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Empathy and Burnout in Veterinarians and Veterinary Nurses: Identifying Burnout Protectors

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Protectors

Abstract

Burnout in animal health care providers (AHCPs), namely veterinarians and veterinary nurses, is highly prevalent. Although empathy can be a potential risk factor for burnout in these professionals, research has not empirically addressed the association between empathy and AHCP burnout. This study's main aims were: (a) to analyze the association between empathy and burnout for AHCPs, distinguishing affective and cognitive empathy towards humans and empathy towards animals; (b) to analyze the possible protective effects of justice perceptions, professional identification, and meaningful work, to counteract the negative impact of empathy on burnout; and c) to extend analyses to control for variables that might act as burnout protectors or risk factors such as gender, years of professional experience, workload, income and the perception of the professional's suffering for performing euthanasia procedures. Convenience samples of 229 veterinarians and 96 veterinary nurses were collected in Portugal. The participants were invited to complete an anonymous online survey with self-reported measures. The measures used assessed burnout (exhaustion and disengagement), empathy for humans (cognitive and affective) and empathy for animals, justice perceptions, professional identification and meaningful work.

Multiple regression analysis showed that affective empathy was a significant risk factor for exhaustion in veterinarians and veterinary nurses. Empathy for animals was a significant risk factor for veterinarian exhaustion. Neither of the measures of empathy was a significant predictor of disengagement for veterinarians nor veterinary nurses. Professional identification and justice perceptions, namely belief in a just world, were found to be significant burnout protectors.

It is recommended that justice perceptions and professional identification should receive special attention in interventions to prevent and/or reduce burnout among AHCP. The alternative possibility of preventing burnout through a decrease in AHCP empathy is not advisable, however, because empathy is a vital AHCP skill.

Keywords: Burnout, Empathy, Justice Perceptions, Professional Identification, Veterinary Professionals; Human-Animal Interaction

Empathy and Burnout in Veterinarians and Veterinary Nurses: Identifying Burnout

Protectors

Burnout has been conceived as a cumulative reaction to ongoing occupational stressors (Maslach, 1976). Burnout in animal health care professionals (AHCPs), namely veterinarians and veterinary nurses, is highly prevalent (see Volk et al., 2018, for a review of burnout in veterinarians; and Thompson-Hughes, 2019, for a review of burnout in veterinary nurses) and has very serious consequences for these professionals' physical (e.g. work-related injuries and accidents, Trimpop, et al., 2000) and psychological well-being (low satisfaction in various life domains, such as friendship and family life, Volk et al., 2018), for the organizations in which they work (e.g. staff turnover, Routly et al, 2002), and for the quality of the service provided to clients (e.g. reduced productivity, Figley & Roop, 2006).

The study of AHCP burnout predictors has some parallels with burnout studies conducted in the human health care sector. Some examples of factors found to contribute both to physicians and veterinarians are, among others, excessive workloads, frequent on-call duties, decreased control over the work environment, and workplace conflicts (see Kogan et al., 2020, Rohlf et al., 2021, for reviews). However this has not been the case of empathy, that although recognized as a key skill both for healthcare workers (Zaki, 2020) and for veterinary professionals (Figley & Roop, 2006), has been the focus of much research in human health care workers as a burnout predictor (Wilkinson et al., 2018 for a review), but not in AHCPs. Indeed, to the authors knowledge, no study has investigated the association between empathy and burnout in AHCPs. This gap in the literature needs investigating so that mechanisms to help address burnout may be better developed.

Results from several studies exploring empathy and burnout (Wilkinson et al., 2018 for a review) have been inconsistent: they either show empathy as a burnout protector, as a risk factor, or with no impact on burnout. As empathy is regarded as an important skill for veterinary professionals (e.g., Colombo et al., 2017; Figley & Roop, 2006), any indication that it may prove to be a risk factor for

burnout, requires attention. Specifically, it is important to identify other variables that may act as burnout protectors and counteract the deleterious impact of empathy.

This study aimed to investigate the unique impact of empathy on burnout in veterinarians and veterinary nurses. Further, as AHCPs are not only exposed to animal suffering but also to the suffering of animal owners and, often, of their co-workers, comparisons of the impact of three forms of empathy were included in this study namely, affective empathy for humans, cognitive empathy for humans, and empathy for animals. Moreover, justice perceptions, organizational identification and meaningful work, previously found to be burnout protectors in human health care workers (Correia & Almeida, 2020) were also explored. Additionally we controlled for variables that might act as burnout protectors or risk factors such as gender, years of professional experience, workload, income and the perception of the professional's suffering for performing euthanasia procedures.

The Study of the Associations between Burnout and Empathy

Empathy can be defined as the act of constructing the mental state of others for ourselves, accompanied by the emotional response resulting from exposure to the emotional condition of that same mental state (Eisenberg & Strayer, 1987; Hoffman, 1987). Research on this subject allows us to consider that empathy is made up of (a) a cognitive dimension; and (b) an affective dimension. The cognitive dimension of empathy reflects the ability to take the mental perspective of another human being and, consequently, imagine what they may be feeling under certain circumstances (Smith, 2006). In turn, the affective dimension of empathy represents our level of congruence with another person's mental state resulting from the vicarious sharing of emotions (Pechorro et al., 2017; Smith, 2006).

Empathy plays an important role in interpersonal relationships and therefore shows to be important for the relation between AHCPs and animal owners (Figley & Roop, 2006). In modern societies, animals, especially pets, hold a very specific place and role in the family environment (Colombo et al., 2017). The number of people owning pets has steadily increased over the last decades and they are often considered part of the family, similar in status to human members (e.g., Shir-Vertesh,

2012). Individuals form long lasting and intense affectional bonds with them (Colombo et al., 2017) that are mutually beneficial physically, emotionally and psychologically (Hines, 2003). Pet owners seek to provide their pets with appropriate medical assistance and society in general expects AHCPs to treat animals with care and compassion, tending to see their role as alleviating animals' pain and suffering (Martinsen, 2007). Human empathy thus seems to be crucial for these professionals.

Studies undertaken with human health care professionals showed that empathy can be either a protective or a risk factor for burnout (see Zenasni et al., 2012, for a review). Although the dimensions of empathy are usually found to be correlated (e.g., Israelashvili & Karniol, 2018), they have been differently associated with burnout in various other studies (Wilkinson et al., 2018 for a review). For example, affective empathy has been found to be a burnout protector (Lamothe et al., 2014; Lee et al., 2003) and a burnout risk factor (Gleichgerricht, & Decety, 2013); cognitive empathy has also been found to be either a burnout protector (Lamothe et al., 2014; Lee et al., 2003), or not significantly associated with burnout (Correia & Almeida, 2020).

Moreover, when addressing AHCPs it is also important to consider the impact of empathy for animals. Although much less studied than empathy for humans, empathy for animals is crucial for AHCPs because it predicts the recognition of pain in animals and subsequent attempts to treat and relieve their suffering (Norrington et al., 2018, Paul & Podberseck, 2000).

Perceptions of Justice

Perceptions of justice represent an important predictor of satisfaction and well-being, and have been considered a burnout protector (Maslach et al., 2001). Most studies have assessed perceived justice through its different dimensions (distributive justice, procedural justice, interactional justice, see Tyler et al., 1997 for a review) and studied their impact on burnout (e.g., Correia & Almeida, 2020; Moliner et al., 2005).

In the present study, a broader indicator of perceived justice was incorporated, namely, the belief in a just world. Lerner (1980) proposed that "People want to and have to believe they live in a just world

so that they can go about their daily lives with a sense of trust, hope, and confidence in their future” (Lerner, 1980, p. 14). The belief in a just world can be seen as a personal disposition that makes people perceive events as being fair and has shown to have a positive impact on well-being (Correia et al, 2009). Recently, Thomas (2021) proposed that individual differences in belief in a just world reflect individual differences in justice capital - the degree to which individuals have access to status, voice, fair authorities and equitable environments. In line with this, a fairer work environment can also be a burnout protector and, therefore, may be an important employer concern when they aim to protect the well-being of their employees (Leiter & Maslach, 2003).

Professional Identification

According to Social Identity Theory (Tajfel, 1978), individuals belong to various groups and these groups define different social identities. According to Tajfel’s (1978) social identity is “that part of an individual’s self-concept which derives from his [or her] knowledge of his [or her] membership of a social group (or groups) together with the value and emotional significance attached to that membership” (p. 63). Therefore, social identity is to some extent a socially shared perception.

A related, but different concept, is that of social identification, which is the strength of the sense of membership within a social group (Turner et al., 1987), and is “the positive emotional valuation of the relationship between self and ingroup” (Postmes, 2013, p. 599). A profession offers individuals the possibility of developing a professional identification (Lammers et al., 2013), and a strong professional identification has shown to be an important burnout protector (Correia & Almeida, 2020; Lammers et al., 2013).

Meaningful Work

Meaningful work is a subjective interpretation made by professionals about the final purpose of their work or its role in the world (Pratt & Ashforth, 2003). According to the existential perspective, individuals need to believe that their lives are meaningful, useful and important (Pines & Keinan, 2005). Extending this to the work context, burnout occurs due to an inconsistency between what is expected and

what actually happens, in that when professionals feel that they have failed and their work is insignificant, they begin to experience symptoms of burnout (Pines & Keinan, 2005).

Meaningful work, given by the possibility of helping animals and their owners, have been identified as promoting veterinarians well-being (Cake et al., 2015). Occasions where veterinarians feel they fail to help animals and their owners may threaten the meaning of their work. Examples are when they are requested to provide what they consider futile care (Moses et al., 2018), they face resistance from an animal's owner when euthanasia is clearly indicated, or have to perform euthanasia when they think it is not justified by medical reasons (Kahler, 2015).

Workload

Excessive workload refers to overload, when job demands exceed human limits (Maslach et al., 2001). It is one of the core risk factors for burnout development when it is a chronic job condition and not an occasional emergency (Demerouti et al., 2001; Leiter & Maslach, 2003). In veterinary professions, professionals very often face heavy workloads and long working hours (e.g. Reijula et al. 2003), and this has shown to be a risk factor for veterinarians (Mastenbroek et al., 2014) and veterinary nurses (Black et al., 2011).

THE PRESENT RESEARCH

In the present study, we aimed to investigate whether empathy is a risk factor for burnout in AHCPs, and if its effects can be mitigated with the same variables as for human health care professionals (Correia & Almeida, 2020) namely, perceptions of justice, professional identification, and meaningful work. Three measures of empathy were explored: empathy for humans (cognitive and affective) and empathy for animals.

A two-dimensional burnout model (Bakker et al., 2004) containing (a) an exhaustion dimension referring to feelings of physical fatigue and overload in relation to work (Demerouti & Bakker, 2008); and (b) a disengagement dimension referring to the distance from work and negative attitudes towards one's own work (Bakker et al., 2004) was used to elicit data.

METHOD

PARTICIPANTS

The sample of the present study (Tables 1) was collected in Portugal and was made up of 229 veterinarians (aged between 24 and 65 years old, $M = 34.54$; $SD = 7.98$; 79.7% female) and 96 veterinary nurses (aged between 22 and 38 years old, $M = 28.47$; $SD = 3.45$; 88.5% female). About 91% of veterinarians and 88 % of veterinary nurses worked in the private sector. The average number of years veterinarians had worked in their profession was 10 years ($M = 9.48$; $SD = 7.96$) and for veterinary nurses was around 5 years ($M = 4.96$, $SD = 2.94$).

PROCEDURE

This study followed the principles of the Declaration of Helsinki. According to the Ethics guidelines of the Scientific Commission of our Research Center (CIS-IUL), the Study was exempt from Formal Ethical Approval because it included only surveys collected anonymously and without obligation to complete. The study did not involve questions about undesirable personal characteristics nor potentially endangering information. The study did not involve deception nor involve participants from a population of concern. The study did not require participants to ingest any substance nor involve any invasive measure.

An online survey was created using Qualtrics® (Qualtrics, Inc.; Provo, UT, USA) and participants were recruited via Facebook and LinkedIn. Participants were provided information about the general purpose of the study. Participants were informed that it was non-invasive, that there were no physical, financial, social, legal or other risks connected with the study, that their participation would be anonymous and all results would be analyzed anonymously. It was also explained that they could withdraw from the study by closing the web browser without their responses being recorded. Contact information for the research team was provided to all participants in the event they wished to obtain additional information or had any questions about the study. After informed consent and agreement to participate was gained, participants were then presented with the survey. In the last block of the survey,

participants were asked to provide demographic and professional information. The participants were thanked for their participation, and research team contact information was again provided. The average completion time for the survey was 15 minutes.

MEASURES

Burnout

To measure burnout, we used the Portuguese adaptation (e.g., Sinval et al., 2019), of the Oldenburg Burnout Inventory (OLBI, Bakker et al., 2004). The OLBI has sixteen items and consists of two dimensions with eight items each: exhaustion (e.g., “During my work, I often feel emotionally drained” veterinarians $\alpha = 0.84$; veterinary nurses $\alpha = 0.88$) and disengagement (e.g., “I always find new and interesting aspects in my work” veterinarians $\alpha = 0.84$; veterinary nurses $\alpha = 0.86$). Responses were given on a five-point scale, 1 = “totally disagree” to 5 = “totally agree.”

Empathy

Empathy was measured using the Portuguese adaptation of the Basic Empathy Scale short version (BES-A) (Pechorro et al., 2018). This BES-A version has seven items, with three items for the affective dimension (e.g., “After being with a friend who is sad about something, I usually feel sad”, veterinarians $\alpha = 0.82$; veterinary nurses $\alpha = 0.89$) and four items for the cognitive dimension (e.g., “I can often understand how people are feeling even before they tell me”, veterinarians $\alpha = 0.70$; veterinary nurses $\alpha = 0.53$). The items were answered on a five-point response scale: 1 = “totally disagree” to 5 = “totally agree.”

Empathy for animals

Empathy for animals was measured using the Portuguese adaptation of Animal Empathy Scale (AES), created by Paul (2000) and adapted by Emauz and colleagues (2016). This instrument is made up of 12 items (veterinarians $\alpha = 0.78$; veterinary nurses $\alpha = 0.70$), such as “I am indignant when I see animals mistreated”. A close look at the items suggests that the measure of

empathy for animals refers mostly to affective empathy. The items were answered on a five-point response scale: 1 = “totally disagree” to 5 = “totally agree.”

Justice Perceptions

Hafer et al. (2020) showed that combined measures of general and personal perceptions of justice were better predictors of well-being than just personal ones, as had been previously thought (e.g., Dalbert, 2001). Taking that into consideration, the present study measured perceptions of justice using six items (veterinarians $\alpha = 0.76$; veterinary nurses $\alpha = 0.74$): three of them taken from the personal belief in a just world scale (Dalbert, 1999) (e.g., “I think most of what happens to me is fair”) and three taken from the general belief in a just world scale (Dalbert, et al., 1987) (e.g., “Injustice in all areas of life [for example, profession, family, politics] happens rarely”). Responses were given on a five-point scale: 1 = “totally disagree” to 5 = “totally agree”.

Professional Identification

This construct was measured with one-item measure (“I identify with my profession”) and the responses were given on a five-point scale: 1 = “totally disagree” to 5 = “totally agree”. This item was adapted from the one item measure of organizational identification validated by Postmes et al. (2013) (“I identify with the organization I work for”).

Meaningful Work

Meaningful Work was evaluated with two items (“The work I do serves a greater purpose,” “I know my work makes a positive difference in the world”); veterinarians $\alpha = 0.77$; veterinary nurses $\alpha = 0.74$) taken from The Work and Meaning Inventory (WAMI) (Steger et al., 2012), with a five-point response scale: 1 = “totally disagree” to 5 = “totally agree”.

Workload

Workload was evaluated with one item taken from The Areas of Worklife Scale (AWS) (“I have enough time to do what’s important in my job”—recoded) (Leiter and Maslach, 2003), on a five-point response scale: 1 = “totally disagree” to 5 = “totally agree.”

Control Variables

Several variables that may affect the proposed relationships but that were not of direct theoretical interest were controlled for. For example, respondents' gender and years of professional experience, these variables have been found to affect burnout in veterinarians (Volk et al., 2018), with female and younger professionals showing higher burnout. In the present study, respondents' gender and years of professional experience were directly asked to the participants throughout open response items.

Income was also controlled for because it is an important predictor of well-being of veterinarians (Volk et al., 2018). Income was measured with an item adapted from the European Social Survey (2018): "Which of the following descriptions is closest to your current income?" with a four statement response scale, 1 = "It is very difficult to live on my current income"; 2 = "It is difficult to live on my current income"; 3 = "My current income is enough to live on"; 4 = "My current income allows me to live comfortably."

The perception of professionals' suffering for performing euthanasia procedures was specifically addressed because of its relevance for veterinary professionals. It was measured using one item: "To what extent do you consider that veterinary professionals who have to euthanize animals suffer during the procedure?". The item were answered on a five-point response scale: 1 = "not at all" to 5 = "extremely".

Data analysis

Data were analysed using SPSS (IBM SPSS; version 25). First, descriptive statistics, such as means, standard deviations and percentages, were used to characterise participants (see Tables 1 and 2). After that, Pearson's correlation were calculated between all the measures separately for veterinarians and veterinary nurses (Tables 3 and 4). Lastly, multiple regressions analysis were performed for each burnout dimension (exhaustion and disengagement) separately for veterinarians (Table 5) and veterinary nurses (Table 6).

RESULTS

Preliminary Analysis

Table 2 presents the descriptive statistics for the theoretical variables.

The pattern of correlations between the variables under study for veterinarians and veterinary nurses were analysed separately. For veterinarians (Table 3), exhaustion shows a significant positive association with the perception that the professionals who perform euthanasia, suffer from the procedure ($r = 0.31$; $p < 0.001$), with workload ($r = 0.48$; $p < 0.001$), with empathy for animals ($r = 0.22$; $p < 0.001$) and with affective empathy ($r = 0.32$; $p < 0.001$); and negatively associated with gender ($r = -0.23$; $p < 0.001$, i.e., men were less likely to feel exhausted than women), with income ($r = -0.25$; $p < 0.001$), with years of professional experience ($r = -0.16$; $p < 0.01$), with the perceptions of justice ($r = -0.33$; $p < 0.001$) and with professional identification ($r = -0.28$; $p < 0.001$).

There was significant positive correlation between disengagement of veterinarians and workload ($r = 0.27$, $p < 0.001$); but was negatively correlated with income ($r = -0.19$, $p < 0.001$), perceptions of justice ($r = -0.21$, $p < 0.001$), meaningful work ($r = -0.33$, $p < 0.001$) and professional identification ($r = -0.58$, $p < 0.001$) (Table 4).

For veterinary nurses (Table 4), exhaustion was shown to be significant, and positively associated with workload ($r = 0.53$; $p < 0.001$) and affective empathy ($r = 0.32$; $p < 0.001$); and negatively associated with income ($r = -0.33$; $p < 0.001$), years of professional experience ($r = -0.21$; $p < 0.05$), perceptions of justice ($r = -0.33$; $p < 0.001$) and professional identification ($r = -0.28$; $p < 0.01$).

Significant correlation was found between veterinary nurse disengagement and male gender ($r = .29$; $p < 0.01$), and workload ($r = 0.57$; $p < 0.001$); but was negatively associated to income ($r = -0.47$; $p < .001$), meaningful work ($r = -0.37$; $p < 0.001$) and professional identification ($r = -0.54$; $p < 0.001$) (Table 5).

Both burnout dimensions, namely, exhaustion and disengagement, were also significantly correlated with each other for both professional categories (veterinarians, $r = 0.53$; $p < 0.05$; and veterinary nurses, $r = 0.56$; $p < 0.05$).

Main Analysis

To clarify the relationships between our variables, multiple regression analyses were performed for each burnout dimension (exhaustion and disengagement) regarding each professional group. The variables were ordered in two different blocks: Step 1= affective empathy, cognitive empathy and empathy for animals; Step 2 – control variables and potential burnout protectors = gender, income, perception of suffering for performing euthanasia, years of professional experience, workload, perceptions of justice, meaningful work and professional identification. We did not include age in the regression to avoid multicollinearity issues due to its high correlation with years of professional experience.

For both subsamples, the results of Model 1 and Model 2 are presented in Tables 5 and 6. In veterinarians (Table 5), 12% of the variance in exhaustion was predicted by affective empathy (beta = 0.27; $p < 0.001$) and empathy for animals (beta = 0.16; $p < 0.05$), when only the empathy variables were considered. When all the variables of the model were introduced, affective empathy (beta = 0.17; $p < 0.001$) and empathy for animals (beta = 0.11; $p < 0.05$) remained significant predictors of exhaustion, even though other protectors and risk factors impacted on burnout and explained an additional 34% of the variance in veterinarian exhaustion. The protectors were perceptions of justice (beta = -0.16; $p < 0.05$), and professional identification (beta = -0.17; $p < 0.001$). The risk factors were being female (beta = -0.12; $p < 0.05$), having a higher perception of suffering for performing euthanasia (beta = 0.18; $p < 0.001$), an increased workload (beta = 0.38; $p < 0.001$) and fewer years of professional experience (beta = 0.14, $p < 0.01$). Both models explained 48% of the variance of veterinary exhaustion.

For veterinary nurses (Table 6), when only the empathy variables were considered, the model explained 12% of the variance in exhaustion with affective empathy as the only significant predictor (beta = 0.29; $p < 0.001$). When all the variables of the model were introduced, affective empathy remained a significant risk for exhaustion (beta = 0.20; $p < 0.05$), together with workload (beta = 0.36; $p < 0.001$). The protectors of lower levels of exhaustion were perceptions of justice (beta = -0.30; $p <$

0.001) and professional identification (beta = -0.19 ; $p < 0.05$). Both models explained 42% of the variance of veterinary nurse exhaustion.

Results for disengagement, for both veterinarians and veterinary nurses, revealed that none of the empathy types measured proved to be a significant predictor of burnout. For veterinarians (Table 6), 29% of the variance in disengagement was predicted by income (beta = -0.11 ; $p < 0.05$), workload (beta = 0.14 ; $p < 0.01$), perceptions of justice (beta = -0.16 ; $p < 0.01$), meaningful work (beta = -0.17 ; $p < 0.01$), and professional identification (beta = -0.33 ; $p < 0.001$). Both models explained 32% of the variance of veterinarian disengagement.

For veterinary nurses (Table 6), being male was a predictor of disengagement (beta = 0.20 ; $p < 0.05$), as was income (beta = -0.30 ; $p < 0.001$), and workload (beta = 0.34 ; $p < 0.001$). Being male, and having higher levels of workload were significant predictors of greater disengagement. While higher income and meaningful work were significant predictors of lower disengagement. Both models explained 51% of the variance of veterinary nurse disengagement.

DISCUSSION

The main aims of this study were: (a) to analyze the association between empathy and burnout for AHCPs, distinguishing affective and cognitive empathy towards humans and empathy towards animals; (b) to analyze the possible protective effects of justice perceptions, professional identification and meaningful work to counteract the negative impact of empathy on burnout; and c) to extend analyses to control for variables that might act as burnout protectors or risk factors such as gender, years of professional experience, workload, income and the perception of the professional's suffering for performing euthanasia procedures.

Affective empathy was found to be a significant risk factor for exhaustion in veterinarians and veterinary nurses, and empathy for animals was found to be a significant risk factor for veterinarian exhaustion. Furthermore, affective empathy and empathy for animals remained significant risks after other protectors and risk factors are considered. No impact of either forms of empathy was found for

disengagement and this was the case for both veterinarians and veterinary nurses. Cognitive empathy did not significantly correlate with any burnout dimensions.

These results are very important because they run counter to the defense that cognitive and affective empathy work as burnout protectors (Lamothe et al., 2014; Thirioux et al., 2016). Future studies should take this into account and explore conditions under which empathy might work as a burnout protector or a burnout risk factor.

Professional identification and justice perceptions were significant burnout protective factors, specifically for exhaustion in veterinarians and veterinary nurses. This is in line with the evidence provided in the human health care literature where the impact of professional identity and justice perceptions on burnout also remain significant after other specific protectors and risk factors are taken into account (Correia & Almeida, 2020). This is an important finding, that can be understood within the assumptions that justice (Lerner, 1980) and belonging (Baumeister & Leary, 1985) are core human needs. Indeed core human needs when unmet, produce a decrease in well-being. This means that perceived injustice or a low professional identification are conditions that threaten respectively the fundamental need for justice and the fundamental need to belong.

The concept of meaningful work had smaller impact as a burnout protector. Indeed, it was not significantly correlated with exhaustion in any of the samples and, although significantly correlated with disengagement in veterinarians and veterinary nurses, it only remained a significant protector for veterinarian disengagement. This runs counter to previous studies that have underlined its role as a protective factor in veterinarian burnout (e.g., Rasmussen et al, 2015), and previous evidence as burnout protection of human health care nurses (e.g., Tei et al., 2014).

The specific measure of perceptions of professionals' suffering from performing euthanasia procedures significantly predicted higher veterinarian exhaustion only. This goes in line with the fact that animal health professionals sometimes find themselves in situations in which it is necessary to

perpetuate procedures that may not be morally accepted, such as euthanasia, may negatively impact their well-being (Polacheck & Wallace, 2018).

The results of the present study further confirmed workload as a significant risk factor for exhaustion and disengagement for both veterinarians and veterinary nurses, which is in line with its key role in the development of the burnout itself (Leiter & Maslach, 2003) and is in agreement with previous research conducted on veterinarians (Kogan, et al., 2020) and veterinary nurses (Thompson- Hughes, 2019). Furthermore, being female appeared to be a significant predictor of higher levels of veterinarian exhaustion, and being male predicted greater veterinary nurse disengagement.

This study has, however, some limitations. The first is that some of the constructs were assessed using few items in order to minimise the length of survey and increase participation and completion (Robins et al., 2001). This was the case of the measures of belief in a just world and meaningful work, that were not measured with the whole scales, but that nevertheless showed good reliability. Furthermore, some of the constructs were assessed using only one item: for professional identification, this does not seem to be problematic because the one-item measure used had already been validated (Postmes et al., 2013); for workload and perception of suffering for performing euthanasia, the one-item scales have not been previously validated, which of course represents a limitation. However, workload and perception of suffering for performing euthanasia measures have face validity and they significantly correlated in the expected direction with both dimensions of burnout.

The second limitation is the fact that the samples were convenience samples and therefore, very probably not representative of the veterinarian and veterinary nurse population in Portugal, and even less across the world. Moreover, the veterinary nurse sample had less than half the participants of the veterinarian sample.

The third limitation is the correlational design of this study, which limits the nature of the conclusions that can be drawn about the causal relations among variables. Indeed, in a correlational design it is not possible to be sure that the predictor variables indeed cause the outcome variable. Only

longitudinal studies and experimental studies can establish the causal relation between empathy and burnout.

The fourth limitation is that all predictors and outcome variables were self-reported, which might lead to possible overestimation of the associations between them, due to shared method variance.

Implications and concluding remarks

Notwithstanding all previously mentioned limitations, the results of this study may have important implications for ensuring empathic AHCPs are at low risk of burnout. Veterinarians and veterinary nurses can be encouraged and trained to be cognitively empathic with animal owners, because cognitive empathy is a key quality for AHCPs and the present study shows it does not represent a risk for burnout. For affective empathy and empathy for animals, however, the situation is not the same because these dimensions of empathy represent a risk for burnout. This means it is important to compensate the risk they produce with the reinforcement of other burnout protectors.

The results of this study suggest that justice perceptions and professional identity may be two important burnout protectors and, as long they are strong enough, they will be able to counteract the negative impacts on burnout of affective empathy and empathy for animals. Veterinarians and veterinary nurses will then not need to repress nor to conceal affective empathy for animal owners or empathy for animals.

In sum, based on the results of this study, justice perceptions and professional identity can aid the prevention of, and/or reduce burnout among AHCPs. We recommend that employers focus on justice issues in the organization, such as a fair and respectful leadership, giving a voice to employees (Thomas, 2021 for a review), together with promoting the importance of identification in individual employees within their profession (Goltz, & Smith, 2014). These concepts should be included in undergraduate training and also further developed in the workplace.

In a context where organizations are always looking to manage their financial resources more efficiently, studies such as this may help organizations in decision-making about human resources

leading to a more effective use of time and money. This study highlights areas of action that if promoted in the workplace, will increase well-being in veterinarians and veterinary nurses, while preserving empathy for humans and animals, so important for the effectiveness of veterinary medical care.

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TABLE 1. Sample characterization.

Control variables	Veterinarians N = 266	Veterinary Nurses N = 96
Gender (%)		
Female	79.7	88.5
Male	20.3	11.5
Nationality (%)		
Portuguese	98.1	97.8
Other	1.9	2.2
Sector (%)		
Private	90.6	87.5
Public	9.4	12.5
Typology of animals (%)		
Pets	79.7	91.7
Small animals (lab)	7.9	6.3
Production	6.4	2.1
Exotic	0.8	-
More than 1 type	4.6	-
Voluntary work with animals (%)		
No	85.3	88.5
Yes, occasionally	2.6	-
Yes, regularly	8.3	9.4
Yes, daily	1.9	2.1
I do help some animals without charging	1.9	-
Age (M/SD)	34.5 (7.98)	28.5 (3.45)
Years of professional experience (M/SD)	9.48 (7.96)	4.96 (2.94)

Table 2. Descriptive statistics for variables.

Theoretical variables	Veterinarians N = 266	Veterinary Nurses N = 96
Exhaustion (M/SD)	3.48 (0.67)	3.48 (0.69)
Disengagement (M/SD)	2.90 (0.71)	2.74 (0.83)
Workload (M/SD)	2.34 (0.96)	2.47 (1.25)
Cognitive empathy (M/SD)	3.97 (0.45)	3.93 (0.38)
Affective empathy (M/SD)	3.22 (0.84)	3.09 (1.04)
Empathy for animals (M/SD)	4.02 (0.51)	4.29 (0.44)
Meaningful Work (M/SD)	4.14 (0.71)	4.18 (0.72)
Perceptions of justice (M/SD)	2.74 (0.59)	2.71 (0.60)
Professional Identification (M/SD)	4.23 (0.80)	4.50 (0.73)
Income (M/SD)	2.55 (0.84)	2.11 (0.86)
Perception of suffering (eutanásia) (M/SD)	4.15 (0.83)	4.02 (0.93)

Note: Income was measured on a 4 point scale; all other variables were measured on a 5-point scale.

TABLE 3. Correlations between study variables in veterinarians (N = 266).

	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.
1. Gender	-												
2. Income	0.18**	-											
3. Perception of suffering (euthanasia)	-0.23***	-0.14*	-										
4. Years of professional experience	0.04	0.16**	-0.06	-									
5. Workload	-0.08	-0.11	0.05	0.10	-								
6. Perceptions of justice	0.16**	0.25***	-0.21***	-0.06	-0.24***	-							
7. Empathy for animals	-0.26***	-0.06	0.32***	-0.29***	-0.01	-0.08	-						
8. Meaningful work	-0.20***	0.01	0.05	0.00	-0.09	-0.03	0.18***	-					
9. Professional identification	-0.21***	0.17**	0.14*	0.01	-0.13*	0.09	0.26***	0.37***	-				
10. Affective empathy	-0.12	-0.09	0.27***	-0.07	0.13*	-0.13*	0.25***	0.03	0.06	-			
11. Cognitive empathy	-0.09	-0.12	0.20**	-0.07	0.02	-0.12	0.20***	0.16**	0.04	0.16**	-		
12. Exhaustion (burnout)	-0.23***	-0.25***	0.31***	-0.16**	0.48***	-0.33***	0.22***	-0.08	-0.28***	0.32***	0.06	-	
13. Disengagement (burnout)	0.09	-0.19***	0.05	-0.03	0.27***	-0.21***	-0.12	-0.33***	-0.58***	0.09	-0.02	0.53***	-

Note: * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$. For gender, 1 indicates “female” and 2 “male”.

TABLE 4. Correlations between study variables in veterinary nurses (N = 96)

	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.
1. Gender	-												
2. Income	-0.05	-											
3. Perception of suffering (euthanasia)	0.10	-0.11	-										
4. Years of professional experience	0.11	0.19	0.01	-									
5. Workload	0.14	-0.33***	-0.04	0.01	-								
6. Perceptions of justice	0.06	0.06	0.13	0.16	-0.16	-							
7. Empathy for animals	-0.15	0.01	0.22*	-0.12	-0.03	-0.11	-						
8. Meaningful work	-0.09	0.12	0.19	-0.21*	-0.25*	-0.02	0.31***	-					
9. Professional identification	-0.25*	0.19	0.14	0.04	-0.22*	0.11	0.13	0.34***	-				
10. Affective empathy	-0.10	-0.08	0.14	-0.16	0.19	0.11	0.12	-0.01	0.04	-			
11. Cognitive empathy	-0.07	-0.06	0.07	-0.08	-0.07	0.09	0.15	0.28**	0.00	0.05	-		
12. Exhaustion (burnout)	-0.07	-0.33***	0.04	-0.21*	0.53***	-0.33***	0.18	-0.11	-0.28**	0.32***	0.05	-	
13. Disengagement (burnout)	0.29**	-0.47***	-0.03	-0.01	0.57***	-0.16	-0.15	-0.37***	-0.54***	0.13	-0.07	0.56***	-

Note: * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$. For gender, 1 indicates “female” and 2 “male”.

TABLE 5. Regressions predicting Exhaustion and Disengagement in Veterinarians (N = 266)

	<i>Exhaustion</i>						<i>Disengagement</i>					
	<i>Model 1</i>			<i>Model 2</i>			<i>Model 1</i>			<i>Model 2</i>		
	<i>B</i>	<i>SE_B</i>	<i>β</i>	<i>B</i>	<i>SE_B</i>	<i>β</i>	<i>B</i>	<i>SE_B</i>	<i>β</i>	<i>B</i>	<i>SE_B</i>	<i>β</i>
Affective empathy	0.22	0.05	0.27***	0.14	0.04	0.17***	0.10	0.05	0.12	0.08	0.05	0.10
Cognitive empathy	0.00	0.05	0.00	-0.10	0.07	-0.06	0.02	0.10	-0.01	-0.03	0.09	-0.02
Empathy for animals	0.21	0.08	0.16*	0.14	0.07	0.11*	-0.21	0.09	-0.15	-0.07	0.09	-0.05
Gender				-0.21	0.09	-0.12*				0.06	0.10	0.03
Years of professional experience				-0.01	0.00	-0.14*				-0.03	0.01	-0.03
Income				-0.06	0.04	-0.08				-0.10	0.05	-0.11*
Workload				0.26	0.04	0.38***				0.11	0.04	0.14*
Perception of suffering (euthanasia)				0.14	0.04	0.18***				0.06	0.05	0.06
Meaningful work				-0.03	0.05	-0.03				-0.17	0.06	-0.17**
Perceptions of justice				-0.19	0.06	-0.16**				-0.19	0.07	-0.16**
Professional identification				-0.17	0.06	-0.17**				-0.35	0.07	-
Constant	1.98	0.43		4.47	0.56		3.34	0.48		6.08	0.66	0.33***
<i>R</i> ² change		0.12			0.34			0.03				0.29
<i>F</i> change		11.18***			19.23***			2.52				13.11
<i>df</i>		3,253			8,245			3,253				8, 245

Note: B = Unstandardized coefficients; β = Standardized coefficients.

For all measures, scores were computed by averaging across items, with higher scores indicating stronger endorsement of the construct. For gender, 1 indicates “female” and 2 “male”.

* $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$

TABLE 6. | Regressions predicting Exhaustion and Disengagement in Veterinary Nurses (N = 96)

	<i>Exhaustion</i>						<i>Disengagement</i>					
	<i>Model 1</i>			<i>Model 2</i>			<i>Model 1</i>			<i>Model 2</i>		
	<i>B</i>	<i>SE_B</i>	<i>β</i>	<i>B</i>	<i>SE_B</i>	<i>β</i>	<i>B</i>	<i>SE_B</i>	<i>β</i>	<i>B</i>	<i>SE_B</i>	<i>β</i>
Affective empathy	0.20	0.07	0.29***	0.14	0.06	0.20*	0.12	0.09	0.14	0.05	0.07	0.07
Cognitive empathy	-0.02	0.18	-0.01	0.13	0.15	0.07	-0.15	0.23	-0.07	0.06	0.18	0.03
Empathy for animals	0.25	0.16	0.16	0.18	0.14	0.11	-0.27	0.20	-0.15	-0.10	0.17	-0.05
Gender				-0.23	0.18	-0.11				0.51	0.21	0.20*
Years of professional experience				-0.03	0.02	-0.11				0.00	0.02	0.00
Income				-0.11	0.07	-0.14				-0.28	0.09	-
												0.30***
Workload				0.20	0.05	0.36***				0.23	0.06	0.34***
Perception of suffering (euthanasia)				0.10	0.07	0.13				-0.01	0.08	-0.01
Meaningful work				-0.06	0.09	-0.06				-0.20	0.11	-0.18
Perceptions of justice				-0.34	0.10	-0.30***				-0.15	0.12	-0.11
Professional identification				0.20	0.10	-0.19*				-0.15	0.11	-0.12
Constant	1.86	0.92		4.55	0.96		4.18	1.14		6.15	1.14	
<i>R</i> ² change		0.12			0.38			0.04			0.47	
<i>F</i> change		4.06**			7.48***			1.27			9.22***	
<i>df</i>		3,86			8,78			3,86			8,78	

Note: B = Unstandardized coefficients; β = Standardized coefficients.

For all measures, scores were computed by averaging across items, with higher scores indicating stronger endorsement of the construct. For gender, 1 indicates “female” and 2 “male”.

* $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$