Six Item Form

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An open recruitment approach was used in the study. The study involved 144 participants (119 women; 82.6 %) aged from 19 to 62 years old (M = 30.52; SD = 10.76). The mean age of women was 30.76 years (SD = 10.65) and only slightly higher than the average age of men (M = 29.36; SD = 11.45;t = 0.592, p = 0.555). The average mean value of student ages was 22.2 (SD = 2.17; n = 69). For university employees the average age was significantly higher (M = 38.8, SD = 9.88, n = 70, t = -13.574, p < 0.0001).

Questions about basic sociodemographic data like gender, age, marital status, having children, and education were included. Participants were invited to fill Polish versions of Sense of Coherence Questionnaire (SOC-29) (Antonovsky, 1995) and The Gratitude Questionnaire (GQ-6) (Kossakowska, Kwiatek, 2014).

The global scale and subscales of the Polish versions of SOC-29 (Dudek, 1993) appeared highly reliable. Internal consistency reliability alpha Cronbach's coefficients ranged from 0.81 to 0.91. For data from our study alpha Cronbach's coefficient 0.91 was obtained.

The psychometric parameters of the Polish version of the GQ-6 proved to be relatively good. Internal consistency reliability alpha Cronbach's coefficient is 0.72, and confirmatory factor analyses (CFI) confirmed the goodness-of-fit with the original one-factor solution of GQ-6 questionnaire structure (Kossakowska, Kwiatek, 2014). For data from our study alpha Cronbach's coefficient 0.80 was obtained.

The study archived the Bioethics Committee permission RNN/125/20/KE.

Statistical analyses

To examine statistical significance between men and women in scores of GQ-6, SOC-29 and its subscales (Comprehensibility, Manageability and Meaningfulness) *t*-Student test for independent data was performed. Analysis of covariance was used to reduce the confounding influence of the age on SOC when comparing means of the groups defined by sociodemographic characteristics. To assess relationships between variables the Pearson product-moment correlation coefficient was calculated. Because age was strongly related to analyzed variables, we used analysis of covariance to control its impact. All statistical analyses were conducted using Statistica 13.0 software.

Sociodemographic characteristic of the study group

More than half of the respondents (n=81; 56.3 %) declared having a university education, the rest (n=63; 43.1 %)- secondary. Seventy of the survey participants were university employees (48.6 %), 69 (47.9 %) students and 5 people described themselves as both students and employees.

Most of the participants declared that they did not have children (n=107; 74.3 %). Two-thirds of the study participants declared that they were single (n=97; 67.4 %), slightly less than one-third (n=42; 29.2 %) that they were married and 3.5 % (n=5) declared themselves divorced.

Most of the survey participants (n=117; 81.9%) lived with a family member or partner, about 7% (n=10) lived with their roommates and about 12% (n=17) declared living alone.

Variables	1	2	3	4	5	6
1. Age	-	0.43*	0.31	-0.02	0.21	0.10
2. SOC-29	0.42**	-	0.54**	0.40*	0.32	0.23
3. Comprehensibility	0.24**	0.51**	-	0.05	0.28	-0.41*
4. Manageability	0.28**	0.71**	0.29**	-	0.60**	0.29
5. Meaningfulness	0.35**	0.60**	0.19*	0.37**	-	0.37
6. GQ-6	0.23*	0.65**	0.21*	0.46**	0.55**	-

Table 3 Pearson Correlations between variables according to gender

Note. Correlations below the diagonal represent zero-order correlations for women, and correlations above the diagonal represent zero-order correlations for men; n = 144; *p<0.05, **p<0.01; SOC-29 = Sense of Coherence – 29 Item Form; Comprehensibility, Manageability, Meaningfulness = SOC-29 Subscales; GQ-6 = The Gratitude Questionnaire-Six Item Form

Table 4 Descriptive Statistics and ANCOVA for "inhabiting with"

	Far	nily	Al	one	Roomr	mate/s	Spouse	/Partner	
	(n=	-51)	(n=	=17)	(n=	10)	(n=	=66)	
Variables	М	SD	М	SD	М	SD	М	SD	F
Age (covariate)	23.2	5.21	31.8	10.89	26.3	4.50	36.5	10.95	22.126**
SOC-29 ¹	124.2	3.54	127.3	5.51	124.7	7.23	124.9	3.07	0.076
Comprehensibility ¹	40.3	1.85	39.6	2.87	43.1	3.77	36.3	1.60	1.270
Manageability ¹	42.1	1.91	43.3	2.97	42.4	3.90	41.9	1.66	0.060
Meaningfulness ¹	34.0	1.98	39.1	3.08	39.2	4.04	39.3	1.72	1.396
GQ-6 ¹	32.3	0.92	32.5	1.43	30.3	1.88	32.8	0,80	0.469

Note. SOC-29 = Sense of Coherence – 29 Item Form; Comprehensibility, Manageability, Meaningfulness = SOC-29 Subscales; GQ-6 = The Gratitude Questionnaire-Six Item Form; **p<0.01; ' Estimated marginal means = the adjusted means on the dependent variable for each group (the effect of the covariate Age has been statistically removed)

Variables descriptions

The average level of SOC was 124.9 (SD=24.6). The level of SOC was slightly higher among men compared to women but this difference was not statistically significant. Gender also had no statistical impact on the levels of each SOC dimensions (Tab. 1).

Without age adjustment, the mean level of SOC was statistically higher in the group of employees than in the group of students (M= 133; SD = 22.76 vs M=118, SD = 23.74; t= 3.809, p=0.0002). The similar tendency was observed in comprehensibility (M=41.5, SD=12.0 vs M=35.7, SD=21.06, t=2.809, p=0.006) and meaningfulness level (M=41.3, SD=10.04 vs M=34.3, SD=14.60; t =-3.302, p=0.001). Although the level of manageability was also higher among employees comparing to students, these disparities were not statistically significant (M=44.4, SD=12.90 vs M=40.3, SD=11.59, t =-1.955, p=0.053). After removing statistically the effect of age all forementioned differences were no longer significant (Tab. 6).

The mean level of GQ-6 was 32.4 (SD=5.96) with no statistical disparities to gender (Tab. 1). It was revealed that the gratitude level among students was slightly higher than among employees with no statistical significance (M=33.3, SD=6.01 vs M=31.9, SD=5.62, t=-1.419, p=0.158).

It was proved that the age was strongly related to analyzed variables, the rest of the sociodemographic determinants had no statistical impact on SOC and GQ-6 level (Tab. 4,5,6,7,8,9).

Table 5 Descriptive Statistics and ANCOVA for education

Correlations between variables

The general SOC and two of its subscales (Manageability and Meaningfulness) are significantly positively correlated with GQ-6. Only the comprehensibility dimension was not associated with gratitude score (Tab. 2). Correlations between all study variables were statistically significant and positive among women. Comprehensibility had a negative relationship of medium strength with GQ-6 score among men. The levels of all variables were positively correlated with age in the general group and among women. Among men, the age was correlated only with general SOC score (Tab. 3).

Discussion

Results of our study indicate that the mean SOC is similar to the results obtained by other researchers in the previous study (Kot, Lenda, 2017). A slightly higher level of SOC was noted among men compared to women but this difference was not significant. Our results suggest that the potential of gratitude in developing activities concentrated on mental health promotion among those being also a frontline medical staff in pandemic might be limited to women.

Medical university employees achieved a significantly higher level of SOC compared to students. However, the in-depth statistical analyses confirmed that these disparities were dependent not on groups but on their age. It is consistent with previous stu-

		ndary	5	her	
Variables	(n= 	503) SD	(n=	F	
Age (covariate)	23.3	7.43	36.1	SD 9.55	77.286**
SOC-29 ¹	125.4	3.24	124.5	2.79	0.037
Comprehensibility ¹	38.0	1.71	39.1	1.47	0.175
Manageability ¹	42.0	1.75	42.3	1.50	0.012
Meaningfulness ¹	37.0	1.84	37.7	1.58	0.055
GQ-6 ¹	32.9	0.84	32.0	0.72	0.647

Note. SOC-29 = Sense of Coherence – 29 Item Form; Comprehensibility, Manageability, Meaningfulness = SOC-29 Subscales; GQ-6 = The Gratitude Questionnaire-Six Item Form; **p<0.01; ¹ Estimated marginal means = the adjusted means on the dependent variable for each group (the effect of the covariate Age has been statistically removed)

Table 6 Descriptive Statistics and ANCOVA for students and employees

	Stud	lents	Emple	oyees	
Variables	(n=	69¹)	(n=		
	М	SD	М	SD	F
Age (covariate)	22.2	0.87	38.7	0.87	180.66**
SOC-29 ²	125.8	3.44	124.6	3.44	0.40
Comprehensibility ²	37.4	1.81	40.2	1.81	0.858
Manageability ²	42.4	1.89	42.2	1.89	0.003
Meaningfulness ²	37.3	1.91	38.2	1.91	0.081
GQ-6 ²	33.1	0.89	32.1	0.89	0.476

Note. 'five persons was removed from analysis because they declared being both students and employees; SOC-29 = Sense of Coherence – 29 Item Form; Comprehensibility, Manageability, Meaningfulness = SOC-29 Subscales; GQ-6 = The Gratitude Questionnaire-Six Item Form; **p<0.01; ²Estimated marginal means = the adjusted means on the dependent variable for each group (the effect of the covariate *Age* has been statistically removed)

Erfahrungen im Umgang mit der Krise

dies showing that SOC increases with age as a result of a learning process (Välimäki et al., 2009, Kuroda et al., 2007; Lindström, Eriksson, 2005). Therefore, early adulthood is a crucial period when the habits, self-image and social relation are developing and it has an impact on individuals in the future adult life (Kessler et al., 2007).

The gratitude level was at the medium with a tendency to a high level in the study group. Although the gratitude level among students was slightly lower than among employees, these differences were not significant. Moreover, no significant differences were observed according to gender. The previous results of research examining gender differences in gratitude level are ambiguous. It might be partly due to different conceptualizations or measurements of gratitude (Lambert, Fincham, 2011), or limiting the range of participants' age mainly to adolescents (Sood, Gupta, 2012). Some studies found that gender has no significant impact on the gratitude level (Froh et al., 2009; Charzyńska, 2015) but some research also showed that adult men who view expressing gratefulness as being a feminine disposition had lower levels of gratitude (Levant, Kopecky, 1995). Other studies also indicated that gender differences in gratitude level depend on the amount and intensity of positive or negative emotions expressed by women and men (Fujita et al., 1991). Probably one of the most extensive research of gender differences in gratitude was conducted by Kashdan et al. (2009). It demonstrated that women were

Table 7 Descriptive Statistics and ANCOVA for place of living

more likely to feel and express gratitude, and made less critical evaluations of gratitude comparing to men. Authors proposed that expressing gratitude might cause men to feel vulnerable and less autonomous and it makes men less likely to benefit from its contribution to psychological and physical well-being.

The correlation between SOC and gratitude was confirmed in our study, what is consistent with previous results (Lampert, Graham, 2009b). However, a small positive correlation with no statistical significance was observed among men and a large positive significant correlation was noted among women. Basing on mentioned results, we could suppose that gratitude is a salutogenic asset of women, but in the case of men it plays a more complicated role. It should be also noted that gender disparities regarding workplace functioning was confirmed. It was showed that Polish women are more agreeable and have greater ease of adapting to new situations in their professional work comparing to men (Pufal-Struzik, 2017). It is possible that the grateful disposition is rooted in gender – dependent prosocial traits associated with sensitivity and concern for others (Neto, 2007).

Moreover, we can suspect a gender-dependent mechanism that affects the association between SOC and gratitude. One hypothesis is that in stressful situations women are using positive reframing more extensively and/or effectively than men. Further exploration of the interplay between SOC, gender and positive reframing is worth continuing during and after COVID.

		age =31)		e below 0,5M :35)	Urban space (n≕		
Variables	M	SD	M	SD	M	SD	F
Age (covariate)	28.7	1.81	24.6	1.70	33.9	1.14	10.901**
SOC-29 ¹	124.1	4.07	124.7	3.98	125.4	2.64	0.040
Comprehensibility ¹	39.4	2.15	37.2	2.10	38.9	1.39	0.328
Manageability ¹	42.4	2.18	39.1	2.13	43.5	1.41	1.433
Meaningfulness ¹	34.9	2.30	37.0	2.24	38.6	1.49	0.915
GQ-6 ¹	32.0	1.06	31.8	1.04	32.8	0.69	0.406

Note: SOC-29 = Sense of Coherence – 29 Item Form; Comprehensibility, Manageability, Meaningfulness = SOC-29 Subscales; GQ-6 = The Gratitude Questionnaire-Six Item Form; **p<0.01; ¹ Estimated marginal means = the adjusted means on the dependent variable for each group (the effect of the covariate Age has been statistically removed)

Table 8 Descriptive Statistics and ANCOVA for being a parent

	Non p	arents	Pare	ents	
Variables	(n=	107)	(n=		
	М	SD	М	SD	F
Age (covariate)	25.9	0.71	43.8	1.22	160.79**
SOC-29 ¹	124.3	2.47	126.7	5.02	0.148
Comprehensibility ¹	39.2	1.30	36.8	2.65	0.535
Manageability ¹	42.9	1.33	40.2	2.71	0.426
Meaningfulness ¹	36.8	1.40	39.0	2.85	0.370
GQ-6 ¹	32.5	0.65	32.1	1.31	0.064

Note. SOC-29 = Sense of Coherence – 29 Item Form; Comprehensibility, Manageability, Meaningfulness = SOC-29 Subscales; GQ-6 = The Gratitude Questionnaire-Six Item Form; **p<0.01; ' Estimated marginal means = the adjusted means on the dependent variable for each group (the effect of the covariate Age has been statistically removed)

Conclusion

Our primary results indicate that the gratitude is promising individual resource to develop mental health promotion activities based on the salutogenic perspective especially among female students and employees in a university setting. Being grateful is known as a free mindfulness practice in coping with anxiety and uncertainty by focusing on our values, control and positive aspects of relationships (Emmons, 2013, a). Concentration on developing this asset could have a positive impact on effective coping with the challenges of the COVID-19 pandemic. Nevertheless, important gender disparities in the correlation between SOC and gratitude shown in our study should be taken into consideration in constructing appropriate recommendations and activities in relation to pandemic crises. We have the assumption that gratitude is a salutogenic asset among women and gender-dependent mechanisms are responsible for developing the relationship between SOC and gratitude. However, this statement needs confirmation in additional studies during and after the pandemic. Context of the COVID-19 pandemic and social distancing measures is a new perspective for the utilization of gratitude as a salutogenic asset. Long-term results of the reduced face-to-face communication and physical contact are still poorly recognized. Effectiveness of strategies aimed at the enhanced expression of gratitude to counter negative individual and systemic consequences of predominant electronically-mediated interpersonal communication should be analyzed in the subsequent studies (Kalkhoff et al., 2020).

Limitation

This study presents a preliminary report on the level of SOC and gratitude among students and employees in medical university during COVID. These results are difficult to generalize because of the small number of participants. However, we made every effort to invite all students and employees to participate in this research. Moreover, the follow-up study to measure SOC and gratitude levels will be conducted in the next months and it will provide additional information about the possible pandemic influence on SOC and gratitude phenomena among people from a university setting.

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Table 9 Descriptive Statistics and ANCOVA for marital status

	Non m	arried	Mar		
Variables	(n=	97 ¹)	(n=		
	М	SD	М	SD	F
Age (covariate)	24.7	0.66	42.9	1.01	228.27**
SOC-29 ²	124.7	2.83	124.2	5.17	0.004
Comprehensibility ²	40.6	1.43	34.6	2.61	2.961
Manageability ²	43.3	1.48	40.0	2.70	0.860
Meaningfulness ²	36.3	1.61	39.1	2.93	0.492
GQ-6 ²	32.2	0.73	32.5	1.33	0.032

Note. 'five participants who declared being divorced were not included into analysis; SOC-29 = Sense of Coherence – 29 Item Form; Comprehensibility, Manageability, Meaningfulness = SOC-29 Subscales; GQ-6 = The Gratitude Questionnaire-Six Item Form; **p<0.01; 'Estimated marginal means = the adjusted means on the dependent variable for each group (the effect of the covariate Age has been statistically removed)

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