

EMPATHY IN HEALTHCARE PROFESSIONALS DURING THE CORONAVIRUS PANDEMIC

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SUMMARY

Background: Empathy is important for successful interactions. The aim of the present study was to determine whether the cognitive component (Perspective taking) and affective components (Empathic concern and Personal distress) of empathy in health professionals were related to the degree of perceived threat of coronavirus, difficulties in doing work, difficulties in getting along with people, the health condition (current or past coronavirus disease), as well as with some socio-demographic characteristics. Fantasy as the cognitive component of empathy was not the focus of the present study as more irrelevant to clinical practice.

Subjects and methods: A study of 296 health care workers through the Interpersonal Reactivity Index and a survey on perceived coronavirus threat, difficulties in work and getting along with people found that perceiving coronavirus as a stronger threat reduced both the cognitive component of empathy Perspective taking and the affective component of empathy Personal distress.

Results: As the affective components of empathy Empathic concern and Personal distress increased, the reported work difficulties were reduced. As the cognitive component of empathy Perspective taking and the affective component of empathy Personal distress increased, the reported difficulties in having a good relationship with other people were reduced. Some socio-demographic differences in the components of empathy in health workers were also established.

Conclusion: These findings revealed the importance of Personal Distress (experienced anxiety, worry, discomfort, and apprehension when observing another person's negative experiences), as well as the joint manifestation of several aspects of empathy for successful work and maintaining good relationships in health care. Emotionality is a normal part of human interactions, so manifestations of cognitive empathy should not be only considered as appropriate, and emotional empathy should not be ruled out as unnecessary in clinical practice during the coronavirus pandemic.

Key words: effective empathy - cognitive empathy - perspective taking - empathic concern - personal distress

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INTRODUCTION

Empathy is an important factor for success in communication activities in psychology and medicine (Stoyanova 2008). Empathy is especially important for the effectiveness of psychotherapy (Cone 2017). Health professionals must show empathy as a social skill and personal quality (Balkanska 2009) as part of the support provided to patients (Vinarova 2015) to contribute to the reassurance of the patient, to show that they understand and share his/her feelings, to reassure that they will take care to relieve the suffering and are competent to deal with the disease (Balkanska 2009). The empathy shown by physicians is associated with greater patients' satisfaction due to the impression that healthcare professionals care more about patients and show a more ethical attitude towards them (Riess et al. 2012). The empathy shown by health professionals is related to the effectiveness of communication and the perceived favourable attitude of the professional towards the patient (Balkanska 2009). The empathy shown by physicians strengthens patients' trust in them, facilitates the description of symptoms and details that are important for the diagnosis (Thirioux et al. 2016). The more empathy physicians show, the more patients follow their prescribed treatment

and understand the medical guidelines (Thirioux et al. 2016). The empathy of physicians is associated with greater medical competence and efficiency of the care provided (Thirioux et al. 2016). Patients highly value such physicians who exhibit not only clinical but also empathic abilities (Thirioux et al. 2016). Physicians value an empathic relationship with a patient as bringing greater professional satisfaction (Thirioux et al. 2016). The empathy shown by physicians is beneficial for physicians and patients alike - it has a positive effect on the quality of life and well-being of physicians and patients (Thirioux et al. 2016).

Clinical empathy involves four dimensions (Thirioux et al. 2016). The emotional dimension of clinical empathy is related to feelings and refers to the ability to imagine what the patient feels and experiences (Thirioux et al. 2016). The cognitive dimension of clinical empathy is the ability to recognize and present a patient's experience and perspective (Thirioux et al. 2016). The moral dimension of clinical empathy refers to the motivation of physicians to show empathy to the patient (Thirioux et al. 2016). The behavioural dimension of clinical empathy refers to the ability of physicians to inform the patient that they understand his/her point of view and his/her experiences and that

they take them into account (Thirioux et al. 2016). The visual-spatial and self-regulatory dimensions of general empathy are not included in clinical empathy (Thirioux et al. 2016). The visual-spatial dimension of empathy refers to the recognition of experiences by means of nonverbal expression, and the self-regulatory dimension refers to overcoming the discomfort experienced in observing other people's suffering, the desire to physically separate from the situation, and instead provide the necessary help to overcome suffering. The tendency in empathy to attribute to oneself what others are experiencing increases personal distress when physicians face the mental and physical suffering and pain of others - then clinical empathy decreases (Thirioux et al. 2016).

Medical empathy, empathy in a clinical context is predominantly cognitive and includes understanding (Guilera et al. 2019, Hojat & Gonnella 2017) of patients' experiences, care, and views, besides, the physician expresses that he or she understands them intending to help the patients (Guilera et al. 2019), instead of simply experiencing the patient's pain, suffering, experiences, and care (Hojat & Gonnella 2017). The stronger expression of Perspective taking as a cognitive dimension of empathy is associated with greater clinical empathy abilities (Thirioux et al. 2016).

Empathy as a cognitive engagement has different consequences in clinical practice compared to empathy as an affective involvement (Hojat & Gonnella 2017). A strong capacity for cognitive empathy is beneficial for patient care and can lead to more trusting relationships, more accurate diagnosis, greater patient compliance with medical staff prescriptions, and more positive outcomes for patients (Hojat & Gonnella 2017). Excessive emotional empathy such as emotional involvement and compassion can impair patient care and objective decision-making, may lead to emotional exhaustion and burnout in the health care provider, and could lead to emotional dependence in the patient (Hojat & Gonnella 2017). However, according to some studies that look at empathy as a complex phenomenon with several dimensions, physicians with low empathic abilities are more likely to experience burnout and depression (Stoyanova & Ivanova 2013), burnout in physicians is associated with decreased empathy (Passalacqua & Segrin 2012). In their work, support specialists, especially those working with children, experience anxiety, empathy, and stress at the same time (Miladinova 2015). Among medical students, those with high empathy are also the most anxious (Tananska 2013).

Empathy is multidimensional (Hancheva & Rachev 2017), complex, and social (Guilera et al. 2019), i.e., it has many components and is associated with other living beings. Empathy is experienced about people, animals, and fantasy products (Stoyanova 2008). Empathy includes some cognitive components (Chaushev 2015, Cone 2017, Garton & Gringart 2005, Hancheva & Rachev 2017, Ingoglia et al. 2016, Koprinkova-Ilieva 2020). The cognitive components of empathy are:

- fantasy - the tendency and the ability to imagine, to be placed in an imaginary situation, to immerse in the thoughts, feelings, and actions of imaginary characters, fictional characters from books, movies, plays, dreams, and other imaginary situations, to identify with them, to embody imaginatively in them (Chaushev 2015, Cone 2016, 2017, Davis 1980, 1983, Guilera et al. 2019, Hancheva & Rachev 2017, Ingoglia et al. 2016, Koprinkova-Ilieva 2020, National Test Committee of Bulgarian Psychological Society 2020, Sofronieva 2015).
- taking into account someone else's perspective / taking into account the perspective – the tendency, ability and propensity to spontaneously perceive, accept, understand another's point of view, to see the things from the other's point of view in real everyday situations, to put oneself in place of the other (Chaushev 2015, Cone 2017, Davis 1980, 1983, Hancheva & Rachev 2017, Ingoglia et al. 2016, Koprinkova-Ilieva 2020, National Test Committee of Bulgarian Psychological Society 2020, Sofronieva 2015), understanding the situation of the other, understanding the emotions and thoughts of the other by putting oneself in his/her place, without having a corresponding emotional experience (Chaushev 2015), insight into the experiences of others - ability to realize the differences in opinions, one puts oneself in the place of another person and imagines what would happen due to the desire not to affect the feelings of the other person (Koprinkova-Ilieva 2020), understanding the other, an idea of what he/she is experiencing, attribution of reasons for what is happening to him/her and determining the degree of responsibility of the other for the condition he/she is in (Stoyanova 2008), the ability to distinguish between similar emotions and motivations of an observed individual (Cone 2016).

Empathy includes some affective or emotional components (Cone 2017, Garton & Gringart 2005, Hancheva & Rachev 2017, Koprinkova-Ilieva 2020, Thirioux et al. 2016), which relate to the emotional response to the other's situation (Chaushev 2015), emotional response to observed emotions experienced by another person, immerse in the other people's emotions (Chaushev 2015, Davis 1980, Koprinkova-Ilieva 2020). The affective components of empathy are:

- *Empathic concern* - the ability to share the emotion experienced by an observed individual and sympathy, pity, compassion, selfless concern, warmth and cordiality to another unhappy person, suffering, experiencing discomfort in a difficult situation (Chaushev 2015, Cone 2016, 2017; Davis 1980, 1983, Guilera et al. 2019, Ingoglia et al. 2016, Koprinkova-Ilieva 2020, National Test Committee of Bulgarian Psychological Society 2020, Sofronieva 2015).
- *Personal Distress* - self-concern, experienced anxiety, worry, discomfort, distress, fear, apprehension in intense interpersonal relationships, in observing

negative experiences, suffering, the stress of another person (Chaushev 2015, Cone 2016, 2017, Davis 1980, 1983, Guilera et al. 2019, Hancheva & Rachev 2017, Ingoglia et al. 2016, Koprinkova-Ilieva 2020, National Test Committee of Bulgarian Psychological Society 2020, Sofronieva 2015), infection with fear and anxiety of others, worry and loss of control over own behaviour in danger (Koprinkova-Ilieva 2020). The person experiencing personal distress tends to leave the situation quickly (Cone 2017).

Cognitive and emotional dispositions toward empathy are interrelated, but not with extraordinarily strong interrelationships (Davis 1980). The affective component of empathy Empathic concern and its cognitive component Perspective taking correlate positively (Cone 2017, Davis 1980, 1983). Fantasy and Empathic concern also correlate positively (Davis 1980, 1983). However, Fantasy and Perspective taking are not related (Davis 1980). Empathic concern and Personal distress are not related (Davis 1980). Perspective taking correlates negatively with Personal distress (Davis 1980, 1983).

Empathy includes some behavioural components (Levterova et al. 2003, Stoyanova 2008) - actions to alleviate the suffering of the other, such as consolation, sharing of possessions, expressing concern, etc. (Stoyanova 2008). The affective component of empathy (the anxieties and worries about the misfortunes of others) provokes a desire to help them because one does not want others to suffer (Koprinkova-Ilieva 2020). Empathy is a reaction that is caused by the experience of the other, and it breeds altruism (Politova 2015). Empathy is caused by the peculiarities of the situation and the context, by cognitive and affective processing of information, and can become a motive for prosocial behaviour (Chaushev 2015).

Some studies described below report significant gender differences in empathy experienced and expressed, characterizing women and girls with higher empathic abilities than men and boys, either general empathy or some of its components. Women have higher empathy than men (Cone 2017, Petkova 2015). Girls have higher empathy than boys (Chaushev 2015, Koprinkova-Ilieva 2020, Stoyanova 2007). Women are more likely to react spontaneously with empathy, while men are more likely to spontaneously systematize the phenomena they observe (Cone 2017). Women have more pronounced than men components of empathy Fantasy (Cone 2017, Davis 1980, Guilera et al. 2019, Lucas-Molina et al. 2017, Stoyanova 2008), Perspective taking (Davis 1980), Empathic concern (Cone 2017, Davis 1980, Lucas-Molina et al. 2017) and Personal Distress (Cone 2017, Davis 1980, Guilera et al. 2019, Lucas-Molina et al. 2017). Girls have higher cognitive and affective empathy than boys (Chaushev 2015, Koprinkova-Ilieva 2020).

Some other studies have not found any significant gender differences in empathy or its components. There are no significant differences between men and women in the experience of empathy for humans and animals

(Stoyanova 2008). No statistically significant gender differences were found in physicians on their empathy (Stoyanova & Ivanova 2013). Gender differences are not statistically significant in terms of Perspective taking as a component of empathy (Lucas-Molina et al. 2017). Male and female physicians experience similar levels of personal distress (Gleichgerricht & Decety 2013), but in Bulgaria, men experience more pronounced distress than women (Krastev & Stoyanova 2007).

There are no significant age differences in empathy for humans and animals, nor in empathy for fantasy products (Stoyanova 2008). According to another opinion, higher empathy develops fully after childhood (Cone 2017), the cognitive component of empathy develops at a later age (Koprinkova-Ilieva 2020). Lower empathy is manifested in childhood (Cone 2017). Affective empathy develops in childhood and its development is already completed by entering school (Koprinkova-Ilieva 2020). Changes in the affective component of empathy are insignificant in primary school age (Koprinkova-Ilieva 2020). With age advance, the effectiveness of recognizing emotions by facial expression improves (Koprinkova-Ilieva 2020), but the advance of work experience is accompanied with the slightly reduced ability of physicians to recognize the nonverbal expression of emotions in other people as a component of empathy (Stoyanova & Ivanova 2013).

Dispositional, cognitive, and affective empathy are higher in those who are securely attached than in those who are insecurely attached - over-engaged, neglecting or frightening their partner (Chaushev 2015). This suggests differences in empathy, according to the family situation.

People from individualistic cultures are more empathetic in their interpersonal relationships than the representatives of collectivist cultures due to the perception of the attempt for control and intrusion into the personal space of the other in manifestations of empathy in cultures with collectivist characteristics (Cone 2017). Bulgarians experience high personal distress (Cone 2017) as an affective component of empathy.

Empathy increases in university training in psychology, in participation in theatrical productions, and in training for improving communication skills (Cone 2017). The students with higher empathy (general empathy, affective and cognitive empathy) are those who have participated in theatre troupes, as well as those students who have participated in training to improve communication skills (Cone 2017). The students in the humanities have higher empathic abilities with a peak of empathy in psychology students than the empathy manifested by the engineering and science students (Cone 2017). Only 2.9% of Bulgarian medical students are characterized by high empathy, and 40.4% do not pay the necessary emotional attention to their patients (Tananska 2013), but the most surveyed Bulgarian doctors (70.3%) have moderate abilities to share emotions and empathy and to recognize the nonverbal expression of emotions in other people (Stoyanova & Ivanova 2013).

The aim of the present study was to determine whether the cognitive component (Perspective taking) and affective components (Empathic concern and Personal distress) of empathy in health professionals were related to the degree of perceived threat of coronavirus, difficulties in doing work, getting along with people, with the state of health (current or past coronavirus disease), as well as with some socio-demographic characteristics. Fantasy as the cognitive component of empathy was not the focus of the present study as more atypical of clinical practice.

Empathy in healthcare professionals (its affective components Empathic concern and Personal distress, as well as its cognitive component Perspective taking) was supposed to be related to difficulties in working, difficulties in getting along with people, to the extent of the perceived threat of coronavirus, and with the health condition (past coronavirus disease).

It was assumed that there were some socio-demographic differences (by gender, age, marital status, size of place of practice of the profession) in the cognitive component of empathy Perspective taking and its affective components Empathic concern and Personal distress in workers the field of healthcare.

SUBJECTS AND METHODS

During the coronavirus pandemic, a cross-sectional study was conducted from November 2020 to February 2021, and the data were collected online or through direct contact with the subjects. The selection criteria were being adult Bulgarians (above 18 years old) and working in the field of healthcare.

Ethics statement

Participation was voluntarily. The study conformed to the general ethical principles outlined in the Declaration of Helsinki (World Medical Association, Inc. 2008).

Subjects

The sample consisted of 296 health workers with different professions - physiotherapists, doctors, speech therapists, nurses, psychotherapists, medical orderlies, dentists, pharmacists. Their age varied from 23 to 60 years, the average age was 33.8 years, with standard deviation of 10.8 years. The women participating in the study were more (81.1%, i.e., almost four-fifths of the subjects) than men (18.9%). There were 164 surveyed health workers with an intimate partner (55.4%) and the same number did not have any children, but only 40 health professionals with an intimate partner did not have any children (24.4%). There were 132 surveyed health workers (44.6%) without an intimate partner and the same number of the subjects had children, but only eight of the health professionals without an intimate partner had children (6%). Most surveyed health professionals worked in large cities with more than

50,000 inhabitants ($N=120$, 40.5%) and in the capital ($N=104$, 35.1%). An equal proportion of the participants worked in medium-sized cities from 25,000 to 50,000 inhabitants and in small towns up to 25,000 inhabitants - 36 (12.2%) from each category. About one-fifth of those surveyed ($N=84$; 28.4%) were diagnosed with coronavirus, and most ($N=212$, 71.6%) were not.

Instruments

The Interpersonal Reactivity Index (IRI) was created by Mark Davis in 1980 (Davis 1980) and was adapted for Bulgarian adolescents from grades 6 to 11 by Plamen Kalchev (Hancheva & Rachev 2017, Kalchev 2010, National Test Committee of Bulgarian Psychological Society 2020). The Interpersonal Reactivity Index has been used to measure empathy in Bulgarian students from 16 to 22 years (Chaushev 2015), in Bulgarian students living and studying in Bulgaria and abroad (Cone 2017), in medical students (Hojat & Gonnella 2017), in Bulgarian students and teachers (Sofronieva 2012, 2015), in workers in hydroelectric power plants in Bulgaria (Politova 2015) and can be applied among people with different occupations (Hojat & Gonnella 2017).

IRI is a self-assessment questionnaire for measuring empathy as a multidimensional personal disposition (National Test Committee of Bulgarian Psychological Society 2020) through 28 items, which are answered on a five-point Likert scale from 0 - does not describe me well, not typical for me; to 4 - describes me well, it is completely typical for me, and the items are divided into 4 subscales, each consisting of 7 items - Fantasy, Perspective taking, Empathic concern, Personal distress (Chaushev 2015, Cone 2016, 2017, Davis 1980, 1983, Guilera et al. 2019, Hancheva & Rachev 2017, Koprinkova-Ilieva 2020, National Test Committee of Bulgarian Psychological Society 2020, Politova 2015, Sofronieva 2015, Thirioux et al. 2016). The score on each scale varies from 0 to 28 (Guilera et al. 2019). The Interpersonal Reactivity Index measures the affective and cognitive components of empathy (Chaushev 2015, Cone 2017, Thirioux et al. 2016).

The coefficients of internal consistency of the subscales for Bulgarian pupils and students are for Empathic concern: 0.73; for Perspective taking: 0.68; for Fantasy: 0.76; for Personal distress: 0.73 (National Test Committee of Bulgarian Psychological Society 2020). The coefficients of internal consistency Cronbach's alpha of the subscales in Bulgarian students are for Empathic concern: 0.804, for Fantasy: 0.806, for Personal distress: 0.717 (Cone 2017). For the subscales of the Interpersonal Reactivity Index, its author has determined the coefficients of internal consistency standardized Cronbach's Alpha separately for men and women, which range from 0.68 (for men for the Empathy concern subscale) to 0.79 (for women for the subscale Fantasy) (Davis 1980). The test-retest reliability measured within the periods of 60 and 75 days between the two tests varies from 0.61 to 0.81 separately for men and women

on the four subscales of the questionnaire for both time periods (Davis 1980). In the present study, the internal consistency coefficient of Cronbach's Alpha for the Empathy concern sub-scale was 0.674; for the Perspective taking sub-scale was 0.762, and for the Personal distress sub-scale was 0.759.

A toolkit for self-assessment of the degree of perceived threat of coronavirus, the presence of difficulties in work and in getting along with other people was also applied. During the coronavirus pandemic, the subjects rated the extent to which they perceived the coronavirus as a threat on a scale from 0 - not a threat at all to 6 - a major threat (Mihaylova et al. 2021). The respondents answered whether they had any difficulties in doing their job and in getting along with other people over the last two weeks on a 4-point scale from 0 - not difficult at all, to 3 - extremely difficult (Spitzer et al. 2006).

Data processing

Statistical processing was performed using the software JASP 0.14 (JASP Team 2020) applying descriptive statistics, verification of the normality of the distribution by Shapiro - Wilk coefficient, correlation analysis by Spearman correlation coefficient, and non-parametric methods of Mann-Whitney and Kruskal -Wallis for group comparisons. The data that support the findings of this study are openly available in Mendeley Data Repository at <https://doi.org/10.17632/8kj87624sw.1> (Stoyanova & Mihaylova 2021).

RESULTS

The scores obtained for all variables (age, perception of coronavirus as a threat, Empathic concern, Perspective taking, and Personal distress) were not normally distributed (the level of significance of the Shapiro-Wilk coefficient was below 0.001), so the data were processed with nonparametric statistical methods of analysis.

The mean values on the scales of Empathic concern, Perspective taking, and Personal distress for medical staff were 19, 18 and 15.5, respectively, and the standard deviations on these scales were 4, 4.4 and 4.8, respectively.

Men working in health care during the coronavirus pandemic were less empathetically concerned and experienced more personal distress than the women surveyed (see Table 1). The effect size was medium for empathic concern and large for personal distress, according to the interpretation of the coefficients described by Lenhard & Lenhard (2016).

The studied health care workers without children during the coronavirus pandemic had higher empathic concern and experienced less personal distress than the health care workers who had children (see Table 2). The effect size was large for empathic concern and small for personal distress, according to the interpretation of the coefficients suggested by Lenhard & Lenhard (2016).

The participating health workers without an intimate partner during the coronavirus pandemic had higher empathic concern and experienced less personal distress than the health workers who had an intimate partner (see Table 3). The effect size was medium for empathic concern and small for personal distress, according to the interpretation of the coefficients by Lenhard & Lenhard (2016).

Healthcare workers working in medium-sized cities showed the highest empathic concern (see Table 4, small to medium effect size, according to Lenhard & Lenhard 2016).

Healthcare professionals working in small towns were the least characterized by taking perspective into account as a cognitive component of empathy, and those working in the capital were the most characterized by taking perspective into account as a cognitive component of empathy (See Table 5, medium effect size, according to Lenhard & Lenhard 2016).

Table 1. Gender differences in empathic concern, perspective taking and personal distress in healthcare professionals

Variables	Gender	Number	Mean values	Standard deviations	Mann-Whitney	<i>p</i>	Effect size <i>r</i>
Empathic concern	Men	56	17.357	4.118	4984	0.002	-0.258
	Women	240	19.383	3.890			
Perspective taking	Men	56	17.857	4.396	6880	0.781	0.024
	Women	240	18.050	4.381			
Personal distress	Men	56	18.429	4.820	9424	<0.001	0.402
	Women	240	14.867	4.498			

Table 2. Differences in the availability of children in terms of empathic concern, perspective taking and personal distress in health care workers

Variables	Presence of children	Number	Average values	Standard deviations	Mann-Whitney	<i>p</i>	Effect size <i>r</i>
Empathic concern	Without	164	20.293	3.933	15776	<0.001	0.458
	With	132	17.394	3.494			
Perspective taking	Without	164	18.341	4.565	11632	0.267	0.075
	With	132	17.606	4.112			
Personal distress	Without	164	14.659	4.618	8576	0.002	-0.208
	With	132	16.636	4.727			

Table 3. Differences in the presence of an intimate partner on empathic concern, perspective taking and personal distress in health care workers

Variables	Having an intimate partner	Number	Mean values	Standard deviations	Mann-Whitney	<i>p</i>	Effect size <i>r</i>
Empathic concern	They do not have	132	19.818	3.864	13640	<0.001	0.260
	They have	164	18.341	4.010			
Perspective taking	They do not have	132	17.879	4.235	10120	0.334	-0.065
	They have	164	18.122	4.498			
Personal distress	They do not have	132	14.636	4.941	8408	<0.001	-0.223
	They have	164	16.268	4.497			

Table 4. Differences by type of settlement regarding empathic concern among healthcare workers

Type of settlement	Number	Average values	Standard deviations	Kruskal-Wallis	Degrees of freedom	<i>p</i>	Effect size η^2
Capital	104	19.038	3.639	13.174	3	0.004	0.043
Large city of over 50,000 inhabitants	120	18.567	4.533				
Medium-sized city of 25,000 to 50,000 inhabitants	36	21.111	3.808				
Small town of up to 25,000 inhabitants	36	18.222	2.474				

Table 5. Differences by type of settlement regarding Perspective taking of those working in the field of healthcare

Type of settlement	Number	Average values	Standard deviations	Kruskal-Wallis	Degrees of freedom	<i>p</i>	Effect size η^2
Capital	104	19.269	3.476	39.084	3	<0.001	0.102
Large city of over 50,000 inhabitants	120	18.267	4.695				
Medium-sized city of 25,000 to 50,000 inhabitants	36	16.556	5.495				
Small town of up to 25,000 inhabitants	36	15.000	2.084				

Table 6. Differences by type of settlement regarding personal distress among those working in the field of healthcare

Type of settlement	Number	Average values	Standard deviations	Kruskal-Wallis	Degrees of freedom	<i>p</i>	Effect size η^2
Capital	104	16.692	4.817	18.629	3	<0.001	0.042
Large city of over 50,000 inhabitants	120	15.300	4.879				
Medium-sized city of 25,000 to 50,000 inhabitants	36	14.778	4.297				
Small town of up to 25,000 inhabitants	36	13.778	3.936				

Healthcare workers working in small towns experienced the least personal distress, and those working in the capital experienced the highest personal distress (see Table 6, medium effect size, according to Lenhard & Lenhard 2016).

The studied healthcare workers who were diagnosed with coronavirus had less empathic concern, less personal distress, and less took the perspective into account than the healthcare workers who were not diagnosed with coronavirus (see Table 7). The effect size was medium for empathic concern, medium to large for perspective taking, and large for personal distress, according to the interpretation of the coefficients by Lenhard & Lenhard (2016).

During the wave of coronavirus pandemic from November 2020 to February 2021, the healthcare workers perceived the coronavirus as a medium threat ($M=2.5$, $SD=1.5$). The studied healthcare workers shared about some difficulties in work and in getting along with other people (a mode and a median of 1 for both questions).

As the age of the surveyed health care workers progressed, their empathic concern decreased, and their personal distress increased (see Table 8). When perceiving coronavirus as a stronger threat, both perspective taking and personal distress decreased (see Table 8). As empathic concern increased, so did perspective taking, but work difficulties decreased (see Table 8).

Table 7. Differences in health status regarding empathic concern, perspective taking and personal distress in healthcare professionals

Variables	Health condition ...with coronavirus	Number	Average values	Standard deviations	Mann-Whitney	<i>p</i>	Effect size <i>r</i>
Empathic concern	Not diagnosed	212	19.642	3.674	11712	<0.001	0.315
	Diagnosed	84	17.381	4.363			
Perspective taking	Not diagnosed	212	18.792	4.493	12008	<0.001	0.349
	Diagnosed	84	16.048	3.365			
Personal distress	Not diagnosed	212	16.396	4.454	12640	<0.001	0.420
	Diagnosed	84	13.381	4.854			

Table 8. Correlations between age, perceived threat of coronavirus, difficulties in working and in getting along with other people on the one hand, and Empathic concern, Perspective taking and Personal distress on the other hand

Variables		n	Spearman rho	<i>p</i>	Lower limit of 95% confidence interval	Upper limit of 95% confidence interval
Age	Empathic concern	296	-0.337	<0.001	-0.434	-0.231
	Perspective taking	296	-0.029	0.615	-0.143	0.085
	Personal distress	296	0.261	<0.001	0.151	0.364
Perceived threat of coronavirus	Empathic concern	296	-0.055	0.342	-0.168	0.059
	Perspective taking	296	-0.229	<0.001	-0.334	-0.118
	Personal distress	296	-0.332	<0.001	-0.430	-0.226
Empathic concern	Perspective taking	296	0.407	<0.001	0.307	0.498
	Personal distress	296	0.021	0.720	-0.093	0.135
	Difficulties at work	296	-0.114	0.050	-0.225	-0.0002
	Difficulties in getting along with other people	296	-0.015	0.795	-0.129	0.099
Perspective taking	Personal distress	296	0.434	<0.001	0.337	0.522
	Difficulties at work	296	-0.025	0.660	-0.139	0.089
	Difficulties in getting along with other people	296	-0.232	<0.001	-0.337	-0.121
Personal distress	Difficulties at work	296	-0.230	<0.001	-0.335	-0.119
	Difficulties in getting along with other people	296	-0.278	<0.001	-0.380	-0.170

With increase of perspective taking, personal distress also increased and difficulties in getting along with other people decreased (see Table 8). As personal distress increased as a component of empathy, difficulties in working and in getting along with other people decreased (see Table 8).

DISCUSSION

The findings confirmed the hypothesis that empathy in health care workers (its affective components Empathic concern and Personal distress, as well as its cognitive component Perspective taking) was associated with difficulties in work, in getting along with other people, with the degree of perceived threat from coronavirus and with health status (past coronavirus disease).

When perceiving the coronavirus as a stronger threat, perspective taking and personal distress decreased, i.e., the cognitive and the affective components of empathy decreased with a greater perceived threat of coronavirus. Healthcare workers who were diagnosed with coronavirus showed lower empathy with its cognitive dimension (less perspective taking) and its affective dimension (lower empathic concern, lower personal distress) than those

surveyed healthcare workers who were not diagnosed with coronavirus. This may suggest that health workers' empathy tends to decline during the coronavirus pandemic.

As the affective components of empathy Empathic concern and Personal distress increased, the work difficulties were reduced. As the cognitive component of empathy Perspective taking increased, and as the affective component of empathy Personal distress increased, the difficulties in getting along with other people were reduced. Empathy can be seen as a buffer against burnout in the work of health professionals and as a personal resource for dealing with difficulties in work and in relationships. It is important to stimulate empathic abilities in physicians, to conduct training with physicians focused on development of empathy (Riess et al. 2012), as empathy in physicians decreases even from the beginning to the end of long work shifts (Passalacqua & Segrin 2012).

The results partially confirmed the hypothesis that there were some socio-demographic differences (by gender, age, marital status, size of place of practice) in the cognitive component of empathy Perspective taking and its affective components Empathic concern and Personal distress in those working in the field of healthcare.

The studied men working in health care during the coronavirus pandemic had lower empathic concerns and experienced more personal distress than the studied women. Some other authors also found more empathic concern in women than in men (Cone 2017, Davis 1980, Lucas-Molina et al. 2017), and that in Bulgaria men experienced more pronounced distress than women (Krastev & Stoyanova 2007). These two components of affective empathy are expressed in opposite directions and are mutually balanced in equalizing the differences in affective empathy between the sexes in health care workers, as found by some other authors that there were no significant differences between male and female doctors in their empathy (Stoyanova & Ivanova 2013).

The participating health workers without children and without intimate partner during the coronavirus pandemic showed higher empathic concern and experienced less personal distress than the health workers who had children and an intimate partner.

The healthcare workers working in small towns had the lowest empathic concern, the lowest levels of personal distress, i.e., exhibited the least affective empathy, and were also the least characterized by taking perspective into account as a cognitive component of empathy.

As the age of the surveyed health care workers decreased, the empathic concern decreased, the personal distress increased and in general, the affective component of empathy seemed to remain unchanged, as the changes in its two dimensions in opposite directions were balanced. Some other authors state that there are no significant differences in age regarding empathy to people (Stoyanova 2008), and the development of affective empathy is completed with school entry (Koprinkova-Ilieva 2020). With age advance, the participating health care workers, especially men with children and intimate partnership, working in small towns, were less likely to show sympathy, regret, compassion, concern for another person who was unhappy, suffering, experiencing discomfort, but were more likely to feel anxious about themselves, to experience anxiety, worry, discomfort, apprehension when observing negative experiences, suffering, the stress of another person and were prone to strive to leave such a situation quickly.

The limitations of the study are related to the use of only self-report data because the answers to self-assessment questionnaires depend on the level of reflection of the subject, the level of social desirability and situational characteristics (Cone 2017). According to other authors, the assessment of physicians of their own empathic abilities does not correlate with their clinical abilities, but the clinical abilities of physicians, when evaluated by external evaluators - peers, correlate positively with their empathic abilities in clinical consultations (Thirioux et al. 2016). However, the present study found a significant correlation between

the expression of affective empathy and declared reduced difficulties in work among physicians, which means that emotional empathy should not be ruled out as unnecessary in clinical practice at the expense of cognitive components of empathy, even more so because of a possible negative perception of physicians by the public in the absence of manifestations of affective empathy. Emotionality is a normal part of human interactions, and there is no reason to say that warmth in human relationships can hinder the performance of professional duties in the field of health care. Empathy is contributing to human and social well-being (Jakovljevic 2016) by means of facilitating communication, making people more sensitive to others' needs, as well as participating in perception of beauty in the surroundings (Agius 2018).

CONCLUSION

The present study is one of few that is focused on the cognitive and affective components of empathy in healthcare professionals during the coronavirus pandemic, differentiating them by socio-demographic characteristics and establishing their relationship with the degree of perceived coronavirus threat, the current or past coronavirus disease, the presence of difficulties in work and in getting along with other people. Cognitive and affective empathy can contribute to successful coping with professional responsibilities, according to the health professionals themselves. Future research may examine the relationship between empathy and mental resilience in healthcare professionals during the coronavirus pandemic. It would be interesting to compare the specialists in different areas of medicine on their empathy. The results obtained from this one and similar studies can be used to take some preventive measures to improve the quality of services offered, related to the mutual satisfaction with the relationships between health care professionals and their patients.

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Stanislava Stoyanova contributed to this manuscript by means of taking part into designing the study, literature search, statistical analysis, data interpretation, manuscript writing, and revising the manuscript draft.

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