

# *Relationship of burnout with empathy dimensions in healthcare workers in Poland during the COVID-19 pandemic*

## BACKGROUND

Burnout and empathy are distinct but related constructs essential to effective healthcare delivery. Although their relationship is widely acknowledged, existing research shows inconclusive findings regarding the direction and the nature of this association. The predominant evidence supports a negative correlation, but studies usually did not take into account that the empathy construct is multidimensional. Little is known about the interplay of empathy and burnout dimensions in healthcare workers (HCWs), especially during the COVID-19 pandemic times. The present study was intended to fill the above-mentioned gaps.

## PARTICIPANTS AND PROCEDURE

A total of 412 HCWs (nurses – 47.3%, physicians – 28.4%, psychologists – 13.6%, and other health care professionals – 10.7%), aged 21 to 69 years ( $M = 36.63$ ,  $SD = 11.76$ ) took part in a web-based cross-sectional study from June to November 2020. The participants filled out a survey with measures assessing two dimensions of burnout (exhaustion and disengagement), three dimensions of empathy (empathic concern – EC, personal distress – PD and perspective taking – PT), depression and anxiety symptoms.

## RESULTS

We found a negative association between the disengagement dimension of burnout with EC and PT and a positive association with PD, whereas exhaustion was positively related to EC and PD. Hierarchical regression analysis, however, revealed that EC, PT, and PD are predictors of disengagement, whereas exhaustion is predicted exclusively by PD. We also found no evidence that working in a place dedicated to COVID-19 moderated the relationships between dimensions of empathy and burnout.

## CONCLUSIONS

Previous studies suggested a negative relationship between empathy and burnout. We found, however, evidence for both positive and negative correlations between different aspects of the empathy and burnout dimensions, with positive associations of personal distress with burnout being stronger than negative associations of PT and EC with disengagement, suggesting that the relationship between empathy and burnout is more complex.

## KEY WORDS

empathy; burnout; healthcare workers; COVID-19; mental health

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AUTHORS' CONTRIBUTIONS – A: Study design · B: Data collection · C: Statistical analysis · D: Data interpretation · E: Manuscript preparation · F: Literature search · G: Funds collection

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## BACKGROUND

Burnout can be defined as a condition where individuals experience physical and mental stress due to their work or caregiving responsibilities (Maslach & Leiter, 2016). The popular multidimensional theory of burnout, as proposed by Maslach and Jackson (1981) and later expanded upon by Maslach (1998), posits that burnout manifests in three main ways: emotional exhaustion, depersonalization, and a diminished sense of personal accomplishment (Maslach et al., 2001). On the other hand, the more recent job demands-resources model of burnout (JDR model) suggests that burnout has two primary components: exhaustion, stemming from excessive work demands, and disengagement, which arises from insufficient job resources (Demerouti et al., 2001).

Numerous studies have found that burnout is related to negative consequences for healthcare professionals (for a review see De Hert, 2020). For example, studies have shown that emotional exhaustion stands out as the primary factor linked with various negative outcomes, including absenteeism, contemplating leaving the profession, personal decline, and family strain, whereas depersonalization was closely related to the perception of committing errors (e.g. Schaufeli & Bakker, 2004; Suñer-Soler et al., 2014). It is important to note that burnout not only affects healthcare professionals but also has negative consequences for patients (e.g. Poghosyan et al., 2010), including lower patient satisfaction, impaired quality of care, and medical errors (for review see De Hert, 2020; Munyon et al., 2009). Therefore, addressing burnout is critical for ensuring effective healthcare delivery, especially during challenging times.

The COVID-19 pandemic, which emerged in 2019, triggered a profound global public health crisis, placing an extraordinary burden on healthcare systems worldwide. This crisis necessitated significant transformations in healthcare delivery, such as suspending routine medical services, adapting clinical spaces for the pandemic response, and reassigning staff to different roles (Williams et al., 2020). Throughout the pandemic, healthcare workers (HCWs) encountered a diverse array of stressors. These included facing unprecedented workloads, assuming extensive responsibilities, grappling with shortages of personal protective equipment, and living with the constant fear of negligence complaints (Denning et al., 2021; Elghazally et al., 2021). Not surprisingly, therefore, research showed an elevated level of burnout in HCWs during the COVID-19 pandemic (Ghahramani et al., 2021; Holas et al., 2023; Lasalvia et al., 2021; Leo et al., 2021).

Empathy, similarly to burnout, has fundamental importance for effective healthcare. Empathy has received increased attention in the psychological, and more recently, cognitive neuroscience literature in

the last two decades (Decety & Jackson, 2004). It refers to the ability to stand in others' shoes and to understand other people's emotions and feelings (Hojat, 2007). It is important to differentiate between the empathy dimensions that orient towards the self and those that orient towards others. Facing and sharing emotions experienced by other people may lead to other-oriented reactions: (i) perspective taking – reflection about the emotions and mental states of others; (ii) empathic concern, i.e. an emotional reaction that involves feelings of compassion, and sympathy for another person. However, sharing emotions with another person may lead also to a self-oriented reaction: personal distress – a tendency to experience distress and discomfort in response to witnessing the negative experiences of others (Davis, 1983; Tone & Tully, 2014). Other-oriented empathy is an essential element in therapeutic relationships, affecting the overall quality of care (Brockhouse et al., 2011; Cunico et al., 2012; Smajdor et al., 2011). Research has demonstrated that empathic care leads to greater adherence to treatment and better health outcomes (Kelley et al., 2014). On the other hand, empathy also creates vulnerability to stress, anxiety, depression, emotional exhaustion, and burnout, as sharing emotions with others may be for some individuals and in specific contexts overwhelming and accompanied by maladaptive states such as feelings of exaggerated responsibility for others' suffering, maladaptive forms of guilt and shame, and high levels of anxiety (Ferri et al., 2015; Figley, 2002; Tone & Tully, 2014).

Results have been inconclusive in establishing the direction and nature of the association between burnout and empathy, however, with some contradictory evidence demonstrating both negative and positive correlations between them (Picard et al., 2016; Wilkinson et al., 2017). One of the ways to explain these inconsistencies is to consider empathy as a multidimensional construct and to hypothesize that each of the components of empathy may be related to the burnout dimensions differently, an approach that has already brought some empirical evidence (Delgado et al., 2021; Duarte & Pinto-Gouveia, 2017; Thomas, 2013). Supporting this notion, research by Wilczek-Rużyczka (2020) found in a sample of 64 psychiatric nurses in Poland that two dimensions of empathy – perspective taking (negatively) and personal distress (positively) – predicted burnout.

Similarly, Thomas (2013) found in clinical social workers that empathic concern was unrelated to any dimension of burnout, whereas perspective-taking was negatively related to emotional exhaustion, and personal distress predicted high emotional exhaustion and depersonalization, but low personal accomplishment. Clearly, more studies are needed to evaluate these relationships. Moreover, little is

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known about the interplay between both constructs in HCWs during the COVID-19 pandemic, and the current research was aimed to fill this gap. As noted in the recent literature review of the burnout and empathy relationship in HCWs, none of the studies specifically addressed the unique circumstances of the pandemic. Instead, the predominant focus of research conducted during the pandemic on burnout centered on examining its correlation with altered working conditions brought about by the pandemic-induced pressures (Delgado et al., 2023). During the COVID-19 pandemic, HCWs were faced with suffering and intense negative emotions experienced by their patients and their families (i.e. sadness, anxiety, uncertainty, and grief) (Sun et al., 2021). Thus, empathy and especially personal distress could play a particularly important role in contributing to and maintaining levels of depression, anxiety, and burnout during the pandemic in HCWs.

In the present study, we aimed to evaluate the relationship between different other- and self-oriented components of empathy, namely perspective taking, empathic concern and personal distress, and the dimensions of burnout (exhaustion and disengagement) in HCWs during the COVID-19 pandemic. Since previous research evaluating the interplay between empathy and burnout has mainly utilized the Maslach Burnout Inventory (MBI; Maslach & Jackson, 1981) to assess burnout (see Delgado et al., 2023; Wilkinson et al., 2017 for meta-analyses) and little is known about this association during COVID-19 pandemic, it is difficult to formulate legitimized hypotheses. A meta-analysis by Wilkinson et al. (2017) before the pandemic provided empirical support for a negative relationship between empathy and burnout, but it did not take into account dimensions of empathy. A recently published review and meta-analysis of the links between empathy components and burnout (Delgado et al., 2023) showed a complex picture of their relationships and emphasized the need for studying different components of empathy separately since their impact on burnout components varies. The majority of reviewed articles used the MBI, and only one study utilized the Oldenburg Burnout Inventory (OLBI). Correia and Almeida (2020) employed the Basic Empathy Scale short version (BES-A; Pechorro et al., 2018) to delineate affective and cognitive components of empathy and found that affective empathy significantly predicted higher exhaustion, whereas cognitive empathy was unrelated to components of burnout both in nurses and doctors (Correia & Almeida, 2020). Our general proposition is that the relationship between empathy and burnout depends on whether the dimensions of empathy are other-oriented (perspective-taking and empathic concern) or self-oriented (personal distress). That is, we hypothesize that perspective-taking and empathic concern will

be negatively associated with burnout dimensions, whereas the self-oriented, affective component – personal distress – will be positively related to them. The COVID-19 pandemic likely affects burnout through multiple mechanisms, including increased general stress and changes in working conditions, such as heightened job demands and potentially decreased job resources. Previous research, such as the study by Correia and Almeida (2020), Wilczek-Rużyczka (2020), and the meta-analysis conducted by Delgado et al. (2023), has consistently shown a relationship between personal distress and burnout, particularly exhaustion. Thus, we expected that personal distress would be positively related to exhaustion, and to a lesser extent to the disengagement components of burnout. Considering the job demands-resources model by Bakker et al. (2003), which suggests that the level of disengagement in burnout is influenced by job resources, and taking into account results of previous studies (e.g. Wilczek-Rużyczka, 2020), it is plausible that other-oriented dimensions of empathy, such as perspective-taking and empathic concern, could mitigate withdrawal from work. These empathic skills are known to have positive effects on supporting others (Longmire & Harrison, 2018). Moreover, findings from the meta-analysis by Delgado et al. (2023) revealed negative correlations between other-oriented empathic dimensions and depersonalization, a similar construct to disengagement. Therefore, we hypothesize that perspective-taking and empathic concern will be negatively associated with the disengagement component of burnout. In addition, we predict that relations between empathy and burnout dimensions will be significant even after controlling for demographic variables (age, economic status, and professional groups) and anxiety and depressive symptoms. In our analysis, we combined depressive and anxiety symptoms into one dimension considering empirical support for the strong correlation between these symptoms, which suggests that they often co-occur and can be considered as part of a broader internalizing spectrum (Gambin et al., 2021; Kotov et al., 2017; Kroenke et al., 2016). This conceptualization aligns with the transdiagnostic approach to psychological disorders, which emphasizes common underlying factors across different diagnostic categories (Krueger & Eaton, 2015). Finally, we hypothesized that the most demanding work conditions during the pandemic – working in a place dedicated to or transformed into a facility dedicated to COVID-19 – would moderate the relationships between both burnout dimensions and empathy dimensions. We anticipate that this impact will be especially pronounced concerning exhaustion, as it is caused by an overwhelming workload (see job demands-resources model of burnout, Demerouti et al., 2001). As far as we know, this is the first study that seeks to answer this research question.

## PARTICIPANTS AND PROCEDURE

### PARTICIPANTS

The research was carried out with the participation of 412 HCWs whose ages ranged from 21 to 69 years ( $M = 36.63$ ,  $SD = 11.76$ ). These participants were recruited through advertisements on medical websites and targeted emails to healthcare professionals. The majority of the participants were women (88.8%), employed in professions requiring higher education (94.4%), and living in either large cities (with a population of over 500,000 inhabitants, 33.3%) or medium-sized cities (with a population of 100,000 inhabitants, 29.1%). Among the surveyed specialists, the largest group was that of nurses (47.3%), followed by physicians (28.4%), psychologists (13.6%), and other healthcare professionals (10.7%). More detailed information about the participants is presented in Tables 1 and 2 and by Holas et al. (2023).

### PROCEDURE

This study was conducted as part of a larger research project that aimed to explore the psychological aspects and experiences of HCWs during the pandemic. A subset of the findings related to this project has been documented by Holas et al. (2023). Data collection took place between July and November 2020, coinciding with the beginning of the second wave of the pandemic in Poland and the period just before it. To gather information, an online questionnaire was utilized, and it was distributed through various medical websites and social media groups specifically dedicated to healthcare professionals in Poland.

The initial section of the survey contained questions regarding participants' demographics, as well as their personal and professional context. The subsequent segments included, among other things, assessments of burnout using the Oldenburg Burnout Inventory (Demerouti et al., 2003), general anxiety using the Generalized Anxiety Disorder-7 questionnaire (Spitzer et al., 2006), depression using the Patient Health Questionnaire-9 (Kroenke et al., 2001; Levis et al., 2019), and empathy measured with the brief version of the Empathic Sensitivity Questionnaire (Woźniak-Prus et al., 2024).

### MEASURES

*The Oldenburg Burnout Inventory* (OLBI; Demerouti et al., 2003; Polish version: Baka & Basińska, 2016) is a 16-item questionnaire which assesses burnout across two dimensions: exhaustion and disengagement. Exhaustion pertains to feelings of emptiness, physical fatigue, excessive workload, and a strong

desire for rest, while disengagement involves distancing oneself from the tasks and content of one's work. Each dimension comprises 8 items rated on a 4-point Likert scale, encompassing both positively and negatively worded questions. In the current study, Cronbach's  $\alpha$  coefficients were  $\alpha = .72$  for disengagement and  $\alpha = .76$  for exhaustion.

*The brief version of the Empathic Sensitivity Questionnaire* (Brief-ESQ; Woźniak-Prus et al., 2024) is a 12-item iteration of the multidimensional Empathic Sensitivity Questionnaire (Każmierczak et al., 2007). The Brief-ESQ draws from Davies' theory (Rutter & Brown, 2017) and is based on his Index of Interpersonal Reactivity. Responses are provided on a 5-point Likert scale. Empathy's cognitive facet is represented by the perspective taking subscale (4 items), while its emotional dimensions are captured by two subscales: personal distress (4 items) and empathic concern (4 items). In this study, Cronbach's  $\alpha$  values were  $\alpha = .76$  for empathic concern,  $\alpha = .77$  for perspective taking, and  $\alpha = .81$  for personal distress.

*The Patient Health Questionnaire-9* (PHQ-9; Kroenke et al., 2001; Levis et al., 2019; Polish version: www.phqscreeners.com) is a screening tool used to assess the risk of depressive disorders. Comprising nine core items, it measures the frequency of depressive symptoms outlined in the DSM-IV and DSM-5 diagnostic criteria over the past two weeks. Responses are scaled from 0 (*not at all*) to 3 (*nearly every day*), yielding a Cronbach's  $\alpha$  value of .91 in our study.

*The Generalized Anxiety Disorder-7* (GAD-7; Spitzer et al., 2006; Polish version: www.phqscreeners.com) is a screening tool for evaluating the likelihood of generalized anxiety disorder. This seven-item measure gauges the frequency of symptoms experienced in the preceding two weeks. Responses range from 0 (*not at all*) to 3 (*nearly every day*), with Cronbach's  $\alpha$  of .94 in our study.

### STATISTICAL ANALYSIS

First, the relationships between professional burnout dimensions and empathy components, anxiety-depression symptoms, and control variables were analyzed using Pearson correlations. It was followed by hierarchical regression analysis evaluating predictors of disengagement and exhaustion dimensions of burnout, with models involving control variables, anxiety-depression symptoms, and finally empathy components of empathic concern, perspective taking, and personal distress. Next, a moderation analysis was performed using Hayes macro Process 3.5.3 in model no. 1 (Hayes, 2018). Working in a place dedicated to or transformed into a facility dedicated to COVID-19 was analyzed as a moderator of the relationships between empathy and burnout dimensions.

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**Table 1***Detailed information about participants of the study*

		Overall HCWs		Physicians	Nurses	Psychologists	Other HCWs
		<i>n</i>	%	%	%	%	%
Paweł Holas, Małgorzata Gambin, Natalia Wojtkowiak, Grażyna Kmita, Emilia Łojek	Gender						
	Female	366	88.8	75.2	96.9	92.9	84.1
	Male	45	10.9	24.8	3.1	7.1	13.6
	Other/refused to answer	1	0.2	0	0	0	2.3
	Education						
	Secondary	6	1.5	0	1.5	0	6.8
	Post-secondary	17	4.2	4.4	3.1	0	13.6
	BA	123	30.1	1.8	61.5	0	2.3
	MA or PhD	263	64.3	93.9	33.8	100	77.3
	Place of residence						
	Village	59	14.3	16.2	15.4	8.9	11.4
	Town < 20 000 inhabitants	28	6.8	4.3	7.7	5.4	11.4
	Town < 99 000 inhabitants	68	16.5	12.8	21.0	10.7	13.6
	City < 500 000 inhabitants	120	29.1	17.1	34.4	37.5	27.3
	City > 500 000 inhabitants	137	33.3	49.6	21.5	37.5	36.4
	Workplace (multiple choice)						
	Public facility	112	27.2	37.6	20.5	23.2	34.1
	Nonpublic facility	80	19.4	33.3	9.7	26.8	15.9
	Health center	79	19.2	33.3	8.7	32.1	11.4
	Hospital ward	217	52.7	47.0	64.1	46.4	25.0
	Isolation ward	8	1.9	3.4	1.5	1.8	0
	Emergency ward	8	1.9	4.3	1.0	0	2.3
	Private medical practice	59	14.3	35.0	3.1	14.3	9.1
	Other facility	42	10.2	5.1	9.7	7.1	29.5
	Type of facility						
	Dedicated to or transformed into facility dedicated to COVID-19	85	21	21.1	20.5	16.4	27.9
	Type of work						
	Remote	129	31.9	60.5	11.9	48.1	25.6
	On-site	253	62.6	37.7	81.3	51.9	58.1
	Not applicable	22	5.4	1.8	6.7	0	16.3
	COVID-19 infection status						
	Infected/probably infected during the research	32	7.9	6.2	11.9	1.9	2.3
	Infected/probably infected in the past	47	11.6	10.6	14.5	11.1	2.3
	Never infected	232	57.4	57.0	54.4	66.7	60.5
	Unknown	93	23.0	26.3	19.2	20.4	34.9

*Note.* HCWs – healthcare workers.

Table 2

Mean values of the level of exhaustion and disengagement and other variables in the groups of nurses, physicians, psychologists and other health professions

	Group								<i>F</i>	<i>df</i>	<i>p</i>
	Physicians		Nurses		Psychologists		Other				
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>			
Disengagement	2.82	0.50	2.89	0.53	2.88	0.50	2.86	0.41	0.40	3, 313	.752
Exhaustion	2.59	0.55	2.56	0.52	2.62	0.48	2.54	0.55	0.25	3, 313	.861
Anxiety-depression symptoms	13.58	10.81	18.58	11.30	11.00	9.11	18.33	12.47	8.29	3, 339	.001
Empathic concern	3.66	0.80	3.84	0.76	3.79	0.58	3.81	0.89	1.17	3, 330	.321
Perspective taking	3.65	0.78	3.70	0.78	3.94	0.57	3.91	0.67	2.23	3, 330	.085
Personal distress	2.45	0.95	2.99	0.93	2.50	0.74	3.07	1.08	9.28	3, 330	.001

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## RESULTS

### BURNOUT DIMENSIONS AND SUBSCALES OF EMPATHY

To evaluate the relation of burnout and empathy we conducted correlation analysis and hierarchical regression. Table 3 presents the values of Pearson correlation coefficients between disengagement, exhaustion and empathic concern, perspective taking, personal distress, anxiety-depression symptoms, and control variables.

Disengagement correlated negatively with empathic concern and perspective-taking and positively with personal distress. Exhaustion correlated positively with empathic concern and with personal distress. Both exhaustion and disengagement were positively related to anxiety-depression symptoms.

Subsequently, we built separate regression models for disengagement and exhaustion, which initially included only control variables – age, economic status, and professional group. We did not include COVID-19 related variables as control variables as they were found not to be related significantly to burnout dimensions in our previous analysis (Holas et al., 2023). Due to missing data, our sample contained 314 observations out of 412 participants in total. As most of the participants (89%) were women, we decided not to include sex as a control variable. The raw models were significant but revealed very poor adjusted  $R^2$  levels (Tables 4 and 5). Only economic status turned out to be a significant predictor of burnout for both exhaustion and disengagement.

In the next step, we extended the models with anxiety-depression symptoms. Due to high multicollinearity ( $VIF > 2.5$ ) and strong correlation ( $r = .73$ ,  $p < .001$ )

Table 3

Correlation coefficients between burnout dimensions, empathy subscales, anxiety-depression symptoms, age and economic status

	1	2	3	4	5	6	7	8
Disengagement	–							
Exhaustion	.59***	–						
Empathic concern	–.15**	.14*	–					
Perspective taking	–.22***	–.001	.48***	–				
Personal distress	.20***	.39**	.29***	.15**	–			
Anxiety-depression symptoms	.34***	.57***	.23***	.11*	.38***	–		
Economic status	–.25***	–.19***	.03	–.09	–.02	–.26***	–	
Age	–.001	–.001	.01	.02	–.17**	–.14*	.00	–

Note. \* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$ .

of depressive and anxiety symptoms, as well as considering the previous research results (Gambin et al., 2021; Kroenke et al., 2016), we decided to combine these two variables into one. Adding the depressive-anxiety symptoms into the models resulted in a significant change in adjusted  $R^2$  levels. Moreover, the newly incorporated variable turned out to be a significant predictor of exhaustion and disengagement.

Finally, we built two models that included all previous variables and subscales of empathy, which again increased the adjusted  $R^2$  levels. All three components of empathy turned out to be predictors of disengagement, but for the exhaustion model only the effect of personal distress was observed. Empathic concern and perspective-taking negatively predicted disengagement, whereas personal distress was a positive predictor of both dimensions of burnout. The detailed results of the hierarchical regression analysis are presented in Table 4 for exhaustion and in Table 5 for disengagement.

We also conducted a moderation analysis and introduced the following variables: working in a place dedicated to or transformed into a facility dedicated to COVID-19 as the moderator, all three empathy dimensions (EC, PT, and PD) as explanatory variables, and both dimensions of burnout (disengagement and exhaustion) as explained variables. We found no evidence that working in a place dedicated to or transformed into a facility dedicated to COVID-19 moder-

ated the relationships between empathy dimensions and burnout dimensions  $[-.06; .25]$ ,  $[-.23; .11]$ ,  $[-.09; .21]$ ,  $[-.15; .19]$ ,  $[-.23; .14]$ ,  $[-.17; .12]$ , all  $p > .05$ .

## DISCUSSION

In the current study, we aimed to address the gap in the literature regarding the relationship between empathy and burnout in HCWs during the COVID-19 pandemic. The empathy of healthcare professionals is advantageous for the quality of care and patient satisfaction (Samra, 2018; Wilkinson et al., 2017 for reviews). It is less clear, however, whether being empathic is related to negative outcomes, such as increased burnout in HCWs, and more specifically which empathy dimensions are linked to burnout dimensions, and how. The connection between burnout and empathy is well recognized, but there are differing views on how they relate. Some suggest that empathy can protect against burnout, while others argue that it may be a risk factor (Zenasni et al., 2012). We proposed, however, that these inconsistencies may stem from treating empathy as a unitary construct and not taking into consideration the multidimensionality of empathy. Following the suggestion of Delgado et al. (2021), we stated that the association between empathy and burnout may depend on whether the components of empathy are self- or

**Table 4**

*Hierarchical regression analysis predicting exhaustion*

Predictor	Exhaustion								
	Model 1			Model 2			Model 3		
	$\Delta R^2$	$\beta$	$SE$	$\Delta R^2$	$\beta$	$SE$	$\Delta R^2$	$\beta$	$SE$
Step 1	.02*								
Age		> -.01	> .01		> .01	> .01		> .01	> .01
Economic status		-.09**	.03		-.03	.03		-.03	.02
Physician		-.02	.12		.11	.10		.16	.09
Nurse		-.06	.11		-.01	.10		> -.01	.09
Psychologist		-.14	.13		.10	.11		.15	.11
Step 2				.29***					
Anxiety-depression symptoms					.03***	> .01		.02***	> .01
Step 3							.05***		
Empathic concern								-.01	.04
Personal distress								.14***	.03
Perspective taking								-.07	.04
Total adj. $R^2$	.02*			.31***			.36***		

Note. \* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$ .

Table 5

Hierarchical regression analysis predicting disengagement

Predictor	Disengagement								
	Model 1			Model 2			Model 3		
	$\Delta R^2$	$\beta$	SE	$\Delta R^2$	$\beta$	SE	$\Delta R^2$	$\beta$	SE
Step 1	.07***								
Age		> -.01	> .01		> -.01	> .01		> .01	> .01
Economic status		-.13	.03		-.10***	.03		-.08**	.03
Physician		.08	.11		.16	.11		.16	.10
Nurse		-.09	.11		-.07	.10		-.07	.09
Psychologist		-.04	.12		.09	.12		.14	.11
Step 2				.09***					
Anxiety-depression symptoms					.02***	> .01		.02	> .01
Step 3							.09***		
Empathic concern								-.11**	.04
Personal distress								.11***	.03
Perspective taking								-.13***	.04
Total adj. $R^2$	.07***			.16***			.25***		

Note. \*\* $p < .01$ , \*\*\* $p < .001$ .

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other-oriented. We hypothesized that other-oriented components – perspective-taking and empathic concern – are negatively associated with burnout dimensions, whereas the self-oriented component, personal distress, is positively related to them.

To answer these questions we ran Pearson correlation analyses, followed by hierarchical regression analyses, enabling us to examine relationships between empathy and burnout dimensions while controlling other potentially important variables (age, economic status, HCW's profession, and anxiety-depression symptoms). Our research findings align with our initial predictions concerning personal distress, which showed a positive correlation with both dimensions of burnout. However, when it comes to other-oriented components of empathy, our predictions were only partially confirmed. Perspective-taking exhibited a negative correlation with disengagement, but no correlation with exhaustion. On the other hand, empathic concern displayed a positive correlation with exhaustion and a negative correlation with disengagement. However, when we conducted a hierarchical regression analysis, controlling for other variables, we found that both empathic concern and perspective-taking no longer predicted exhaustion, but they still served as weak negative predictors of disengagement.

We also aimed to evaluate whether the most demanding work conditions during the pandemic –

working in a place dedicated to or transformed into a facility dedicated to COVID-19 – would moderate the relationships between burnout dimensions and empathy dimensions. We expected this effect, particularly concerning exhaustion, based on the JDR model and the evidence that staff redeployment during the pandemic was found to be a predictor of burnout (Denning et al., 2021). However, we found no evidence for such moderation effects.

Our results, which established a link between higher levels of personal distress and adverse outcomes for HCWs in terms of increased burnout dimensions – exhaustion and disengagement – align with the findings of previous authors, including Delgado et al. (2021), Thomas (2013), and Tei et al. (2014). These studies also observed that heightened personal distress was associated with elevated levels of emotional exhaustion in health professionals. It is worth noting that emotional exhaustion (EE) in the Maslach Burnout Inventory (MBI; Maslach & Jackson, 1981) shares some similarities with exhaustion in the Oldenburg Burnout Inventory (OLBI). However, while emotional exhaustion is a construct within the MBI, the OLBI's exhaustion is a broader dimension of burnout. It is important to mention that none of the aforementioned studies investigated the relationship between self and other-oriented dimensions of empathy and burnout using the OLBI as a measure of burnout. The results of the only study that utilized



OLBI demonstrated that affective empathy significantly predicted higher exhaustion, whereas cognitive empathy was unrelated to components of burnout both in nurses and doctors (Correia & Almeida, 2020). Results regarding affective empathy aligned with our findings. However, contrary to Correia and Almeida (2020), we demonstrated weak correlations of disengagement with perspective-taking.

It is plausible to speculate that the COVID-19 pandemic placed many HCWs in situations where they frequently encountered the suffering and intense negative emotions of their patients and their families (Sun et al., 2021). These negative emotions, including sadness, anxiety, uncertainty, and grief, may have become a common part of their daily experiences (Holas et al., 2023). For HCWs, especially those with a propensity to feel distress and discomfort when witnessing the negative experiences of others (resulting in increased personal distress), this constant exposure to suffering and negative emotions could potentially contribute to heightened levels of exhaustion and disengagement. The emotional toll of the pandemic and the challenging circumstances HCWs faced likely had a significant impact on their well-being, potentially influencing burnout dimensions.

Our findings partially support our hypothesis regarding the relationship between other-oriented components of empathy and disengagement. Both perspective-taking and empathic concern were found to be negatively, but weakly, correlated with disengagement. However, it is worth noting that we could not find any prior studies that specifically examined the interplay between these empathy components and burnout measured using the OLBI. One possible interpretation is that HCWs with higher levels of empathic concern and stronger perspective-taking abilities may establish a more profound emotional connection with patients. This connection may have a positive impact on patient outcomes and satisfaction with treatment. Consequently, the improved patient experience may enhance HCWs' job satisfaction and sense of purpose, which, in turn, reduces the risk of disengagement. In addition, our previous analysis (Holas et al., 2023) highlighted the protective role of positive emotions against disengagement, demonstrating that positive emotional experiences were the strongest predictors of reduced disengagement among HCWs. For HCWs, higher levels of empathic concern and perspective-taking may foster positive emotional states that, in turn, reduce the risk of disengagement by enhancing their engagement with patients and colleagues and supporting their overall well-being. However, it is essential to acknowledge that these claims should be further validated through future research to establish a more robust understanding of the relationship between empathy components and burnout.

The unexpected nature of the associations between empathic dimensions and exhaustion was noteworthy. Empathic concern was positively related to exhaustion in correlational analysis; however, both other-oriented empathy components showed no significant association with exhaustion in regression analysis when we controlled for other variables. It is interesting to note that Tei et al. (2014) reported a positive correlation between empathic concern and the emotional exhaustion subscale of the Maslach Burnout Inventory, similar to our weak positive correlation with exhaustion. In contrast, Thomas (2013) and Delgado et al. (2021) found that empathic concern was unrelated to any dimensions of burnout in their studies, which were conducted on different populations, namely nurses and clinical social workers, using different assessment tools. Therefore, while these findings are informative, comparisons to our results should be made cautiously, considering the variations in assessment tools and study populations.

Our findings suggest that the negative impact of empathy on HCWs' burnout is associated with a specific component of empathy – personal distress. Personal distress is characterized by self-focused emotional reactions and has previously been linked to depressive and anxiety symptoms, low mental well-being, and impaired social functioning (Davis, 1983; Gambin et al., 2021; Grynberg & López-Pérez, 2018; Gupta et al., 2022). On the other hand, empathic concern is another component of empathy characterized by affective empathy. Unlike personal distress, empathic concern is directed toward others and involves feelings of warmth and sympathy. These two components, as proposed by Batson et al. (1987), represent distinct latent factors in empathy. Studies have shown either no correlation or small-to-moderate correlations between PD and EC (FeldmanHall et al., 2015; Grynberg et al., 2010). Several studies have yielded evidence that both of these empathic dimensions are characterized by differential emotional responses to others' pain and different helping behaviors (e.g., Eisenberg et al., 1989). Those who witness the suffering of another develop aversive emotional reactions (personal distress) that are egoistic rather than altruistic and directed toward relieving their pain. Whereas others, in the same situation develop a more other-oriented response (empathic concern), which is directed into alleviating the suffering of a person in need (Davis, 1983). The findings from the current study suggest that the relationship between these empathy components and burnout differs when examining exhaustion and disengagement. This distinction is not surprising, considering the unique features and qualities associated with personal distress and empathic concern.

Perspective-taking was negatively associated with disengagement in both correlational and regression

analysis. However, it was not related to exhaustion in either analysis. Perspective-taking is a cognitive component of empathy and consists of adopting the point of view of another person and seeing things from their point of view. According to Davis (1983), perspective-taking is a core component of empathy in the context of care for patients. Indeed, research showed that HCW's perspective-taking is related to increased patient satisfaction (Blatt et al., 2010), and contrary to personal distress, higher perspective-taking was also found to be related to increased physician's well-being (Shanafelt et al., 2005). Our study additionally suggests that perspective-taking is related to decreased distancing oneself from the tasks and content of one's work among HCWs.

## LIMITATIONS

The present study has several limitations that should be taken into account. Firstly, the utilization of a cross-sectional design in this study hinders the establishment of causal relationships between the examined variables. The predominantly female composition of our study group warrants careful consideration. Previous research (Basinska & Gruszczynska, 2020; Purvanova & Muros, 2010) has indicated that gender may play a significant role in both the experience and levels of burnout, suggesting that our findings might not be universally applicable across genders. Future research should focus on investigating whether there are gender-specific relations between empathy and burnout dimensions. The significant dropout rate in our study is another key limitation. The demanding conditions of the COVID-19 pandemic, including work overload and the need to manage multiple tasks, likely contributed to some HCWs not completing the survey in full. Additionally, survey length or complexity could induce fatigue or disinterest, while questions on pandemic experiences or burnout might trigger discomfort, further contributing to incomplete responses. As Delgado et al. (2023) commented in their review and meta-analysis, the lack of studies investigating burnout and empathy relationship during the pandemic – the very difficult circumstances that the HCWs have experienced – may have made it difficult to conduct studies on them. The reliance of the study on one-time measurements hinders the evaluation of nuanced and dynamic relationships between variables. This methodological constraint undermines the accuracy of asserting an unequivocal increase in burnout levels among healthcare professionals. Evidence suggests that the COVID-19 pandemic is marked by changing trajectories of depressive and anxiety symptoms, and burnout, which emphasizes the need for a longitudinal design to capture these fluctuations accurately (Gambin et al., 2021; Van Hoy & Rzesutek, 2023).

The dependence on posts and advertisements for sample selection introduces the potential for bias in the participant pool. The exclusive focus on Polish HCWs may limit our study's broader applicability, especially considering studies that highlight the influence of cultural factors on anxiety management and stress responses (Mueller-Haugk et al., 2023). Additionally, the lack of consensus on terminology and dimensions used to define burnout, along with variations in measurement methods, can reduce the study's ability to make reliable comparisons with other research in the field. These factors underscore the need for caution when interpreting and generalizing the study's findings to a wider context. Lastly, the study relied on self-report scales, which are inherently susceptible to various biases, including recall bias, social desirability bias, and the influence of participants' current emotional states. These limitations highlight the complexity and potential confounding factors in studying burnout in HCWs and the need for further research to address these issues.

The results of the present study highlight the complex relationship between different components of empathy and burnout among healthcare professionals during the pandemic. Notably, the study found that personal distress, a component of empathy, has the strongest associations with professional burnout in healthcare professionals. This suggests that HCWs who experience personal distress, characterized by self-focused emotional reactions, may be at a higher risk of burnout. Conversely, empathic concern and perspective-taking, which are other-oriented components of empathy, exhibited weaker and negative associations with the disengagement dimension of burnout. These findings suggest that healthcare professionals who possess higher levels of empathic concern and perspective-taking may be better equipped to remain engaged in effective healthcare delivery, particularly during challenging times like the COVID-19 pandemic. Furthermore, it suggests that interventions aimed at enhancing empathic concern and perspective-taking may help HCWs maintain their engagement and well-being in the face of demanding healthcare environments, such as those presented during the COVID-19 pandemic.

## DISCLOSURES

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*Relationship  
of burnout  
with empathy  
dimensions  
in healthcare  
workers*