

The Art of Staying Engaged: The Role of Personal Resources in the Mental Well-Being of Young Veterinary Professionals

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ABSTRACT

Health care professionals perceive transitions (e.g., from university to professional practice) to be challenging and stressful. The aim of the present research was to identify person-related characteristics that, in addition to work-related aspects, affect the mental well-being and performance of recently graduated veterinary professionals, and to reach a greater understanding of the role of personal resources in mental health and well-being. Based on the Job Demands–Resources (JD-R) model, a questionnaire measuring work engagement as well as burnout and its potential predictors was developed and distributed to 1,760 veterinarians who graduated in the Netherlands between 1999 and 2009 (response rate 41%, of which 73% were females). An intervention aiming at increasing personal resources was evaluated using qualitative and quantitative methods. The intervention was designed so that participants could set their own learning objectives toward which they could work during a yearlong multi-modular program. The results show that gender and the number of years after graduation have a small effect on exhaustion resulting in 16% of the veterinarians (18% for females) meeting the criteria for burnout in the first 5 years after graduation. Thirteen percent of respondents could be classified as being highly engaged. While burnout resulted mostly from job characteristics (demands and resources), work engagement resulted mostly from job resources and personal resources. Personal resources appear to have an important mediating and initiating role in work engagement and performance. Self-reported ratings of reflective behavior, proactive behavior, and self-efficacy were significantly increased after a yearlong resources development program. Practical implications are discussed.

Key words: personal resources, burnout, work engagement, job demands–resources model, veterinary professional, mental health, performance, resources development program

INTRODUCTION

Research into mental well-being of young veterinarians in Australia shows that up to 50% meet the criteria for burnout within 5 years of graduation.¹ Young and female veterinarians seem to be most at risk for work-related exhaustion.^{2–4} With increasing numbers of female veterinarians entering the profession, it is particularly important that the well-being of recently graduated veterinary professionals be carefully monitored.

First Years in Professional Practice

Research in both the veterinary and medical health professions has shown that junior veterinarians and junior doctors signal a lack of non-technical, generic competencies.^{5–8} This perceived unpreparedness in generic competencies is positively associated with burnout in junior doctors⁹ and might also affect the mental health of recently graduated veterinarians. Riggs, Routly, and Taylor¹⁰ and Routly, Taylor, Turner¹¹ investigated the support needs of veterinary surgeons during their first few years of practice, both from the perspective of the new graduate and from the perspective of the employer. They advocated

increased exposure to routine cases in the veterinary curriculum to gain practical experience, which would help the new graduate build a relationship with clients and start to earn their trust.^{10,11} In addition, the authors suggested that support for newly graduated veterinarians should consist of regular and credible performance feedback and a suitable program for continuous professional development. Comparable results have been found in the medical context: final-year medical students' perception of their preparedness for practice improved significantly through an assistantship before starting work that focused on the duties and responsibilities of a new doctor.¹² A study of graduates at three different medical schools in the UK highlighted that opportunities for learning on the job and engaging in supervised clinical practice were distinguishing factors in supporting preparedness for practice.¹³ However, feelings of unpreparedness are not unique to new graduates. Riggs et al. found that some difficulties persist even after 6 years experience, especially in relation to prioritizing work and developing commercial awareness.¹⁰ Some difficulties (i.e., communicating with colleagues and coping with workload) were as great

or even greater for experienced veterinarians. Increased experience is not always sufficient to overcome difficulties, and person-related factors might play an important role. Rhind et al. investigated individual attributes that ease graduates' transition into veterinary practice.⁸ For this study, recent graduates and final-year students of three veterinary schools in the UK were asked to rate 42 individual attributes on a 5-point Likert scale. Results showed a high level of agreement with respect to the importance of non-technical attributes like communication skills, problem-solving and decision-making skills, recognition of one's own limitations, and the ability to cope with pressure. Recent graduates felt that a focus on knowledge-based attributes became less important once in practice when compared to their opinion as final-year students. Research within medical health professions reveals similar results: a study on preparedness for practice showed that junior doctors felt insufficiently prepared for performing required tasks.⁷ They felt they had not been adequately trained, either in the management aspects of the job or in communication skills, and they perceived a lack of support from staff.¹⁴ Similarly, when residents moved to a position as an attending physician, three important themes interacting in a longitudinal process emerged.¹⁵ The first theme, disruptive new elements, deals with identified differences in relation to the new tasks attending physicians are supposed to carry out, the roles in which they have to act, and a new context both at work and at home. The second theme deals with the way the attending physician perceives and copes with these differences and the third theme deals with how the former themes direct personal development and outcomes. Based on these results, the authors proposed adaptation of training to the requirements of practice.

With the aim of meeting the aforementioned requirements and providing veterinary medical educators with guidelines for developing education and assessment programs that meet the needs of present-day veterinary practice, an integrated veterinary competency framework was developed.¹⁶ The framework consists of 18 competencies categorized into seven domains and is validated in 10 countries.¹⁷ The domains are veterinary expertise, communication, collaboration, entrepreneurship, health and welfare, scholarship, and personal development. Developing as a professional requires the integration of all competencies in the seven domains. A successful transition from university to practice is a shared responsibility of educators, employers, and—not in the least—graduates themselves.

Research on personal characteristics (skills, attributes, and traits) that predict the course of health care professionals' transition periods is scarce; these characteristics were therefore one of the main topics of the present research. It may be very helpful to identify personal characteristics that improve mental well-being during transitions because these could be developed or trained to a greater or lesser extent, and could be used across situations. These personal characteristics would thereby help improve work-related well-being irrespective of where an individual starts working. We may therefore conclude that, in addition to aspects of work and work environ-

ment, personal characteristics should be included in research on mental well-being of medical and veterinary professionals.

A Psychological Perspective on Mental Well-Being

When studying the literature on mental well-being and its predictors among veterinary professionals in general, it is striking that most studies take a primarily negative perspective on mental well-being.^{3,4,18,19} Without seeking to trivialize the existing and well-known issues around impaired mental health among veterinary practitioners in general, psychological well-being encompasses positive as well as negative states.^{20,21} During the last two decades, the focus of research on mental well-being in the domain of work psychology shifted from a focus on poor mental health and the negative aspects of the working experience to a focus on work characteristics that foster positive mental well-being, job satisfaction, and work engagement. Some studies have investigated factors that motivate veterinarians^{1,22,23} and there is now more attention for positive mental well-being in studies on well-being among veterinarians.^{2,19} Among the characteristics that help veterinarians deal with stress or that provide satisfaction to veterinarians in general are colleague and supervisor support,^{2,3} good clinical outcomes, intellectual challenge, and client satisfaction.² In the medical domain, a study of all registered Dutch medical residents showed that the clinical setting (type of clinic in which they were working) and type of specialty played a role in burnout and work engagement.²⁴ Dentists found inspiration in their work through immediate results, high-quality aesthetic work, the long-term results of working with patients, patient care in general, and craftsmanship.²⁵ Job resources appear to help dentists cope with job demands and stay engaged.²⁶ Mental well-being can be increased by eliminating negative factors, such as long working hours and demanding clients, but also and probably more easily by promoting the availability of positive work characteristics. The perspectives of organizational psychology were helpful when we were looking for a suitable and valid theoretical framework that enables balancing of positive and negative effects related to the work of veterinarians.

The Job Demands–Resources (JD-R) model is an influential stress model in the domain of work and organizational psychology. The model links job characteristics, categorized as job demands and job resources, to employees' well-being in terms of burnout and work engagement; as such, it also enables balancing of positive and negative effects related to the work of veterinarians.²⁷ Unlike other models, the JD-R model permits the incorporation of many possible working conditions and focuses on both negative and positive indicators of employee well-being. The central assumption of the JD-R model is that, although the specific work characteristics of various occupations may differ, they can be organized into two broad categories, namely job demands and job resources. This allows the JD-R model to be tailored to a specific occupational setting. *Job demands* refer to those physical, psychological, social, or organizational aspects of the job

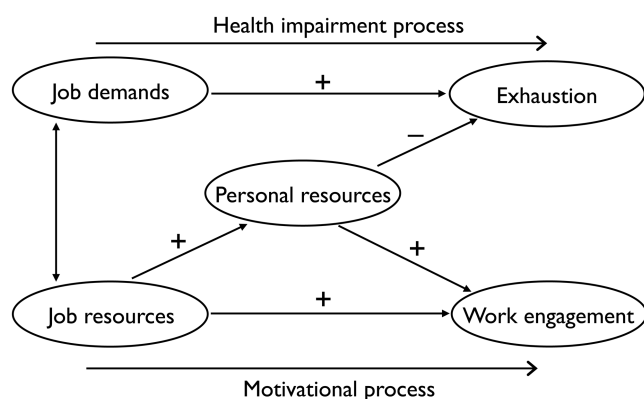


Figure 1: The expanded Job Demands-Resources model²⁸

that require sustained physical or mental effort, and are therefore associated with certain physiologic and psychological costs. Examples include high workload, poor working circumstances, and emotional demands. *Job resources* refer to those physical, psychological, social, or organizational aspects of the job that (a) help employees achieve work goals, (b) reduce job demands and the associated physiologic and psychological costs, or (c) stimulate personal growth and development.²⁷ Examples include feedback, autonomy, and post-graduate training. A second assumption of the JD-R model is that these job demands and job resources evoke two relatively independent psychological processes that determine employee well-being: the negative health impairment process and the positive motivational process.

First, according to the health impairment process, high job demands may exhaust employees' mental and physical resources and may therefore lead to energy depletion and health problems (e.g., burnout, sickness).²⁹ Exhaustion (representing the first dimension of burnout) and health complaints have been studied as a typical outcome of the health impairment process.^{29,30} Cynicism, the second dimension of burnout, is a reaction to exhaustion and is an attempt to put more distance between oneself and the demands of the job. The third dimension of burnout, perceived reduced competency, is less strongly related to exhaustion and cynicism and therefore recent research has focused mainly on emotional exhaustion and cynicism.

Second, according to the motivational process, the availability of job resources has motivational potential and leads to commitment, work engagement, and high performance.^{27,31} Work engagement is defined as a positive, fulfilling, work-related state of mind that is characterized by vigor, dedication to one's work, and absorption.³² Vigor is characterized as high levels of energy and mental resilience while working. Dedication refers to being strongly involved in one's work and experiencing a sense of significance, enthusiasm, pride, and challenge. Absorption is characterized by being fully concentrated and happily engrossed in one's work. As a result, time passes quickly and one has difficulties detaching oneself from work.

Recently the JD-R model has been expanded to include personal resources (see Figure 1). These are defined as

"those aspects of the self that are generally linked to resiliency and refer to individuals' sense of their ability to control their environment successfully."^{33(p.632)} According to Hobfoll, people strive to obtain, retain, protect, and foster resources, and when people develop resource surplus, they are likely to experience positive well-being.³⁴ Individuals with poor personal resources or who are poorly equipped to gain resources are likely to be particularly vulnerable.³⁴ Several studies have focused on personal resources as predictors of work engagement. Examples of personal characteristics that contribute to variance in work engagement over time are personality traits such as low neuroticism, high extraversion³⁵ and conscientiousness,³⁶ and more manageable state-like personal resources like self-efficacy, organizational-based self-esteem, optimism,³⁷ and a proactive personality.³⁸

In summary, the JD-R model allows us to measure burnout and engagement as a result of the negative health impairment and the positive motivational process. It allows us to measure multiple specific work-related demands and work- and person-related resources that are characteristic of veterinary professionals in the first years after graduation. The organization of work characteristics into two broad categories (job demands and job resources) allows for the successful application of the JD-R model to different sectors and job positions, and as such it has been applied to other jobs in the health care sector.^{24,39} For these reasons, the present research was conducted with the JD-R model as theoretical background.

Among health care professions, mental well-being is positively associated with performance^{40,41} and attributes of professionalism such as empathy and the ability to provide compassionate care.⁴² In the present study, two sorts of performance ratings served as outcome measures: in-role performance and extra-role performance. In-role performance includes formal tasks that are part of a job description. Extra-role performance can best be described as tasks that go beyond the job description and that often benefit the organization as a whole. An employee's voluntary, altruistic behavior belongs to the category of extra-role performance. While extra-role performance depends a great deal on employee motivation,⁴³ in-role performance depends more on abilities and experience.⁴⁴ Therefore, work engagement is likely a mediator in the relationship between (job and personal) resources and extra-role performance, and exhaustion is likely a mediator in the relationship between job demands and in-role performance.

The aim of the present research was to identify the job demands, job resources, and personal resources that affect mental well-being (burnout and work engagement) and performance in recently graduated veterinary professionals, and to reach a greater understanding of the role of personal resources in their well-being. The central research questions (RQ) were as follows:

RQ 1: What are the levels of burnout and work engagement among veterinarians who graduated in the past 10 years, and do these levels vary with gender or the number of years since graduation?

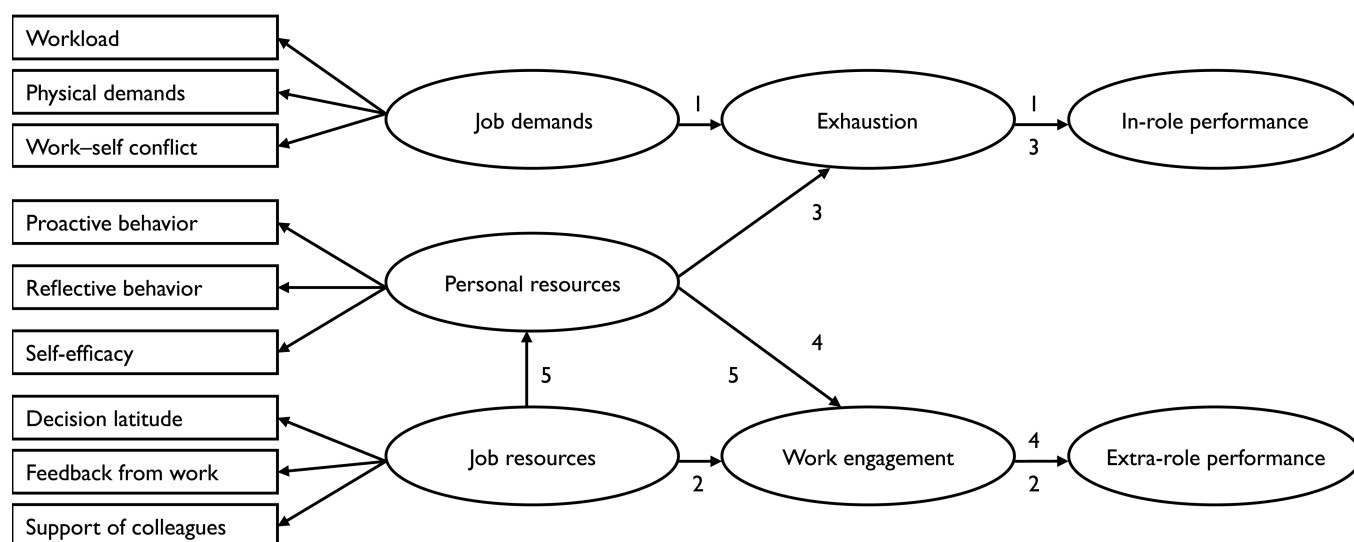


Figure 2: The Job Demands–Resources model expanded with personal resources, and applied to in-role and extra-role performance⁴⁵

Note: numbers represent the respective hypotheses

RQ 2: Which job characteristics (job demands and resources) and personal resources predict burnout and work engagement in male and female veterinarians in the first 5 years after graduation?

RQ 3: What is the role of personal resources in burnout, work engagement, and performance?

RQ 4: How can personal resources be developed?

The following hypotheses were developed with regard to RQ 3:

H1: Exhaustion mediates the relationship between job demands and in-role performance.

H2: Work engagement mediates the relationship between job resources and extra-role performance.

H3: Exhaustion mediates the relationship between personal resources and in-role performance.

H4: Work engagement mediates the relationship between personal resources and extra-role performance.

H5: Personal resources partially mediate the relationship between job resources and work engagement.

The model is graphically depicted in Figure 2. The numbers represent the corresponding hypotheses.

METHODS

Development of the Questionnaire

First a questionnaire was developed for the assessment of job and personal characteristics predicting mental health and well-being in recently graduated veterinary professionals working in different work domains. The JD-R model was used in a two-stage study. In the qualitative first phase, 13 veterinarians from different work domains

took part in semi-structured group interviews aimed at identifying relevant job demands, job resources, and personal resources. This resulted in a long list of psychological and physiologic job demands, job resources, and personal resources. Prioritization of the five most important job demands, job resources, and personal resources by participants in the group interviews resulted in a short list. In the second phase, these demands and resources were organized into psychological constructs by relating them to constructs from the literature on work-related mental well-being. Validated scales⁴⁶ were selected to measure these constructs.^a This resulted in a preliminary questionnaire. In addition, three scales measuring burnout, work engagement, and in- and extra-role performance were incorporated in the questionnaire. Burnout was measured with the Dutch version of the Maslach Burnout Inventory.⁴⁷ Work engagement was measured with the short version of the Utrecht Work Engagement Scale.⁴⁸ In- and extra-role performance were measured with six items from Goodman and Svyantek's scale.⁴⁹ For the validation of the questionnaire, exploratory factor analysis at item level was performed to identify the factors corresponding to job demands, job resources, and personal resources. The number of factors extracted was based on Kaiser's criterion (retaining factors with eigenvalues > 1) and inspection of the scree plot. Items with factor scores > .4 and differences between cross loadings > .1 were retained. New clusters of items were analyzed for their interpretability as a meaningful subscale. Internal consistency of the factors was determined by calculating Cronbach's alpha, with $\alpha > .70$ considered acceptable.

Procedure Survey

In March 2009, the questionnaire was emailed to all veterinarians who had graduated from the Faculty of

Veterinary Medicine of Utrecht University in the Netherlands between 1999 and 2009 ($N = 1,760$). Of 1,760 questionnaires sent out by personalized email, 860 were returned. Participants were not rewarded for participation. Of these 860 responses, 133 were incomplete and therefore not included in the study (response rate 41%). The sample included females (73%) and males (27%) in a ratio corresponding to the gender composition of the sample under study. The mean age was 32 years ($SD = 4.4$), and employment domains were veterinary practice (77%), research and education (13%), industry (6%), government (3%), and non-specified jobs (1%). These figures are comparable to those for all the graduates invited to participate.

Statistical Analysis

For the assessment of levels of burnout and work engagement (RQ 1), mean scores for exhaustion, cynicism, and work engagement were compared using *t*-tests with norm scores derived from the manual of the Dutch version of the MBI (Utrecht Burnout Scale) and the Utrecht Work Engagement Scale. Effects of gender and years since graduation were calculated using multiple regression analyses. Relative importance of predictors of exhaustion, cynicism, and work engagement in the first 5 years after graduation (RQ 2) were assessed with FIRE, a procedure for variable selection in multiple linear regression analysis in which the relative importance of predictors is assessed by computing Johnson's Relative Weights.⁵⁰ Structural Equation Modeling (SEM) was conducted to examine the role of personal resources in the JD-R model (RQ 3). For this study, the JD-R model was expanded with performance measures. The mediation effects were tested in three steps, as recommended by Baron and Kenny.⁵¹

Procedure for RQ 4

The fourth research question (RQ 4) was addressed through an evaluation of the effects of a yearlong personal resources development program between 2010 and 2012. This program consisted of

1. an intake procedure including an assessment, multi-source feedback at the workplace, and an intake meeting that aimed to identify goals for improvement;
2. six half-day modules emphasizing reflection on the past period through peer-coaching; and
3. six modules of professional skills training (e.g., communication skills and learning how to be assertive) facilitated by two professional coaches.

Registration for the program was open to all veterinary professionals who at that time had graduated within the last 5 years. Participation was voluntary and the costs were approximately €2,000.

An online questionnaire measuring personal and job resources and work engagement was sent to program participants at the onset of the development program and then 10 months later, after its completion. Respondents filled in the names of two colleagues who did not participate in the development program (preferably with the same sex, the same year of graduation, and the same

type of work, but working in another veterinary clinic). These colleagues were asked to participate in the control group, which served as a measure of normal development during the first years of practice. Twenty-five participants and 10 non-participants completed an online survey covering personal resources, job resources, and work engagement at the start and finish of the program. Personal and job resources were measured using the questionnaire that was developed before this study. In addition, 16 semi-structured interviews with program participants were conducted 6 months after the end of the program.

Statistical Analysis for RQ 4

The interviews of the fourth study (RQ 4) were analyzed thematically and the mean scores for personal resources, job resources, and work engagement at the beginning and end of the development program were compared using paired samples *t*-tests.

Ethical Considerations

The email inviting veterinarians to take part in the online survey explicitly stated that full anonymity was guaranteed, and that no one but the first researcher had access to the raw data. At the time the study was conducted, ethical approval was not required in the Netherlands for research into veterinary medical education.

RESULTS

Development of the Questionnaire

Exploratory factor analysis of job demands, job resources, and personal resources resulted in seven job demands scales (32 items with factor loadings $\geq .56$ and alphas $> .70$), nine job resources scales (41 items with factor loadings $\geq .5$ and alphas $\geq .75$), and six personal resources scales (26 items with factor loadings $\geq .46$ and alphas $\geq .70$), together representing the most relevant potential predictors of work-related well-being in this occupational group.

The development procedure for the questionnaire resulted in a tailor-made questionnaire: the Veterinary Job Demands and Resources Questionnaire (Vet-DRQ).

RQ 1: Levels of Burnout and Work Engagement and the Influence of Age and Gender

Data analysis revealed that levels of exhaustion, cynicism, and work engagement were significantly lower than the norm scores derived from the manual, which are based on random samples of the Dutch working population. Despite this, 14% of respondents met the criteria for burnout, 27% scored above the cut-off score for emotional exhaustion, 22% scored above the cut-off score for cynicism, and 15% could be classified as highly engaged. Results of the regression analyses showed significant gender effects with small effect sizes for exhaustion ($\beta = -.24$, $p < .05$) and work engagement ($\beta = .23$, $p < .01$) and a significant effect with a small effect size of years since graduation for exhaustion ($\beta = -.05$, $p < .01$). According to the results in this study, younger and female veterinarians

seem to be more vulnerable to burnout than older and male veterinarians.

RQ 2: Identification of Job- and Person-Related Predictors of Burnout and Work Engagement

Relative importance analysis of the data revealed that work-home interference and workload were job demands most strongly and positively related to exhaustion. Opportunities for professional development and skills discretion (i.e., the ability to use and develop various skills on the job) appeared to be the job resources most strongly and positively related to work engagement. Personal resources were associated with variance in work engagement more than with variance in exhaustion and cynicism. Personal resources most strongly and positively related to work engagement were self-efficacy and proactive behavior in both male and female respondents. There seemed to be some gender-related differences regarding the relative importance of various job demands, job resources, and personal resources for burnout and engagement. Self-efficacy, for instance, appeared to be an effective personal resource that was negatively related to cynicism in females but not in male veterinarians. "Support from a superior" was a beneficial job resource, negatively related to exhaustion in male veterinarians and to a significantly lower extent in female veterinarians.

RQ 3: The Role of Personal Resources in Burnout, Work Engagement, and Performance

Model testing resulted in validation of an expanded JD-R model that incorporated personal resources and performance measures. The final model explains 30% of the variance in personal resources, 61% of the variance in exhaustion, 49% of the variance in work engagement, 63% of the variance in in-role performance, and 35% of the variance in extra-role performance.

With regard to the mediation hypotheses, the results of the statistical analyses revealed that hypotheses H1 and H3 must be rejected, while hypotheses H2, H4, and H5 can be accepted: work engagement fully mediated the relationship between job resources and extra-role performance ($\beta = .58, p < .01$) and partially mediated the relationship between personal resources and extra-role performance ($\beta = .23, p < .05$). In addition, personal resources partially mediated the relationship between job resources and work engagement ($\beta = .28, p < .05$).

RQ 4: Developing Personal Resources

Results showed a significant increase of personal resources among participants for self-reported ratings of proactive behavior (effect size = $-.4$), self-efficacy (effect size = $-.6$), and reflective behavior (effect size = $-.6$). Results of the control group were not significant. Analysis of the interviews revealed that participants also developed other important personal resources, namely, self-acceptance, self-esteem, awareness of own influence, and responsibility. Reflection seemed to promote the development of these personal resources. According to participants in the development program, increased personal resources also helped them generate more and new job resources.

DISCUSSION

Levels of Burnout and Work Engagement among Young Veterinary Professionals

The results revealed that, contrary to expectations, young veterinary professionals were less exhausted, less cynical, and also less engaged than the norm group. The effect sizes were small. An explanation for these unexpected results might be that the population under study differs from norm group of the UWES and the MBI (a random sample of the Dutch working population) with regard to age, gender ratio, socioeconomic status, and level of education. Therefore, this comparison should be interpreted with caution.

Female Veterinarians and Burnout

There were significant gender effects for exhaustion and work engagement showing that male veterinarians were less exhausted and more engaged than female veterinarians. Exhaustion was also negatively associated with number of years since graduation. Although effect sizes were small, these effects suggested female veterinarians were the group most at risk of developing burnout in the first 5 years since graduation (18%), while only 13% of female veterinarians could be classified as being highly engaged. Gender differences in rates of distress and/or depression were also found in studies among veterinarians in New Zealand,³ Australia,⁵² and Belgium,¹⁹ although results of the last study showed opposite effects. A study among Finnish practitioners found no effects of gender on exhaustion.⁴ Conflicting results might indicate that gender or the number of years since graduation do not represent predictors of mental well-being but that other variables related to these demographic factors may play a role in the greater mental health vulnerability of female and younger veterinarians. Despite a more flexible sharing of household tasks by women and men in westernized societies, caring for a sick family member or for children is still commonly perceived to be a part of "women's work" in societies throughout the world. On the other hand, a study of over 1,000 female veterinarians in Australia revealed that women with two or more children experienced less anxiety and depression than childless women.⁵³ Another factor that might play a role is employment. Fairnie, for example, found that veterinarians who were employed were significantly more distressed than practice owners.⁵² The employees were mainly female and under 35 years of age, while the majority of practice owners were male and over 35 years of age. More specifically, more than 84% of males over 35 years owned a practice compared to 34% of females in the same age group. One could argue that practice owners have better access to job resources than employees and that it is not gender that is responsible for the gender differences in mental health in our study but the fact that there is an unequal gender distribution between practice owners and employed veterinarians. Subsequent analysis indeed revealed that differences in mental health between men and women disappeared when correcting for being employed or owning a practice. In the context of the rapid feminization of the profession in the past two

decades, and the alleged lower interest among women in entrepreneurship,⁵⁴ it is important to gain more insight into the work- and person-related factors that predict burnout and engagement among this occupational group.

The Role of Personal Resources in Burnout, Work Engagement, and Performance

It is probably an oversimplification to assume that gender is the sole explanatory variable for gender-related differences in well-being or perceived job demands and resources. Situational factors, such as work-home interference, professional status (i.e., partner in a practice or assistant veterinarian), or work hours may play a role as well. A work environment that offers many job resources might help recently graduated veterinarians prevent burnout and preserve engagement. Veterinary professionals work in various domains (e.g., veterinary practice, research, educational institutes, industry, public service) and job resources that are most beneficial may differ by domains. Personal resources, however, can be developed and deployed in any work environment. As such, they can be important targets for interventions. Personal resources partially mediate the relationship between job resources and work engagement, and the relationship between personal resources and extra-role performance is partially mediated by work engagement. In practical terms, this means that a resource-abundant work environment is associated with employees having more personal resources and being more engaged and involved in extra-role behavior. Although Llorens et al. demonstrated that these relationships are reciprocal, the present study design does not allow us to make conclusions about the direction of the relationships.⁵⁵ During the course of the present research, additional studies have repeatedly confirmed the beneficial role of personal resources in relation to work engagement.^{56,57} Personal resources seem to influence the way people interpret their environment and initiate effective means of coping with difficulties. In their theoretical review of the role of personal resources in organizational change, van den Heuvel et al. suggest that “employees are active agents who shape their environment using behavioral strategies, that are influenced by personal resources and change attitudes.”^{58(p.141)} These employee-level processes are thought to affect employee outcomes such as work engagement. Bakker also assumes that job and personal resources, independently or combined, are the main predictors of work engagement.⁵⁹ Work engagement, in turn, has a positive impact on job performance. The present results confirm these assumptions and explain the relationships in more detail. In contrast to personality traits, personal resources can be developed and managed to improve well-being and job performance. Because personal resources may be functional regardless of the working environment in which they will be deployed, they are worthwhile targets for intervention.

PRACTICAL IMPLICATIONS

For several years, up to 80% of students attending veterinary school in the Netherlands have been female, which has caused a rapid feminization of the veterinary profes-

sion. During the first years of their career, most students will work as employees in veterinary practices or elsewhere. Because most of the employers are male practitioners and because basic needs (needs for specific job resources) of male and female veterinarians can differ, it is important for both the recently graduated employee and the employer to invest time and effort into determining how to encourage sustainable work engagement and high performance. Job design is a responsibility of the employer insofar as it concerns reducing job demands to acceptable levels while maintaining the efficiency of the organization. Ensuring sufficient job resources is the shared responsibility of employees and employers, and a proactive attitude has proven very constructive.⁶⁰ Female veterinarians should consider engaging in entrepreneurship to enjoy the benefits and challenges of designing their own work environment while running a company. The present results also show that employees with more personal resources perform better on tasks both inside and outside the official job description (in- and extra-role performance), partially due to higher work engagement. In the context of sustainable human resources, employers are advised to invest in the personal growth of their employees and provide the necessary work-related resources. Moreover, it is the responsibility of the recently graduated veterinarian to manage his or her own personal development (e.g., by participating in a development program). Veterinary educational institutions might consider whether the veterinary curriculum is designed to allow students to develop important personal resources like reflective skills, a proactive attitude, and self-efficacy. The yearlong multimodular development program described in this study meets a particular need for recently graduated veterinary professionals. From the description of the program, educators may learn how to support students in the development of personal resources. The way this program is designed enables participants to work on individual learning goals, which they develop based on feedback and assessment provided during the program. Through reflection upon experience, feedback, and assessment outcomes, the participants work to develop individual personal resources. Reflective behavior is a skill that is necessary for insight into one's personal needs and for the development of new behaviors. Subsequent mastery experiences are helpful in increasing perceived self-efficacy.⁶¹ One of the modules in the development program included peer coaching. This type of education is known by various names (i.e., peer meetings, peer-group learning, small-group curriculum) and its effects have been researched regularly.^{62,63} Although peer coaching appears to be an effective instrument for developing reflective skills and other personal resources, empirical research is necessary to support this assertion.

FUTURE RESEARCH

The participants of the resources development program for recently graduated veterinarians reported that an increase in personal resources affects their perception of job demands and related coping strategies. According to Lepine, Podsakoff, and LePine,⁶⁴ job demands can be divided into demands that promote personal growth and

achievement (challenging demands such as new tasks or emergencies) and demands that constrain growth and achievement (hindering demands such as role conflicts and task ambiguity). Although they are both related to stress, they are differentially related to engagement and performance. Challenging demands have a positive direct effect on performance, a negative indirect effect on performance through strain, and a positive indirect effect on performance through motivation. Future research might reveal how personal resources (e.g., self-esteem, self-efficacy) affect the perception of demands as hindering or challenging.

The present research provides evidence of the positive relationship between proactive behavior and work engagement and performance; however, owing to the cross-sectional design, we may not draw conclusions about causality. Research with a longitudinal design is needed to understand the direction of these relationships. It would be worthwhile to follow up with the participants in this research project and to determine whether a causal relationship exists between personal resources at the time of graduation and mental well-being, performance, or professional success 5 years later. The use of objective outcome measures such as number of days absent, staff turnover, involvement in accidents or occupational injuries and mistakes, and performance ratings by clients and supervisors (although these are subjective) would increase the quality of the proposed research.⁶⁵

Another area for future research concerns gender differences in personal resources that are positively related to mental well-being and performance. The present work with veterinary professionals revealed that significant gender-related differences exist regarding the relative contribution of self-efficacy to mental well-being, and that female veterinarians perceive themselves as less self-efficacious than males. These differences may develop during undergraduate studies or even before entrance into university. Future research is necessary to explore how self-efficacy develops during the course of veterinary studies; how it affects other personal resources, mental well-being, and study results; and how it can be enhanced through veterinary education.

CONCLUSION

Although the mean levels of exhaustion, cynicism, and work engagement among respondents in the first 10 years after graduation were not alarming, female veterinarians in the first 5 years after graduation appeared to be the group most at risk of developing burnout. While job demands and job resources could explain levels of exhaustion and cynicism, job resources and personal resources best explained variance in work engagement. The PhD research, of which this article is a summary, focused on personal resources and their relationship to well-being and performance. It showed that personal resources are important because they determine how the work environment is perceived and interpreted. Personal resources also determine the initiatives necessary to change work environments, thereby affecting well-being and performance. Personal resources can be developed, and reflective behavior is crucial for the development of other

important personal resources. Future research will hopefully build on the present findings and continue to explore how mental well-being among young health care professionals can best be preserved. This research reveals opportunities for employers and employees to create work environments that help young professionals grow in their new roles and to become appreciated members of the veterinary profession. Educators and students must continue to pay explicit attention not only to the development of technical veterinary competencies but also to non-technical competencies, with a special emphasis on the development of personal resources.

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The complete PhD is available from <http://dspace.library.uu.nl/handle/1874/301073>.

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NOTE

- a For the development of the questionnaire, *a priori* scales were used that originally came from the Questionnaire on the Experience and Evaluation of Work (QEEW). We contacted the research and consulting firm SKB and we agreed to include a statement on this topic in the manuscript. For more information on the conditions for use of the QEEW or parts of it, see <http://www.skb.nl/nl/over-skb/questionnaire-on-the-experience-and-evaluation-of-work-qeew.html>.

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