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Minority stress and burnout among Hungarian physicians and medical students

Thesis booklet

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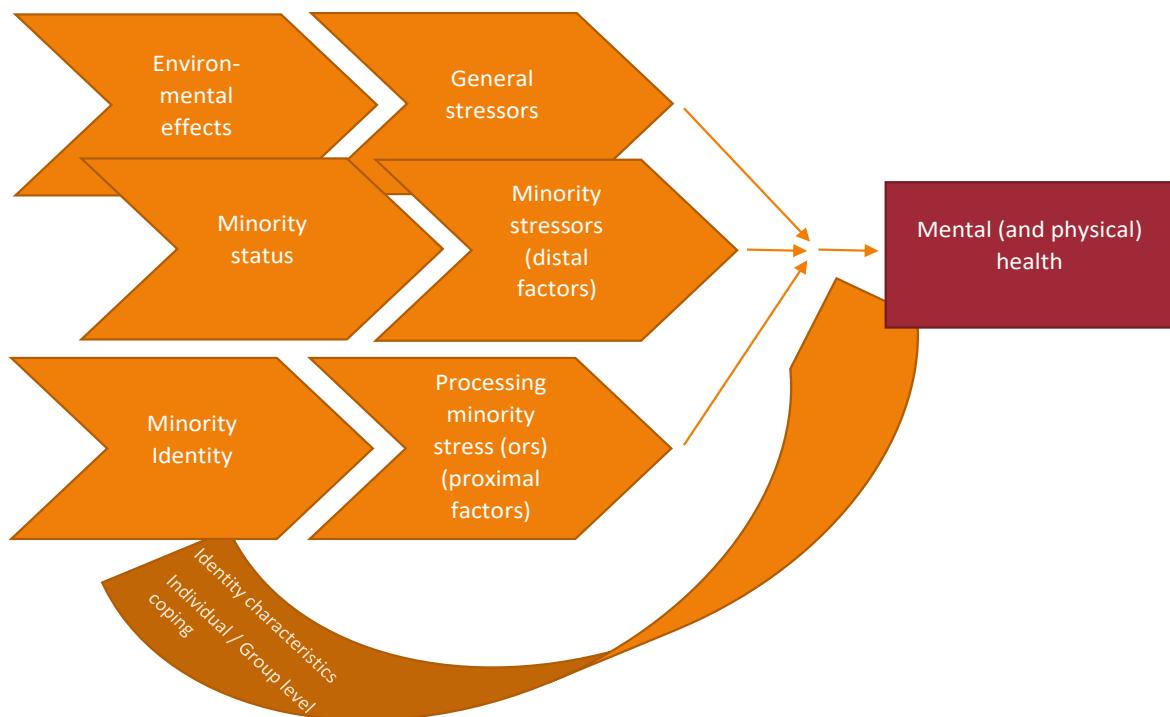
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Introduction

Medical students' and physicians' mental, physical health and wellbeing are highlighted issues for patients' wellbeing and patient safety, as well as for the sustainability of the healthcare system and the support of medical professionals. I intended to investigate the important but understudied research area of minority stress, experienced by minority professionals. As far as I know, prior to this present study, there was no other investigation conducted on this topic in Hungary.

We can define minorities as social groups that differ from the dominant group on the basis of some characteristic or group identity-forming traits. These essential identity-forming elements can be both visible (e.g., gender, race) or invisible (e.g., religious affiliation, sexual orientation). These characteristics and traits have a pervasive influence on one's everyday life, relations and physical or mental well-being. We must also highlight that experiences and social position of any minority are not exclusively determined by the numerical differences between the majority and minority groups, but also by the power relations and power imbalance between dominant and non-dominant groups, which puts one group into a subordinate position by overt or covert mechanisms such as discrimination, oppression and exploitation. Members of stigmatized minority groups face chronic stress as a consequence of their minority position, mediated by social processes such as categorization, social identity, intergroup connections, called minority stress.



1. figure – Brief summary of Meyer's minority stress model

According to Meyer, minority stress emerges as a result of several distal and proximal stress factors. Perceived prejudice and discrimination, hate crimes can be categorized as distal stressors, while the fear of rejection, internalized negative attitudes, and anxiety stemming from concealing group identity (e.g., for sexual and gender minorities) are seen as proximal factors associated with minority stress. Meyer argues that due to power inequality between the dominant and non-dominant groups, minority individuals are subjected to constant alertness (alarm reaction) and chronic distress in intergroup connections, which can affect their physical and mental health.

According to international literature, minority doctors and medical students face similar difficulties in their professional lives. When investigating the international results, we can find that the difficulties of minority physicians and medical students are similar regardless of their group forming characteristics. These difficulties include constant fighting for social acceptance, negative professional judgment, prejudice, negative discrimination, isolation due to a lack of a supportive environment and social support, which finally result in higher rates of dropout or leaving the profession.

Several studies suggest that minority physicians are more likely to care for minority patients or work in less developed regions or less popular specializations than their majority counterparts.

When dealing with minorities and minority health we must talk about cultural competence as an important factor in interpersonal and intercultural connections. The continuum of cultural competence leads from cultural destruction to cultural humility. Moving forward on this scale, the individual or the system becomes more and more sensitive and increasingly competent. Supporting culturally competent providers and care systems can help to reduce inequalities in health and care for minorities. Implementing special training for the workforce and supporting the presence of diverse care staff can enhance culturally competent care. Providers with more knowledge and personal contact with certain minority groups tend to have a more favourable attitude towards minorities, and are more likely to provide competent and inclusive care.

According to the literature, minority physicians (and medical students) might play a key role in tackling health inequalities. The intergroup contact theory suggests that even with their mere presence, they become important actors in promoting cultural competence and forming the attitudes of healthcare professionals. But we must be aware, that this role also lays a significant burden to minority providers and students, therefore we cannot expect them to

solve the issue of healthcare inequities. There is an urgent need for the active involvement of universities, the care system in general and the medical community in closing the gap in care. Previous studies also highlighted the lack of minority mentors and role models, the presence of stigmatization, questioning of abilities and competencies, implicit and explicit prejudices, and microaggression as common difficulties of minority physicians. Other studies found that prejudice and discrimination - both directly and indirectly - affect the wellbeing and health outcomes of minorities. The fear of discrimination or rejection, and the previous negative experiences might prevent minority individuals from seeking help when it is necessary, while a number of studies have highlighted that their physical and mental health and health behaviours may be considered more disadvantageous than those of the majority. Perceived discrimination and microaggression affects not just the actual victims, but also the eyewitnesses regardless of their minority identity. Being exposed to discrimination, prejudices and other stigmatising communication as a part of the hidden curriculum can intensely influence the attitude of health professionals and maintain health inequities. Teaching inclusiveness and diversity in the university and care system and eliminating the prejudices from the hidden curriculum are important issues in order to provide a safe and supporting environment for minority students, professionals and patients.

Minority medical professionals, just like any other provider, are also endangered by burnout. Numerous studies have shown that those who choose the medical profession are often burdened by uncontrollable working conditions, time pressure, daily exposure to death and human suffering and other workplace stressors, even during training, therefore, they are more likely to burn out. According to meta-analyzes, the prevalence of burnout is 0-80.5% among physicians and 7-72% among medical students. In addition to the known external factors, several studies pointed out that some personal factors as internal causes may also play a role in the development of burnout. Belonging to a minority should also be considered as a parallelly individual and social risk factor that influences university performance, career advancement, job satisfaction and dropout, and might affect burnout. Although the issue of minority identity appeared in burnout studies in the last few years, its impact on burnout is still unclear: some studies discuss it as a protective factor because it increases resilience and social support, while others take it to account as a risk factor due to minority stress, microaggression and discrimination.

Nonetheless, burnout and minority stress clearly have an impact on the physical and mental health and health behaviour of physicians and medical students. Both factors affect dropout and career satisfaction, the quality of care, the incidence of malpractice and other adverse

events, therefore the duration and effectiveness of care. The physical and mental health of minority physicians and medical students deserves attention both because of the possible relationship between minority stress and burnout (as work-related stress) and their special role in enhancing a culturally competent healthcare system, thus, providing better care for minority patients.

Aims

My aim was to conduct a study among students of the four Hungarian medical universities as well as among the practising physicians in Hungary, focusing on the perception of discrimination, their physical and mental health, stress load, and experiences within the university and the healthcare system itself. I intended to pay special attention to the experiences of vulnerable groups, such as women, minority individuals or other stigmatized groups. My questions were aiming to cover the following points:

1. To assess the mental health of minority physicians and medical students.
2. To investigate which factors may influence burnout among students and practitioners, paying close attention to those belonging to minorities as a group not previously studied in Hungary.
3. To analyze the results of perceived discrimination of Hungarian medical students and physicians and compare them with the data of the 2015 Eurobarometer for Hungary and Europe (Eurobarometer. Discrimination in the EU in 2015. Budapest: European Commission; 2015.).
4. To conduct qualitative research in order to examine the experiences and coping strategies of minority physicians (content analysis of a semi-structured interview).
5. To gather data about medical students' attitudes towards LGBT individuals, as well as to examine their background characteristics' relation to their attitudes and knowledge.
6. To compare results of Hungarian and foreign medical students regarding attitude and knowledge.
7. To develop a questionnaire measuring knowledge and attitudes about LGBT people specifically for health care professionals.

Methods

For students, the online, self-administered questionnaire was sent twice via Neptun or ETR messages. I used validated, Hungarian language scales in my survey that included the following questionnaires: Patient health questionnaire (PHQ-15) about stress-related physical symptoms, Connor-Davidson's Resilience Questionnaire, Well-Being 5 questionnaire, Perceived Stress Scale, Zimet's Multidimensional Perceived Personal Support Questionnaire, Maslach Burnout Inventory – Student Scale, Folkman-Lazarus Coping Scale, Spielberger's State and Trait Anxiety scale), questions about health behaviour (smoking, drinking, drug use). The survey also contained the following questions from the 2015 Eurobarometer:

“In the past 12 months have you personally felt discriminated against or harassed on one or more of the following grounds?” (Ethnic origin; Gender (male/female); Sexual orientation (gay, lesbian or bisexual); Being under 30 years old; Religion or belief; disability; Gender identity (transgender or transsexual); For other reasons; I don't know; I did not experience discrimination). “Where you live, do you consider yourself to be part of any of the following? Please indicate all that apply.” (An ethnic minority; A religious minority; A national minority; A sexual minority (for example, gay, lesbian, bisexual or queer); A gender minority (transgender, transsexual); A minority in terms of disability; Any other minority group (for example people suffering from obesity, longstanding health conditions or mental illness); None.) During the data assessment procedure, students who indicated that they think they belong to any of the listed minority groups were treated as minority students, and a dichotomous variable was created for indicating experienced discrimination (“yes, experienced” - “no, have not experienced”).

A total of 530 students sent back the questionnaire out of 5984 active students at the time, which meant an 8.8% response rate. I weighted the data along 3 dimensions (gender, grade, university) during data processing, in order to minimize the bias of the low sample size.

The questionnaire was sent twice for the physicians as a newsletter by the Hungarian Medical Chamber. The questionnaire somewhat differed from the student survey: it included some of the psychometric scales (PHQ-15; CD-RISC; WB-5; PSS-10; MSPSS; STAI), the questions on health behaviour and the Eurobarometer issues mentioned above. However, for physicians, I used the Maslach Burnout Inventory (MBI) - Human Services Survey for measuring burnout. In the case of physicians, the survey also included Siegrist's Effort–Reward Imbalance Questionnaire, as well as some job-related questions (How many jobs do you have?; In what position do you work full-time?) and a couple of questions from the Central Statistical Office's Workplace Discrimination Questionnaire. 269 physicians responded to the

questionnaire, as the number of licensed physicians in Hungary in 2017 was 39,132, according to the Central Statistical Office, the response rate can be considered very low. However, the low response rate is usually typical for both online questionnaires and physician surveys.

For the qualitative part of the study, interviewees were recruited by snowball sampling, also, they had the opportunity for applying for the interview when filling out the questionnaire. The semi-structured interviews were conducted between 2018 / 09-2020 / 03. I interviewed a total of 11 participants who reported belonging to a minority in order to gain a deeper understanding of their university and work experience and difficulties. I performed a descriptive content analysis on the qualitative data.

Since 2016, we have examined higher education students' knowledge and attitudes about sexual and gender minorities, in collaboration with the Department of Public Health at Semmelweis University. We conducted a paper-based questionnaire with convenience sampling among first-year and quarter-year medical students of the four Hungarian medical universities studying in [SE (N = 376); PTE (N = 198); DE (N = 74); SZTE (N = 97)], quarter-year English program medical students of Semmelweis University (N = 82). First-year nursing students of Faculty of Health Sciences at Semmelweis University (N = 41), first and second-year (N = 66) students at Gusztáv Bárczi Faculty of Special Needs Education, as well as first and second-year students of Faculty of Social Sciences at Eötvös Loránd University (N = 81) were used as control groups. In addition to general demographic questions, the questionnaire included scales measuring the attitudes and knowledge about LGBT people: Attitude Toward Lesbian and Gay (ATLG) and Modern Homonegativity Scale (MHS) attitude scales, our modified version of the Healthcare Professionals' Attitudes Toward Sexual Minorities (HPATSM) and modified Sexual Education and Knowledge about Homosexuality Questionnaire (SEKHQ). The attitude scales are usually 5 to 7 likert scales, with questions like: "Sex between two men is just plain wrong" or "The notion of universities providing degrees in gay and lesbian studies is ridiculous.". The knowledge questionnaire contained true or false questions about specific health and healthcare issues of LGBT individuals such as: "Gay men and lesbian women have an increased incidence of anxiety and depression compared to heterosexual men and women.". A higher score on the attitude scales means more negative attitude, while the higher scores reached on the knowledge questionnaire indicate greater knowledge about the LGBT minority.

Results

1. Students' survey

The students' survey resulted in a total of 529 evaluable responses, with a response rate of 8.8%. The mean age of the students was 22 years. Female students (61.3%, 324 people) were over-represented by gender, one-third of the respondents were male 38,5% (204 people). 2 students indicated the “other” gender identity and 58 individuals indicated non-heterosexual orientation. 39.3% of the respondents studied at Semmelweis University, 18.7% studied at the University of Pécs, 21.4% at the University of Szeged and 20.5% at the University of Debrecen. 288 students were part of the lower grade (I.-III. grade), while 301 respondents indicated that they belong to the upper grade (IV.-VI. grade) at university. Almost one-third of the whole sample indicated that they belong to a minority group (30.5%).

8.9% (n=47) of the students use smoke regularly, and 10.7% (n=56) occasionally. 12.4% (n=66) of them use alcohol, and 20.5% (n=109) use psychotropic medication on a weekly basis. 60.7% of the students (n=321) indicated a high burnout level. 182 students (34.4%) reported having at least a moderate level of psychosomatic symptoms (PHQ-15). The majority of the students had a high level of social support (74.9%, n=396). On the student sample the mean was 7.44 on Well Being five (SD=3,8), and 20,08 points on the Connor-Davidson's resilience scale (SD=6,32). Regarding anxiety, the mean of trait anxiety subscale was 45.90 points (SD=10,35) and the mean of state anxiety subscale was 44,84 points (SD=12,91).

Female students were characterized with worse mental health. They had higher points on the PHQ-15 symptom scale (10.26 vs. 6.9; $p \leq 0.001$), state (46.51 vs. 42.25; $p \leq 0.001$) and trait anxiety (47.42 vs. 43.43; $p \leq 0.001$) scale, perceived stress (21.11 vs. 18.89; $p \leq 0.001$), and well-being five scales (7.22 vs. 7.80; $p \leq 0.001$), but they reported higher social support from on “family” and “other” subscales. Female students had a minimally higher mean score on MBI, but the difference was not significant (39.44 vs. 39.61). Female respondents use some form of psychopharmaceutical (24.1%, n=78 vs. 14.8%, n=30; $p \leq 0.01$) significantly more often than male participants, but consume less alcohol on a weekly basis (7.8% n=25 vs. 19.2% n=40; $p \leq 0.001$) or smoke regularly (5.9% n=20 vs. 13.4% /n=27; $p < 0.05$).

Upper grade students were more likely characterized with high level of burnout, (65.9% vs. 56.3%; $p < 0.05$), however perceived stress (21.15 vs. 19.19; $p \leq 0.001$), state and trait anxiety (46.54, vs. 42.87; and 47.24 vs. 44.35; $p \leq 0.001$) and PHQ-15 scores (10.02 vs. 8.75; $p \leq 0.05$) were higher among one to third grade students. There was no difference between grade groups in terms of resilience, general well-being, social support, and health behaviours.

Minority students reported higher prevalence of smoking (regular smokers: 13.7% n=22 vs. 6.8% n=25; occasional smokers (13.7% n=22 vs. 6.8% n=30) and more frequent weekly alcohol consumption (16.1% n=26 vs. 10.6% n=39; p=0.07) or psychopharmaceutical drug usage (28.4% n=46 vs. 17.1% n=63; p<0.01). They reported worse mental health status in general, they were characterized by less favourable results compared to their majority peers. They had higher scores on the psychosomatic symptom scale (10.38 vs. 9.04; p <0.05), on state (46.52 vs. 44.12) and trait anxiety scales (47.60 vs. 45.15; p <0.05), on perceived stress scale (21.86 vs. 19.55; p <0.001), on WHO's well-being five scale (6.98 vs. 7.64; p <0.05), and on MBI (43.96 vs. 37.62; p <0.001). They also reached lower mean scores regarding social support (5.38 vs. 5.93; p <0.05) and resilience (26.58 vs. 28.73; p <0.001). All differences were significant except in the case of state anxiety subscale.

The mean burnout score of the students was 39.56 (SD = 16.74), more than half of the participants (60.7%; n=321) were characterized with high-level burnout. Investigating the relation between burnout and demographic data, no correlation was found in the case of gender and grade, but minority group membership and perceived discrimination were associated with higher burnout scores. Regarding the psychometric scales, perceived stress, trait and state anxiety had a positive correlation, while resilience had a negative correlation with burnout. My multivariate regression model showed that changes in burnout score were explained in 39.3% by the significant variables in the model: State anxiety, resilience, and perceived stress and minority group membership had significant relation with burnout scores (Table 1).

Table 1. - Results of the burnout regression on the student sample

Linear regression of burnout

		Univariate model		Multivariate model	
Dependent variables		Mean (SD)	T score / P-value Pearsons corr.	B (b)	P- value
Gender	Female	39.61 (17.21)	-0.115	0.91	Excluded from the model
	Male	39.44 (16.02)			
Grade	Lower	39.06 (16.82)	-0.726	0.468	Excluded from the model
	Upper	40.13 (16.66)			

Perceived discrimination	Yes	42.74 (16.35)	-4.042	<0.001	Excluded from the model	
	No	36.91 (16.62)				
Minority	Yes	43.96 (16.71)	-4.035	<0.001	0.078 (2.82)	<0.05
	No	37.63 (16.40)				
Perceived stress	Low	31.06 (14.28)	-14.38	<0.001	0.264 (9.01)	<0.001
	High	48.99 (13.86)				
Trait anxiety			0.555	<0.001	Excluded from the model	
State anxiety			0.485	<0.001	0.207 (0.272)	<0.001
Rezilliencia			-0.508	<0.001	-0.290 (-0.781)	<0.001
Social support			-0.340	<0.001	Excluded from the model	

Minority students and female respondents thought that prejudices against different minorities are rather frequent, and it would mean less inconvenience for them to work with representatives of different minorities. Minority participants also were more likely to report that certain traits or characteristics, such as the candidate's name, address, manner of speech, sexual orientation, or transgender identity, disability, or physical appearance would serve as the basis of discrimination in a job interview. Female respondents thought that an applicants age (younger than 30 or over 50), or gender could be grounds for discrimination in a job interview. Nearly half of the respondents 45.5% (288 people) experienced some form of discrimination in the past year, female students (53.9% n=175 vs. 31.8% n=65) and minorities (64.7% n=101 vs. 40.8% n=152) reported a higher prevalence of perceived discrimination than their male or majority counterparts.

Minority students, compared to their majority peers, considered the information on ethnic minorities given by the university to be less sufficient and found the university's efforts on promoting diversity with the aim of supporting sexual and gender minorities, religious minorities and people with disabilities less satisfying.

Compared to their male counterparts, female students found universities' efforts on promoting diversity in terms of gender equality and help transgender people not to feel less worthy, while male students were more likely to report that the universities were not supporting religious minorities and sexual minorities properly.

On the other hand, a significantly higher percentage of male respondents indicated that they did not consider it necessary to promote diversity at university in the case of gender equality and ethnic, trans-minorities.

2. Physicians' survey

A total of 269 people participated in my physician survey. Respondents age was between 26 and 82 (M=53). As in the case of the student survey, most of the participants were female (62.1% n=167) while 37.5% indicated male gender (n=101). None of the respondents belonged to gender minorities, and only 5 people reported non-heterosexual orientation. 42.5% of the physicians in my sample graduated from Semmelweis University, 16.4% studied at the University of Pécs, 18.3% at the University of Szeged, 16.0% at the University of Debrecen and 6.7% of the participants graduated abroad. The vast majority of the respondents (67.6%) were specialists, 7.4% of them were residents/trainees, 3.7%-3.7% were freelancers or researcher/instructors and 21.2% of the total sample did not respond to this question. 17.4% of the physicians indicated minority group identity. Most of the participants belonged to religious minorities (7.8%), another 7.8% reported to belong to a stigmatized group, while 1.1% of them were a member of national minorities, 0.7% were an ethnic minority and 0.4% (2 individuals) indicated sexual minority identity.

74.0% of the physicians were smokers, and more than a quarter of them (26.4%) drank alcohol on a weekly basis, while 10.8% used psychopharmaceutic medication weekly.

The mean score was 45.86 points on MBI and 5.01 points on the social support scale. The PSS's mean score was 5.88 points and on the resilience scale, physicians' mean score was 39.09 points. The Siegrist's Effort-Reward ratio had a maximum value of 1.33 and a minimum value of 0.40. 95 physicians (35.3%) reported a high level of burnout and more than half of the total sample (58.7%) indicated at least a moderate level of intensity and frequency (56.1% moderate, 2.2% high) of psychosomatic symptoms.

Female physicians were characterized with more unfavourable mental health. They were more likely to report high scores on PHQ (3.78 vs 7.74; $p \leq 0,001$), on PSS (5.47 vs. 6.14; $p \leq 0.05$), on the effort subscale of Siegrist's Effort-Reward questionnaire (6.77 vs. 5.32 $p \leq 0.01$) and on the emotional exhaustion subscale of MBI (16.62 vs. 21.24; $p \leq 0.01$). Female participants had a higher mean score on the MBI scale and its depersonalisation subscale (6.37 vs. 7.00), but the difference was not significant.

1.9% of the female respondents and 7.0% of the male participants were characterized with a 1.0 or higher effort-reward ratio. There were some significant gender differences in the case

of health behaviour: female physicians were more likely to smoke (77.5% vs. 89.8%; $p \leq 0.01$), while male respondents reported higher weekly alcohol usage (37.6% vs. 19.8%; $p \leq 0.05$).

Alcohol and medication usage were slightly higher among minority participants versus their majority counterparts, (30.4% vs. 26.0 % in the case of weekly alcohol usage and 15.2% vs. 9.6% in the case of psychopharmaceutical usage) but the difference was not significant. Minority physicians reported higher anxiety (16.95 vs. 15.43; $p \leq 0.05$) and depersonalisation (8.07 vs. 6.51; $p \leq 0.05$) scores but reached lower scores on the Connor Davidson's Resilience scale and on the family subscale of Zimet's social support questionnaire (4.92 vs. 5.42; $p \leq 0.05$). No further differences were shown between majority and minority respondents.

There were some differences between the age groups in the case of the psychometric questionnaires: younger participants were more likely to have higher burnout scores (68.0 vs. 53.0 vs. 39.0 vs. 46.0 vs. 39.0 vs. 34.00; $p \leq 0.001$) and lower effort-reward ratio (0.15 vs. 0.27 vs. 0.29 vs. 0.29 vs. 0.47 vs. 0.64; $p \leq 0.001$). In terms of job status/position, resident physicians were characterized by higher perceived stress (8.0 vs. 6.0 vs. 7.00 vs. 7.00; $p \leq 0.05$), higher burnout scores (70.0 vs. 42.0 vs. 32.0 vs. 47.0; $p \leq 0.05$) and higher social support (5.38 vs. 5.33 vs. 4.92 vs. 4.67; $p \leq 0.05$), while researchers/instructors reported higher psychosomatic symptom scale scores (8.5 vs. 6.0 vs. 8.0 vs. 13.0; $p \leq 0.05$).

Physicians mean score on MBI was 45.9 (SD = 21.2), and 35.3% of the respondents had high-level burnout. 47.8% of minority physicians were in the high-level group, compared with 33.3% of their majority peers, and more female physicians were characterized with high-level burnout than male counterparts (39.5% vs. 27.7%). In the binary logistic regression model of high-level burnout, I found that those who had higher perceived stress scores and a lower effort-reward ratio had a higher chance of high-level burnout. Other variables did not remain significant in the regression model. The Nagelkerke R-square value of the regression model was 0.58.

Most physicians thought that discrimination occurs most frequently on the basis of ethnicity (61.7%) and gender (53.2%). Regarding perceived discrimination, minority respondents compared to their majority counterparts considered the occurrence of discrimination related to gender identity to be more common (66.3% vs. 45.8%; $p < 0.05$), while female participants were more likely to indicate that discrimination is a common phenomenon than their male colleagues – in case of any given group identity. Respondents would find the presence of transgender (19.2%), Muslim (17.2%), LGB (16.8%), and Roma/gipsy (14.4%) colleagues the most uncomfortable. Minority physicians were more likely to report that working with other minorities would be uncomfortable for them in case of Roma (22.2% vs. 12.8%; $p < 0.05$), LGB

(16.8% vs. 13.8%; $p < 0.05$), transgender (37.8% vs. 15.3%; $p < 0.001$), disabled (17.8% vs. 6.0%; $p < 0.05$) individuals than their majority colleagues, while female respondents found less uncomfortable to work with any stigmatized group than their male counterparts. Female physicians (29.3% vs. 13.9%; $p < 0.05$) and minority physicians (39.1% vs. 20.5%; $p < 0.05$) were more likely to experience discrimination in the last 12 months than their male and majority colleagues. Female participants were also significantly more likely to experience gender-based discrimination during the job-seeking, while the vast majority of male respondents did not experience such discrimination (79.7% vs. 55.2%; $p < 0.001$). Minority and female physicians were less satisfied with the information about minorities given during university. At the same time, the vast majority of physicians thought that no effort is needed to promote diversity in the workplace, though differences were not significant between minority and majority or female and male physicians.

3. Students' attitude study

1061 higher education students have participated in our attitude toward and knowledge about sexual and gender minority study, and 988 questionnaires were included in the data analysis. Participants ages were between 18 and 38 ($M = 22.56$). The majority of the students reported heterosexual orientation (93.1%). 17.4% of the respondents indicated that they do not have LGBT acquaintances. 22.5% ($n = 222$) of the students had liberal, and 45.9% ($n = 453$) had rather liberal political views, 5.8% ($n = 57$) of them were religious and 39.6% ($n = 391$) were mostly religious, while 55.4% ($n = 538$) of our respondents were not religious. 40.0% of the students practice their religion at least on the most significant religious celebrations ($n = 395$). Students mean score was 35.52 ($SD = 10.25$; $n = 778$) on modern homonegativity gay scale and 36.28 ($SD = 6.16$; $n = 164$) on MHS lesbian scale. 966 students filled the modified knowledge questionnaire, with a mean score of 8.29 ($SD = 2.92$). Old type attitude questionnaire mean scores were 5.25 ($SD = 1.71$; $n = 966$). Total 768 medical students responded to the HPATSM questionnaire, the mean score was 27.94 ($SD = 10.13$). Female, less religious students with rather liberal political views and the presence of LGBT acquaintances had a more positive attitude toward and a greater knowledge about sexual and gender minorities.

Examining knowledge and attitude scales by using discriminant analysis resulted that students of the English and Hungarian programs were separated in terms of social distance or homonegativity, but their knowledge about LGBT people was less discriminating. The dependent variables were Hungarian lower grade (grades I-III), Hungarian higher grade (grades IV-VI) and groups of English program students studying at Semmelweis University, while homonegativity, social distance, and knowledge about LGBT people were included in

the analysis as independent variables. Foreign students had a more favourable attitude toward and more knowledge about LGBT people.

4. The results of the qualitative study

Participants' age was between 26-55 years, 5 interviewees lived in Budapest, and the other 5 in the countryside. 4 of the participants planned to move abroad at the time of the interview. According to their narratives, their personal (scientific) interests, their lived experience with the health care system mediated by their own or their family members' health, and the impact of their social relationships played an important role in their career choices.

During the training, participants encountered mistreatment and harassment regardless of their gender, as well as prejudice towards minorities. Some of them explained these encounters with the specific hierarchical nature of the medical profession, or as a consequence of current social discourse, and they often normalized these incidences. In connection with their university education and work experiences, the most highlighted topics were the rigidity and strong hierarchy of the (training) system, the overload of work, the (financial) difficulties of living and the issue of parasolvency. All participants without exception had a negative attitude towards gratitude money or parasolvency. Working abroad showed up in many narratives as a possible solution for ensuring their career advancement or their well-being as an answer to the current Hungarian status quo. The need for social support and (professional) mentoring as desired help factors were also often emphasized.

Conclusions

Physicians and medical students who belonged to the female gender, or any minority groups were generally more likely to have unfavourable mental health: they were characterized by lower overall well-being, higher perceived stress and anxiety, and higher overall psychosomatic complaints. Minority medical students reported lower social support in the student survey and minority professionals had the same pattern in the interviews. Burnout scores were significantly higher for female and younger participants, however, minority physicians' prevalence for high-level burnout was also higher compared to their majority peers, though the latter difference was only significant in the student sample. Female physicians and medical students were more likely to think that discrimination against certain groups is a common phenomenon, have themselves more often experienced negative discrimination in the last 12 months and considered university or workplace inclusion to be more important than male counterparts, and similar tendencies emerged in case of minority students and physicians. Physicians and medical students indicated that discrimination against ethnic minorities was the most common phenomenon, just like the European respondents in the 2015 Eurobarometer. Based on their responses, medical students considered discrimination more common in all the examined categories, while physician respondents thought that discrimination against religious minorities, transsexuals, LGB individuals, and younger people was rather a rare issue. Both students and physicians were more likely to think than the European and Hungarian population, that personal characteristics could serve as a basis for discrimination at a job interview, and this difference was especially notable in the case of the candidate's gender. Physicians' and medical students' opinions regarding the inconvenience of working with different minorities were more like the European Union citizens' and less the Hungarian population's judgement. Compared to the average Hungarian population, physicians and medical students were characterized with more favourable attitudes in connection with minorities and discrimination, which may indicate their sensitivity and empathy as helping professionals.

Students' attitude survey showed that students' individual characteristics such as gender, religiosity and political views, and the presence of LGBT acquaintances have an impact on attitudes and knowledge about LGBT individuals. Foreign students who were studying in a more diverse university environment were also characterized by more favourable attitudes and greater knowledge than their Hungarian peers.

Facing the challenges of our multicultural world is almost inevitable nowadays in the medical profession. To provide better care for patients of a multicultural, diverse population, requires

the presence of sensitive, well-trained and culturally competent providers and healthcare system(s). The experience of negative prejudices and discrimination against minorities were present in my interviewees daily work. It was normalized or internalized by some of them, while other interviewees explained them as a consequence of broader social attitudes. It serves the interests of both the students and the patients to raise awareness of one's implicit and explicit prejudices as a caregiver or educator. Physicians and university lecturers must pay more attention to their own behaviour and their environment, they must try to encourage a change of perspective.

The problem of isolation and alienation often emerged in my interviewees' narratives, and several participants highlighted the need for better social relations, support groups and professional mentors both during university and in work-life. Enhancing cultural competence is also important in order to increase the diversity of health services and employees. Recruiting and supporting a diverse student population, developing and maintaining mentoring programs and student support programs are all important parts of retaining a culturally competent workforce, therefore providing inclusive healthcare. Establish and assist supportive inter-group connections are essential for increasing the cultural competence of students and health professionals and also for facilitating minority students' and providers' integration.

Investigating perceived discrimination and student attitude can provide us with a great opportunity to expand our background knowledge in connection with caring for minorities, as well as might help us to better understand the effect of prejudices in medical settings, thereby can support us to eliminate health and healthcare inequalities.

Strengths and limitations of the study

My PhD research has several strengths and limitations. As far as I know, such a comprehensive study has not yet been conducted in Hungary previously in connection with the health and experience of doctors and medical students belonging to the minority group. The international literature often emphasizes that the diversity of health providers could have a positive effect on healthcare, minorities' health and in terms of intercultural medicine and multiculturalism. Another strength of this current research is that it combines both quantitative and qualitative methods and tries extensively to explore the experiences, physical and mental health of minority physicians and medical students.

The small sample size is considered an important limitation in both qualitative and quantitative study parts. I also consider the descriptive, cross-sectional nature of the study to be a limitation. It would be important to perform follow-up studies, longitudinal examinations, preferably on a larger sample of physicians and medical students.

List of abbreviations

ATLG-R3 – Attitude toward lesbian and gay shortened (3-itemed) version

DE – University of Debrecen

CIC – “categorization – identification – comparison”

HPATSM - Healthcare Professionals’ Attitudes Toward Sexual Minorities

LGB – lesbian, gay, bisexual

LGBT – lesbian, gay, bisexual, transgender

MBI –Maslach Burout Inventory

MHS – Modern Homonegativity Scale

PHQ - Patient Health Questionnaire

PSS – Perceived Stress Scale

PTE – University of Pécs

SE – Semmelweis University

SEKHQ – Sexual Education and Knowledge about Homosexuality Questionnaire

SIT – Social identity theory

SZTE – University of Szeged