



**Universiteit Utrecht**

**The relation between study demands and mental health problems and the mediating role of recovery among veterinary students.**

Master Thesis University Utrecht

Social- and Organizational psychology

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### **Abstract**

Veterinary students experience typical kinds of stressors during their masters (Gelberg & Gelberg, 2005). A research among veterinary students in England showed that the mental health of veterinary students is significantly poorer than the mental health of the average population (Cardwell et al., 2013). The present research aimed to investigate the relationship between study demands and mental health problems among Dutch veterinary students. The second aim of the study was to investigate the relation between study demands and recovery, and the relation between recovery and mental health problems. The last aim of this study was to find out whether recovery mediates the relation between study demands and mental health problems. Focus groups and literature research helped find the most important study demands for veterinary students. Four study demands (workload, task uncertainty, work-home conflict and emotional demands), five mental health problems (depression, anxiety, stress symptoms, exhaustion and cynicism) and two dimensions of recovery (psychological detachment and relaxation) were included in the questionnaire. Results showed that study demands were positively related to all mental health problems. Emotional demands and work-home conflict were most strongly related with mental health problems. Recovery was significantly related to most of the mental health problems and study demands. In addition, this study found a partial mediating role of relaxation in the relation between study demands and mental health problems. Psychological detachment showed no mediating role, except in the relation between work-home conflict and cynicism. In the last section, implications and limitations of the present research and indications for future research are discussed.

Keywords: Study demands, mental health problems, stress symptoms, depression, anxiety, recovery, burnout, veterinary students.

### **Samenvatting**

Diergeneeskunde studenten ervaren specifieke stressoren tijdens hun master (Gelberg & Gelberg, 2005). Onderzoek naar diergeneeskundestudenten in Engeland liet zien dat het mentale welbevinden van diergeneeskundestudenten significant minder is dan het welbevinden van de gemiddelde populatie (Cardwell et al., 2013). Het huidige onderzoek is gedaan onder diergeneeskunde master studenten in Nederland om te kijken of studie eisen gerelateerd zijn aan psychische problemen. Dit onderzoek keek ook of herstel gerelateerd is aan studie eisen en of herstel gerelateerd is aan psychische problemen. Het laatste doel van dit

onderzoek was om te kijken of herstel de relatie tussen studie eisen en psychische problemen medieerde. Om te bepalen wat de belangrijkste studie eisen waren voor diergeneeskundestudenten is er literatuuronderzoek gedaan en zijn er focusgroepen georganiseerd. Vervolgens zijn er vier studie eisen (werkdruk, taak onduidelijkheid, werk-thuis conflict en emotionele eisen), vijf psychische problemen (stress symptomen, angst, depressie en vermoeidheid en cynisme) en twee dimensies van herstel (relaxatie en psychisch losmaken) toegevoegd aan de vragenlijst. De resultaten lieten zien dat er een positieve relatie is tussen studie eisen en psychische problemen. Daarbij waren emotionele eisen en werk-thuis conflict het meest sterk gerelateerd aan psychische problemen. Herstel was gerelateerd aan bijna alle studie eisen en psychische problemen. Dit onderzoek vond ook een partiële mediatie van relaxatie in de relatie van bijna alle studie eisen en psychische problemen. In de discussie is aandacht besteed aan de implicaties en tekortkomingen van het huidige onderzoek en worden mogelijkheden voor vervolgonderzoek besproken.

## **Introduction**

### **General overview of the situation**

The number of university students with serious mental health problems has risen significantly over the past few years. A study in America found that 30% of the students in a large Midwestern public university perceived a need for professional help for their mental or emotional health (Eisenberg, Golberstein & Gollust, 2007). Medical studies are traditionally recognized as being some of the most strenuous courses at university level as they demand great physical, intellectual and emotional effort from students (Drybye, Thomas & Shanafelt, 2006). Research shows specific undesirable numbers among veterinary students. For instance, a longitudinal study in the United Kingdom showed that 37% of the medical students have poor mental health (Black, Bagalkote, Shaw, Campbell & Creed, 1998). In 2001, Atekin, Karaman, Senol, Erdem, Erengin and Akaydin reported similar worsening global mental health, depression and anxiety for medical students, comparing the first and last year of the study. Moreover, another study reported high prevalence of suicidal thoughts among senior Norwegian medical students (Tyssen, Vaglum, Gronvold & Ekeberg 2001). Recently, a Dutch study showed that among young co-assistants, the number of students that met the criteria of burnout was almost 20% (Conijn, Boersma & van Rhenen, 2015).

This indicates that students involved in healthcare studies, have a substantial risk of getting a burnout during their master program. Gelberg & Gelberg (2005) pointed out that veterinary students experience typical and different kinds of stressors, which influence their performance negatively. Students learn about the diagnosis and treatment of many species with little after-class time available for reading, absorbing, or reflecting on class notes. Veterinary students also face conflicts of interests in veterinary medical ethics when trying to balance animal and human interests. Students must consider the animal's overall needs but also adjust to the needs and expectations of veterinary consumers (Gelberg & Gelberg, 2005). Research at a veterinary university in England showed undesirable results: the mental health of veterinary students is significantly poorer than the mental health of the average population (Cardwell et al., 2013). A study about depression and anxiety in veterinary medical students showed high rates compared to other health professionals. Results of the same study indicated that 32% of first-year veterinary students experienced clinical levels of depressive symptoms. Furthermore, students reported elevated anxiety scores (Hafen, Reisbig, White & Rush,

2006).

Since many studies showed that there are high rates of burnout, anxiety and depression among medical students, the faculty of veterinary medicine in the Netherlands took the initiative to investigate the mental health of veterinary master students. Insight in the factors that predict worsening mental health among veterinary master students can help the faculty to implement changes in educational programs.

It appears that work pressure and the mental health problems will not decrease in the first years post graduation (Mastenbroek, Jaarsma, Demerouti, Muijtjens, Scherpbier & van Breukelen, 2014). The transition from veterinary student to veterinary professional is a challenging period. Mastenbroek et al., (2014) investigated work-related well-being and its predictors in this transition period, using the Job Demands-Resources (JD-R) model (Demerouti, Bakker, Nachreiner & Schaufeli, 2001) as theoretical framework. One out of seven Dutch veterinarians were likely to have a burnout within 10 years after graduation. A study on preparedness for practice showed that junior doctors felt insufficiently prepared to perform required tasks (Matheson & Matheson, 2009). According to Teunissen and Westerman (2011) junior doctors felt struggles in communication skills and perceived a lack of support from staff. According to Igarria & Greenhaus (1992) inexperienced and high educated young health professionals experienced low work satisfaction and commitment with their organization.

In the context of the above mentioned problems, it's shown that the transition from student to veterinary professional does not lead to a decrease of mental health problems. Therefore, the main aim of this study is to examine to what extent demanding aspects of the veterinary study are related to mental health problems of veterinary master students. Previous research showed that high demands can cause stress when the efforts are too high to meet the standards of the job demands, or when the recovery is insufficient (Schaufeli & Taris, 2013). Thereby, an additional aim of this study is to investigate to what extent recovery helps students bounce back from the study demands they face during their study and reduce the mental health problems. The current study is conducted among veterinary master students in the Netherlands.

### **Job Demands-Resources model**

The theoretical framework of this study is the Job Demands-Resources (JD-R) model, this model can be seen in Figure 1 (Demerouti et al., 2001). The central notion of the JD-R

model is that job demands and job resources evoke two relatively independent psychological processes that determine employee well-being (Bakker, Demerouti & Verbeke, 2004). The model distinguishes two broad categories of work characteristics: job demands and job resources. *Job demands* refer to those physical, psychological, social or organizational aspects of the job that require a physical or mental effort and are therefore associated with certain physiological and psychological costs. Examples are role ambiguity, high workload and emotional demands (Bakker & Demerouti, 2007). Secondly, *job resources* refer to those physical, psychological, social or organizational aspects of the job that are functional in achieving occupational goals, reduce the negative impact of job demands and the associated psychological and psychological costs or stimulate personal growth and development. Examples are autonomy, feedback from supervisors and social support (Bakker & Demerouti, 2007).

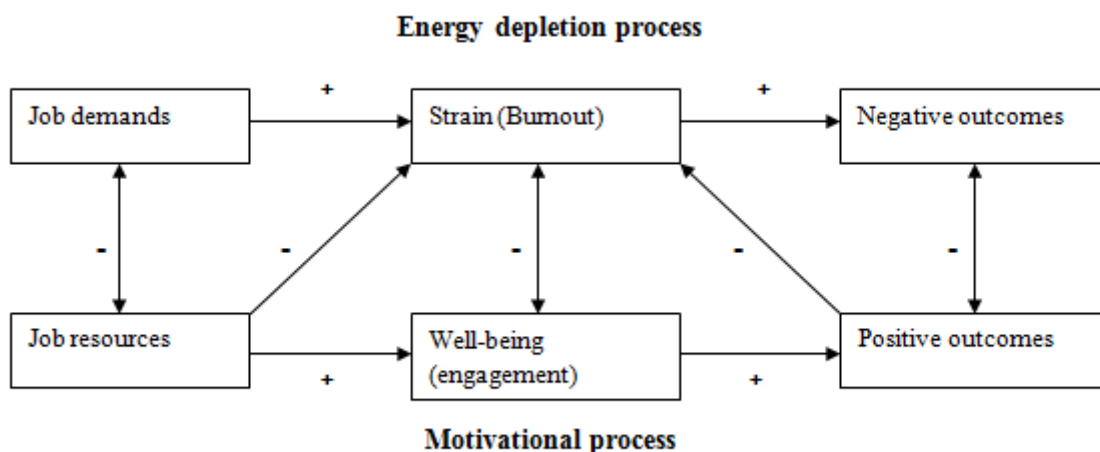


Figure 1. The Job Demands-Resources (JD-R) model.

In sum, the JD-R model assumes that there are two processes that stimulates the development of burnout and work engagement, a process in which high job demands lead to strain, burnout and health problems; *the energy depletion process*. When job demands increase, effort has to be mobilized to deal with the increased demands to maintain performance levels. A second process in which high job resources lead to well-being is *the motivational process*. Job resources play an intrinsic motivational role since they foster growth, learning and development (Schaufeli et al., 2009). They increase the likelihood of successful goal achievement at lower psychological costs by reducing work stress.

The energy depletion process builds upon the ‘classical’ process of energy depletion.

In any work environment, job demands such as high workload or emotional demands, may exhaust the energy reserves of an employee. This causes stress-related problems and may lead to health problems in the long run (Demerouti et al, 2001). The same study hypothesized and found that job demands (e.g. work pressure and emotional demands) were the most important antecedents of the exhaustion component of burnout, which in turn predicted in-role performance (Demerouti et al, 2001). Moreover, and in line with previous research it is suggested that according to the energy depletion process, job demands spill over to other life domains, in particular the home situation and consequently adding to psychological fatigue (Demerouti, Bakker, & Schaufeli, 2005; Peeters, Montgomery, Bakker, & Schaufeli, 2005). The present study will focus on job demands, (which are called study demands in the present research as the demands are experienced in the study context) and the energy depletion process, because those two factors may give us insight in stress-related problems and mental health problems among veterinary students. Veterinary students make long hours working in the veterinary clinic as co-assistants and have to work night or weekend shifts. Moreover, they have to prepare for the next day at the clinic in the evenings. It was expected that veterinary master students experience high workload, high work pressure, work-home conflict and a lot of study stress. Therefore, based on the JD-R model and empirical studies that have showed support for the expected relations we formulate the following hypothesis:

*Hypothesis 1:* Study demands relate positively to mental health problems among veterinary students.

## **Mental health**

As mentioned before, the number of students with serious mental health problems has risen the past few years (Eisenberg et al., 2007). Mental health is an umbrella concept that covers a broad set of different dimensions. The main focus of the present study has been on stress, burnout, depression and anxiety and the negative impact of study demands on mental health. A review of Tennant (2001) concluded that occupational stress is increasing due to continuing changes in the workplace with increasing demands. Psychological disorders were common among caring professions. 28% of variance in depression and 42% in burnout were explained by work stress factors. For example work overload and career dissatisfaction were related to depression (Tennant, 2001). The present study examines both depression and burnout, as depression and burnout are closely related, but they are certainly not identical.

Research suggests that burnout and depression are separate entities, even though they may have some common characteristics (Brenninkmeijer, van Yperen, Buunk, 2001). According to the DSM-IV\_TR, depression is characterized by the following symptoms: depressed mood, an inability to derive pleasure from things, weight loss or weight gain, insomnia or hypersomnia, psychomotoric agitation or retardation, fatigue or lack of energy, feelings of insufficiency or guilt, indecisiveness or inability to concentrate, and thoughts about death and suicide (American Psychiatric Association, 2000). Burnout is characterized by the following symptoms: emotional exhaustion (being empty or worn out), cynicism (negative and cynical attitude toward work or people you care about) and reduced personal accomplishment (negative evaluation of the achievement at work) (Maslach & Schaufeli, 1993). Emotional exhaustion has been related to job stressors such as workload and role problems and behavioural outcomes like turnover intentions and absenteeism (Lee & Ashforth, 1996). Cynicism can be characterized as withdrawal or distancing from recipients, which in jobs may result in alienation, disengagement or cynicism concerning the job and the work role (Cherniss, 1980). Personal accomplishment is not considered to be a separate dimension in the proposed research because a meta-analysis showed that personal accomplishment is the weakest dimension measuring burnout in terms of significant relationships with other variables (Lee & Ashforth, 1996). Furthermore, exhaustion and cynicism are considered to be the core dimensions of burnout (Green, Walkey & Taylor, 1991).

### **The mediating role of recovery**

Today's work and study are not restricted anymore by traditional organizational rules, like regular office hours, a single workplace and limited responsibility (Allvin, Aronsson, Hagstrom, Johansson, & Lundberg, 2011). Excessive job demands make it harder for people to recover from work or study and will cause mental fatigue (Maslach et al., 2001). Geurts and Sonnentag (2006) stated that lack of recovery is a greater health problem than strain itself. The process of recovery allows people to retain and replenish their resources. Recovery from work stress is important because if recovery is incomplete, strain and stress reactions will accumulate and that will lead to health problems in the long term (McEwen, 1998; Meijman & Mulder, 1998). Meijman and Mulder (1998) showed that a lack of recovery can cause stress. Hence, recovery, a process that allows individuals to refill their resources, could be at risk.

There are several definitions of recovery but one thing they have in common is that it



is a process that takes place when job demands are no longer present. During recovery, an individual goes back to the pre-stress level, without strain. A model about recovery, the Effort-Recovery Model (Meijman & Mulder, 1998) suggests that effort expenditure at work leads to load reactions such as fatigue or physiological activation. Under normal conditions, once the individual is no longer exposed to work or similar demands, load reactions are reversed and recovery occurs. An important precondition for recovery is that the systems taxed during work will not be called upon any longer. Hockey and Earle (2006) found similar results, when people got tired under the influence of high demands, extra energy had to be mobilized to maintain task performance. High job demands were found to be related to high need for recovery in cross-sectional studies (Jansen, Kant, van Amersvoort, Nijhuis, & van den Brandt, 2003). In the study of Sonnentag and Fritz (2007) a lack of recovery was negatively related to health problems, emotional exhaustion, need for recovery, and sleeping problems.

Sonnentag and Fritz (2007) also stated that there are four dimensions of recovery; psychological detachment, relaxation, mastery experiences and control during leisure time. Psychological detachment and relaxation have their roots in the Effort– Recovery model (Meijman & Mulder, 1998). Sonnentag and Fritz (2007) found that all job demands examined in their research (i.e., time pressure, role ambiguity, situational constraints, and hours of overtime) were negatively related to detachment and control during leisure time. In addition, time pressure inhibited relaxation. None of the job demands were significantly related to mastery experiences. The study of Rau (2006) also indicated that job demands were related to an impaired ability to relax at home. Furthermore, Sonnentag and Bayer (2005) showed in their research that there was a high negative correlation between time pressure and psychological detachment. This suggest that time pressure and the associated high workload make it difficult to switch off from work during leisure time.

In the current study only psychological detachment and relaxation will be explored. Expected is that those dimensions are most relevant for veterinary students, because veterinary students have very little time to relax due to their internships and as the students have to prepare study-related tasks when they are at home it seems difficult to detach from the study. Based on the existing literature and the previous theoretical analysis we hypothesize the following:

*Hypothesis 2.* Study demands relate negatively with recovery.

*Hypothesis 3:* Recovery relates negatively with mental health problems.

Processes related to recovering and unwinding from job stressors can be relevant for someone's health, well-being, and job performance (de Croon, Sluiter, & Blonk, 2004; Eden, 2001). Kinnunen, Feldt, Siltaloppi & Sonnentag (2011) found that psychological detachment, mediated the effects of job demands on fatigue at work. Another study showed that psychological detachment after work or study related demands secures well-being, which indirectly indicates a diminished chance to experience burnout symptoms (Sonnentag, Binnenwies & Mojza, 2008). The same study showed that psychological detachment was a partial mediator between emotional demands and emotional exhaustion. Furthermore, this study showed a mediation role of psychological detachment between job stressors and strain reactions (Sonnentag et al., 2008).

Based on the existing literature and the previous theoretical analysis job demands are expected to have a negative influence on recovery (psychological detachment and relaxation) and have negative mental health outcomes. Therefore this study investigates whether recovery mediates the relation between study demands and mental health problems among veterinary students.

*Hypothesis 4:* Recovery mediates the relationship between study demands and mental health problems. In a way that high study demands relate to less recovery opportunities, and less recovery opportunities relate to more mental health problems.

Concluding, this study aims to investigate the relationship between study demands and mental health problems. The study also investigates the relation between study demands and recovery, and the relation between recovery and mental health problems. The last aim of this study is to find out whether recovery mediates the relation between study demands and mental health problems. The model of the study is graphically depicted in Figure 2.

### **Covariates**

In the context of this study there are some covariates which are included in the study. Demographic factors are associated with psychological well-being (Maslach & Leiter, 2008). Gender was associated with fewer signs of anxiety, distress and depression (Maslach &

Leiter, 2008). This is interesting because more female than male students attend veterinary medicine programs. Hafen et al. (2006) showed in their study of depression anxiety, general health and academic performance in veterinary medical students, consistent with prior research, that female students reported higher levels of depression than male students. The same study showed that female students report higher levels of anxiety symptoms than male students. For this reason all scores will be controlled for gender. Furthermore, the faculty of veterinary medicine is interested in the differences between students in different types of master track and study year. For this reason all scores will be controlled for master track and study year.

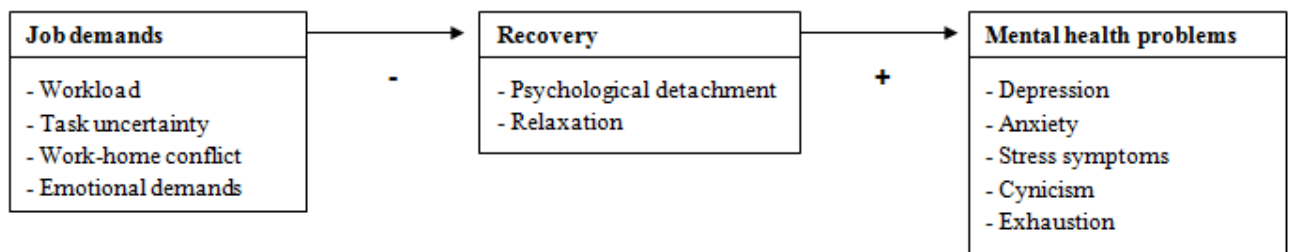


Figure 2: The research model.

## Methods

A combined quantitative/qualitative approach was used including an online questionnaire and focus group interviews. The first phase is a qualitative, explorative phase to establish the most important study demands that were experienced by veterinary students who participated in a master program. The data acquired from focus groups have been analysed by different independent researchers to establish a list of study demands that are most important to veterinary students. Next, a questionnaire was tailored to the veterinary master student situation. Due to the reason that the current study is part of a larger research project focusing on the health of veterinary students, the general questionnaire comprised of more scales than the present study. Additionally, the research proposal had been send to an ethical commission part of the Dutch association of medical education (NVMO). The study design was examined and approved.

## **Focus Groups**

### **Participants and procedure**

Fourteen veterinary master students from the Utrecht University participated in the two focus groups. All students voluntarily participated in the focus group and signed the informed consent. We aimed to have a good mixture of students with regard to the three different tracks in the veterinary master and with regard to gender. However, only 2 men and 12 women participated in the focus groups. There were two students who studied Farm Animal and Veterinary Public Health, five students who studied Equine Medicine and seven students who studied Companion Animal Medicine.

Before the students were invited to join the focus groups a questioning route was composed (added in appendix A). This helped the moderator to guide the group into relevant discussion points (Krueger & Casey, 2009; Stalmeijer, McNaughton & van Mook, 2014). The questioning route contained opening questions, topic introducing questions, transition questions, key questions and ending questions. To create a good setting for discussion the questions were open-ended and understandable.

This structure was chosen to give the students the opportunity to decide on what topic they wanted to participate and gave them the freedom to decide when they wanted to join the discussion (Krueger & Casey, 2009; Stalmeijer, McNaughton & van Mook, 2014). The moderator aimed to explore every aspect of a specific topic to create a complete view regarding that topic.

## **Analysis**

Each of the researchers independently made a shortlist of the categories. The lists were compared and a selection was made for the online questionnaire (added in Appendix B). Based on the focus groups we selected the most important study demands for veterinary master students (workload, task uncertainty, work-home conflict and emotional demands).

## **Online questionnaire**

### **Participants and procedure**

We invited all 649 veterinary master students of the Utrecht University to participate in the present research. The invites were sent to 360 students of companion animal medicine, 60 of equine medicine and 194 students of farm animal veterinary public health. They all received an invitation to take part in the study and after 2 weeks they received a reminder. A total of

418 questionnaires were returned, however, 72 were incomplete ( $N=344$ ). Therefore they were excluded from the study. Moreover, the questionnaires that missed more than 10% of the responses or had similar answers for more than 80% were excluded. This resulted in a dropout rate of 17.7%. The overall response rate was 53,25%. The sample includes 276 females (80,2%) and 68 males (19,8%). The response rate for companion animal medicine was 50.83%, the response rate for equine medicine was 66,6% and the response rate for farm animal veterinary public health was 57,22 %. The sample included students from all study years in the veterinary master, 101 first year students (29,4%), 114 second year students (33,1%) and 129 students in the third year or higher (37,5%).

Seven independent colleagues of the Veterinary and Social Sciences Faculties were asked to test the questionnaire to ensure that the questions were understandable and asked only one thing at a time. The data were collected in Spring 2016 using Qualtrics software. Participants started the questionnaire with the informed consent and were allowed to quit the survey at any point. The total survey took approximately 20 minutes to complete. After completing the survey, participants were debriefed and thanked.

## Measures

All measures were adapted to the student situation. For example: the word ‘job’ was replaced by ‘study’ in all questions. The questionnaire was added in Appendix C.

**Study demands.** Four study demands were included in the questionnaire: workload, work-home interference, emotional demands and task uncertainty.

**Workload.** Workload was based on a scale developed by van Veldhoven and Meijman (1994) and included six items. An example is: “Do you have to study very fast?” The reliability of a scale is good when  $\alpha > .80$  and sufficient when  $\alpha > .70$  (Allen & Bennett, 2010). Workload had a sufficient reliability of  $\alpha = .78$ , and could be answered on a five-point rating scale (1= never, 5= always)

**Work-home conflict.** Work-home conflict included four items and was based on a scale by Peeters (2005). This scale included questions such as “How often does it happen that you have to cancel or change appointments with your partner/family/friends?” The items were scored on a 5-point frequency scale (1= never, 5= always) with  $\alpha = .82$

**Task uncertainty.** Task uncertainty was based on a scale by van Veldhoven, Meijman, Broersen & Fortuin (1997) and consisted of four items. An example is “Is it completely clear for you where you are and aren’t responsible for?” The items were scored on

a five-point frequency scale (1= never, 5= always) with  $\alpha = .89$

**Emotional demands.** Emotional demands included four items (1= never, 4= always) with  $\alpha = .77$  and included items such as “Are you confronted in your study with things that affect you emotionally?”

**Burnout.** Burnout was measured using two subscales of a Dutch translation of the Maslach Burnout Inventory- Student Survey (MBI-SS; Schaufeli, Leiter, Maslach & Jackson, 1996) which originally consists of three subscales: exhaustion, cynicism and reduced personal accomplishment. This study uses a validated shortened version, which consists of two of the three subscales of burnout, namely exhaustion and cynicism. The subscales were measured on a seven-point Likert scale, ranging from 0 (never) to 6 (always). Exhaustion consists of five items with  $\alpha = .91$  and an example item is: “My study makes me feel emotionally exhausted”. Cynicism has four items with  $\alpha = .89$ . An example item is: “I’ve lost my enthusiasm in my study.”

**Depression, Anxiety and Stress symptoms.** Depression, anxiety and stress symptoms were measured with the short version of the Depression Anxiety Stress Scale (DASS-21; Lovibond & Lovibond 1995). The subscales of the DASS-21 can validly be used to measure the dimensions of depression, anxiety, and stress (Henry & Crawford, 2005). Examples are “I find it difficult to relax” (stress symptoms), “I had difficulties with breathing” (anxiety) and “I couldn’t seem to experience any positive feeling at all” (depression). The items could be answered on a four-point rating scale (1= did not apply to me at all, 5= applied to me very much or most of the time). The scales showed good reliability with  $\alpha = .86$  for stress symptoms,  $\alpha = .81$  for anxiety and  $\alpha = .88$  for depression.

**Recovery.** Measuring recovery, an adapted version of the Dutch version of the Recovery Experience Questionnaire (RECQ) of Sonnentag and Fritz (2007) is used. The two subscales used were: psychological detachment and relaxation, measured with four items each. Examples are: “I forget about work.” (psychological detachment) and “I kick back and relax.” (relaxation). The items on the two scales could be answered on a five-point rating scale (1= totally disagree, 5= totally agree). The scales were reliable, for psychological detachment,  $\alpha = .84$  and for exhaustion,  $\alpha = .87$ .

## **Analysis**

Statistical analyses were conducted using IBM SPSS Statistics v.22.0. To test the hypothesis we used correlation analysis and mediation analysis. The mediation analysis was conducted with the PROCESS SPSS-macro of Preacher & Hayes (2008). MacKinnon, Lockwood and Williams (2004) demonstrated that confidence intervals are imbalanced because the distribution of the indirect effect is only normal in special cases. By using resampling methods, more accurate confidence limits are obtained. The bias-corrected bootstrap was the best method overall in the same study of Mackinnon, Lockwood & Williams (2004). Therefore, the models in the present study are tested with the bootstrapping method. Mediation analyses were tested using 5000 bootstraps and with bias-corrected confidence estimates. Moreover, 40 analyses have been performed with the SPSS-macro by Preacher & Hayes (2008). Before a mediation analysis can be initiated, the direct effect between the independent variables and the mediator should be significant (path a). Furthermore, the relation between the mediator and the outcome variables should be significant (path b). At last, the indirect effect (path a \* path b) should be significant to find a mediation effect. The direct effect is crucial to determine the strength of the mediation analyses. When the effect between the independent variable and the dependent variable is significant without the mediator (path c) and is non-significant with the mediator (path c') there is full mediation. If the direct effect with mediator is significant (path c'), there is only partial mediation possible. The mediation analysis were controlled for gender, study track and study year with the use of dummy variables.

## **Results**

### **Descriptive statistics**

Table 1 shows the means (*M*), standard deviations (*SD*) and correlations of the variables included in the present study. As can be seen all significant correlations were significant in the expected directions. Remarkable is the mean of workload ( $M= 3.15$ ,  $SD= 0.64$ ) compared to the other study demands. Moreover, the mean of exhaustion is very large ( $M= 3.22$ ,  $SD= 1.13$ ), especially compared to cynicism ( $M= 1.19$ ,  $SD= 1.26$ ). Cynicism itself has a remarkable standard deviation, which is larger than the mean.

### **Study demands and mental health problems**

According to Hypothesis 1 it was expected that all study demands relate positively to mental health problems. Table 1 shows that all correlations proved to be significant related. Therefore, this hypothesis is supported, all study demands (workload, work-home conflict, task uncertainty, emotional demands) were related significantly to all mental health problems (burnout, depression, anxiety and stress). The correlation of workload was significant with all mental health problems on  $ps < .01$  with a range of  $r = .20$  to  $r = .49$ . Task uncertainty with correlated significantly with all mental health problems was significant with all variables on  $ps < .01$  with a range of  $r = .28$  to  $r = .35$ . Work-home conflict was correlated significantly with all mental health problems on  $ps < .01$  with a range of  $r = .36$  to  $r = .58$ . Emotional demands were correlated significantly with all mental health problems on  $ps < .01$  with a range of  $r = .30$  to  $r = .54$ . Therefore, the more study demands the veterinary students perceive, the more mental health problems they report.

### **Study demands and recovery**

Hypothesis 2 stated that study demands relate negatively with recovery. As shown in Table 1, all study demands were correlated significantly with psychological detachment, except for task uncertainty. The correlation of psychological detachment was significant with all study demands in the expected direction ( $ps < .01$ ) with a range of  $r = -.15$  to  $r = -.35$ , except for the relation with task uncertainty ( $r = -.03$ , *ns*). Relaxation correlated significantly with all study demands in the expected direction ( $p < .01$ ) with a range of  $r = -.18$  to  $r = -.46$ . Thus, Hypothesis 2 is mainly confirmed.

### **Recovery and mental health problems**

Hypothesis 3 states that, recovery relates negatively with mental health problems. This was also tested with correlation analysis. As shown in Table 1, psychological detachment showed significant negative correlations with stress symptoms ( $r = -.19$ ,  $ps < .01$ ), anxiety ( $r = -.14$ ,  $ps < .01$ ) and exhaustion ( $r = -.24$ ,  $ps < .01$ ). There was no significant relation between psychological detachment and depression ( $r = -.07$ , *ns*), and cynicism ( $r = .03$ , *ns*). Relaxation showed significant negative correlations with all dependent variables on a significance level of  $ps < .01$ , with a range of  $r = -.25$  to  $r = -.40$ . This showed, that the less recovery students perceived, the more mental health problems they reported. Thus, Hypothesis 3 was partially confirmed.



Table 1: *Descriptive statistics and the correlations between the dependent, the independent and the mediating variables with answering scales.*

	M	SD	1	2	3	4	5	6	7	8	9	10	11
1. Workload (1-5)	3.15	0.64	1										
2. Task Uncertainty (1-5)	2.73	0.75	.23**	1									
3. Work-home Conflict (1-5)	2.87	0.76	.54**	.27**	1								
4. Emotional demands (1-4)	2.17	0.43	.46**	.27**	.47**	1							
5. Psychological detachment (1-5)	2.13	0.76	-.18**	-.033	-.35**	-.15**	1						
6. Relaxation (1-5)	3.53	0.75	-.27**	-.18**	-.46**	-.21**	.50**	1					
7. Stress symptoms (1-4)	1.76	0.59	.39**	.28**	.49**	.46**	-.19**	-.33**	1				
8. Anxiety (1-4)	1.40	0.46	.36**	.25**	.40**	.43**	-.14**	-.25**	.64**	1			
9. Depression (1-4)	1.53	0.55	.32**	.30**	.40**	.45**	-.07	-.31**	.68**	.57**	1		
10. Burnout Exhaustion (0-6)	3.22	1.35	.49**	.35**	.58**	.54**	-.24**	-.40**	.59**	.45**	.56**	1	
11. Burnout Cynicism (0-6)	1.19	1.26	.20**	.30**	.36**	.30**	.03	-.27**	.39**	.31**	.59**	.49**	1

\* $p < .05$ ; \*\* $p < .01$ ;  $N = 344$

Table 2: Significant mediation effects with the study demands (workload, task uncertainty, work-home conflict and emotional demands) as independent variables (IV), mental health problems as dependent variables (DV) and the dimensions of recovery (psychological detachment and relaxation as mediators (M)).

Independent variable (IV)	Mediator	Dependent variable (DV)	Total effect (c path)	Direct effect (c'path)	Indirect effect	IV -> M (a path)	M-> DV (b path)
Workload	Relaxation	Stress symptoms	.33**	.29**	.05** [.0214, .0875]	-.26**	-.18**
		Depression	.28**	.23**	.05** [.0215, .0830]	-.26**	-.18**
		Anxiety	.25**	.23**	.02* [.0083, .0503]	-.26**	-.09**
		Exhaustion	.91**	.79**	.12** [.0600, .2029]	-.26**	-.46**
		Cynicism	.39**	.29**	.10** [.0463, .1800]	-.26**	-.38**
Task uncertainty	Relaxation	Stress symptoms	.21**	.18**	.03* [.0096, .0630]	-.16**	-.21**
		Depression	.22**	.19**	.03* [.0093, .0593]	-.16**	-.19**
		Anxiety	.15**	.13**	.02* [.0047, .0399]	-.16**	-.11**
		Exhaustion	.58**	.50**	.10** [.0256, .1565]	-.16**	-.53**
		Cynicism	.52**	.47**	.06* [.0169, .1167]	-.16**	-.36**
Work-home Conflict	Psychological Detachment	Cynicism	.57**	.65**	-.09** [-.1631, -.0309]	-.31**	.28**
	Relaxation	Stress symptoms	.37**	.32**	.04* [.0065, .0863]	-.42**	-.10*
		Depression	.29**	.23**	.05** [.0141, .1021]	-.42**	-.12**
		Exhaustion	.96**	.86**	.10** [.0234, .1917]	-.42**	-.24**
		Cynicism	.57**	.47**	.10* [.0228, .1962]	-.42**	-.24*
Emotional demands	Relaxation	Stress symptoms	.60**	.56**	.05* [.0121, .1681]	-.24**	-.19**
		Depression	.58**	.53**	.08* [.0211, .1748]	-.24**	-.18**
		Anxiety	.45**	.42**	.03* [.0050, .0593]	-.24**	-.10**
		Exhaustion	1.55**	1.43**	.12* [.0339, .2466]	-.24**	-.49**
		Cynicism	.79**	.69**	.10* [.0263, .1983]	-.24**	-.38**

Note. Unstandardized results based on 5000 bootstraps. Bias corrected. 95% Confidence interval. \* $p < .05$ ; \*\* $p < .01$ ;  $N = 344$

### **The mediating role of recovery**

The SPSS-macro of Preacher and Hayes (2008) is used to test to mediating role of recovery. The mediational role of the two subscales of recovery is tested separately because both dimension show a different correlation pattern between the dependent and independent variables. Hypothesis 4, recovery mediates the relationship between study demands and mental health problems was tested. The significant mediation effects are shown in Table 2. As can be seen in Table 2,

The relation between workload and the outcome variables was mediated by relaxation, there were positive indirect relations with stress symptoms (.05), depression (.05), anxiety (.02), exhaustion (.12) and cynicism (.10). The direct effects of workload on the outcome variables stayed significant, thus suggesting partial mediations. There was no mediating role for psychological detachment in the relation between workload and the outcome variables.

The relation between task uncertainty and the outcome variables did not find significant results for the mediation role of psychological detachment. However relaxation mediated the relation between task uncertainty and all outcome variables. The indirect effect was positive for stress symptoms (.03), depression (.03), anxiety (.02), exhaustion (.10) and cynicism (.06). The direct effect of workload on the outcome variables stayed significant, thus suggesting partial mediations.

The relation between work-home conflict and cynicism was significantly mediated by psychological detachment. The indirect effect was not as expected positive but it was negatively significant (-.09). The total effect (.57) and direct effect (.65) were both significant, suggesting partial mediation. Work-home conflict in relation to the outcome variables was mediated by relaxation, expect for the relation between work-home conflict and anxiety. The indirect effect was for stress symptoms (.04), depression (.05), exhaustion (.10) and cynicism(.10). The direct effect stayed significant, suggesting partial mediation.

Emotional demands in relation all outcome variables was significantly mediated by relaxation. The indirect effect on stress symptoms (.05), depression (.08), anxiety (.03), exhaustion (.12) and cynicism (.10) was significant. The direct effect stayed for all variables significant, suggesting a partial mediation. There was no mediating effect from psychological detachment in the relation between emotional demands and the outcome variables.

The above shows that Hypothesis 4 is partially confirmed. There is mediation role for relaxation and psychological detachment in the relation between study demands and mental health problems. However this mediating role is not found for all study demands and all

mental health problems and the mediation is always partial. Relaxation partially mediated more relations between independent and dependent variables than psychological detachment.

### **General discussion**

This research mainly aimed to examine the relationship between study demands (i.e. workload, task uncertainty, emotional demands and work-home conflict) and mental health problems (i.e. stress symptoms, anxiety, depression and two dimensions of burnout: cynicism and exhaustion) and the mediating role of two dimensions of recovery (psychological detachment and relaxation) among veterinary master students in the Netherlands. There were four main goals of this study.

The first aim of this study was to investigate the relationship between study demands and mental health problems. The results show that the more study demands the students perceive, the more mental health problems they report, hereby confirming Hypothesis 1. Remarkable is that all study demands and mental health problems relate high with each other. However, work-home conflict and emotional demands seemed be the most strongly related to mental health problems. Furthermore, stress symptoms and exhaustion seemed to be the most strongly related to all study demands.

The second aim of this study was to examine to what extent study demands related to recovery. The results showed a relation between almost all study demands and the two dimensions of recovery (i.e. psychological detachment and relaxation). Only psychological detachment did not relate with task uncertainty. Thus, Hypothesis 2 was mostly confirmed. The more study demands the students perceived, the less recovery they reported. Relaxation was more related to study demands than psychological detachment. Relaxation was most strongly related to work-home conflict. The more work-home conflict the students perceived, the less relaxation they reported.

The third aim of this study was to investigate whether recovery was related to mental health problems. The results showed that the more opportunities for recovery the students perceived, the less mental health problems they reported. Relaxation related to all mental health problems, but is most strongly related to stress symptoms and exhaustion. Psychological detachment was not related to depression and cynicism, but was most strongly related to exhaustion. Thereby, partly confirming Hypothesis 3.

The fourth and last aim of the study was to investigate the mediating role of recovery in the relationship between study demands and mental health problems. We found partial

support for Hypothesis 4. The results showed that recovery partly mediates the relationship between study demands and mental health problems. The more study demands the students perceived, the less recovery they reported and the more mental health problems they reported. Psychological detachment only mediated a relation once, the relation between work-home conflict and cynicism, but not in the expected direction. Relaxation had not a mediating role in the relation between work-home conflict and anxiety. Work-home conflict is remarkable because of its two unexpected relations. Relaxation showed a mediating role in the relation between all other study demands in relation to all mental health problems.

### **Study demands in relation with mental health problems**

The finding that perceived study demands among veterinary students lead to more mental health problems is in line with earlier research among workers not among students. A strong relationship between job demands and stress-related problems has been reported in literature. For example in the energy depletion process of the JD-R model; demanding aspects of work lead to stress reactions, exhaustion and health problems (Schaufeli et al., 2009). Demerouti and colleagues (2005) also showed that job demands, such as high workload or emotional demands, may exhaust the reserves of the employee, causing stress-related problems, which may lead to health problems. Another study showed a relation between workload and mental health problems in different age groups. In all age groups, worsening work pressure was a significant risk for having mental health problems (Zoer, Ruitenbunrg, Botje & Frings-Dresen, 2011). Moreover, high emotional demands in younger employees were associated with having more mental health problems (Zoer et al., 2011). This is in line with the finding that emotional demands relate most strongly to mental health problems.

### **Recovery in relation with study demands and mental health problems**

Recovery was partly related to study demands and mental health problems. This result was also in line with earlier research among employees. Geurts and Sonnentag (2006) found that a lack of recovery is a greater health problem than strain itself. Job demands make it harder for people to recover from work or study and will cause mental fatigue (Maslach et al, 2001). Sonnentag and Fritz (2007) found that all job demands examined in their research (i.e. time pressure, role ambiguity, situational constraint, hours of overtime) were negatively related to psychological detachment. It is plausible that students do not perceive task uncertainty as something to recover from. Job demands do not automatically cause stress.

This is only the case when the efforts are too high to meet the standards of the job demands or recovery is incomplete (Schaufeli & Taris, 2013). A relation between task uncertainty with all mental health problems was found and this could also be caused by the high efforts, instead of lack of recovery.

With regard to the relation between recovery and mental health problems our results were in line with a study that found a negative relation between recovery and mental health problems (Sonnentag & Fritz, 2007). Furthermore, Hockey (1993) showed that when recovery fails, chronic effects on health and well-being may be evident. There was no relation between psychological detachment and cynicism and depression in the present study. An explanation for this result could be that veterinary students continue fulfilling their study-related tasks at home, which prevents them to experience full recovery. Therefore it is possible that veterinary students show more stress, which results in exhaustion. Another explanation could be that veterinary students show dedication, the opposite of cynicism, as a part of work engagement (González, Schaufeli, Bakker & Lloret, 2006). Work engagement is characterized by a high level of energy and strong identification with one's work, whereas burnout is characterized by a low level of energy and poor identification with one's work (Demerouti, Mostert, Bakker, 2010). When veterinary students would not continue working on study-related tasks when they come home, this might lead to completed recovery and eventually results in less mental health problems.

### **The mediating role of recovery**

The mediating role of recovery was partly confirmed, most of the mediating relations are found with relaxation as mediator. This result is remarkable since a study of Kinnunen and colleagues (2011) showed different results. Kinnunen and colleagues (2011) showed a mediation of psychological detachment in the relation between job demands and exhaustion. The same study showed that high job demands also challenge relaxation.

The present study showed a mediating role of relaxation in the relation with almost all study demands and mental health problems. This showed that the more study demands the students perceive, the less relaxation opportunities they report and the more mental health problems they report. None of the mediations were full mediations, they are all partial because the direct effect between the study demands and the mental health problems stayed significant when relaxation was added as possible mediator. However, in the relation between work-home conflict and anxiety there was no mediating role of relaxation. Correlations were

in line with the expectations, there was a relation between work-home conflict and relaxation and there was a relation between relaxation and anxiety. It is possible that anxiety and work-home conflict have a different relation than the other study demands and mental health problems. In some studies work-home conflict is described as a mediator instead as a job or study demand. For example in a study of Janssen, Peeters, de Jonge, Houkes and Tummer (2004), there was a relation between job demands and exhaustion, mediated by work-home conflict. The study of Illies and colleagues (2007) showed that workload is associated with negatively affect during work, but that it also spills over to the home domain, causing work-home conflict.

Psychological detachment showed no mediating role, except in the relation between work-home conflict and cynicism. Psychological detachment partly mediates the relation between work-home conflict and cynicism, although the opposite way as expected. This means, the more work-home conflict the students perceive, the less psychological detachment they perceive and the less cynicism they report. The finding of a significant mediation in this case was remarkable, as there was no significant correlation between psychological detachment and cynicism. Therefore, it could be the case that this result is an statistical artifact, resulting from bias in the collection of data. Thus, this may implicate that these findings do not reflect the real world but rather are unintended consequences of measurement error.

### **Limitations of the study and directions for future research**

Despite the important findings, this study is not free from limitations. There are four limitations to this study. First, this study has a cross-sectional design. Therefore, no firm conclusions about causality could be drawn, although most findings are consistent with the hypotheses. Several longitudinal studies have shown that job characteristics like job demands and job control had causal predominant relationships with health outcomes (Buunk, De Jonge, Ybema & De Wolff, 1998). However, more research, with longitudinal or experimental design, should be conducted on the causal relation between study demands and mental health problems with the mediating role of recovery.

Secondly, future studies should include more aspects of the JD-R model, such as job resources and personal resources, in order to provide a more balanced insight the functioning of the JD-R model in predicting mental health problems. The JD-R model normally includes both health-related and motivational work aspects and defines relationships between

predictors and outcome variables. It would be interesting to see if study resources buffer the impact of study demands for veterinary students and to see the effect of study resources on recovery.

Thirdly, the JD-R model is a model made for the occupational context. It is possible that occupational job demands differ from study demands and may therefore effect the model differently. The questionnaires were adapted to the study situation, which may result in a difference in the way of how the questions were interpreted compared to the occupational context.

Fourthly, in this study the participants were only veterinary students. It is interesting to examine specific aspects of other stressful studies such a medicine and other health care studies. Further research is needed to clarify the generalizability of our findings to health care students.

### **Practical implications**

Our study has several important practical implications. Although this research design does not allow us to make causal attributions, it can be concluded that veterinary students need to work in a study environment that provides time to recover from study demands. The faculty of veterinary medicine has two possibilities. They could focus on either raise relaxation possibilities or on reducing study demands. It would be difficult for the faculty to facilitate relaxation, however reducing study demands will probably lead to more relaxation as study demands were all related to relaxation. From a practical point of view, the results of this study indicate it is advisable to focus on the study demands.

Emotional demands and work-home conflict were most strongly related with mental health problems. That is why interventions should primarily focus on those two study demands. It is advisable to train veterinary students in coping with emotionally demanding study situations to reduce emotional demands. It seems important to teach them skills that prevent the veterinary students to be carried away by the emotions of the clients. Moreover, it helps the students to cope with conflicts of interests in veterinary medical ethics when trying to balance animal and human interests. A possibility is to help the students develop an attitude of “detached concern” (Lief & Fox, 1963). This should preferably be done before students enter the clinic as co-assistant. For those who already work in the clinic as co-assistant, support from the teachers in the faculty of veterinary medicine and support groups of students may be valuable to cope with different types of stressful study demands (Collins & Foote,



2005).

Work-home conflict could be reduced by giving students opportunities prepare study-related tasks for the next day at the university. In this way, students do not have to work on study-related tasks at home anymore. This could lead to less work-home conflict

Another option to reduce study demands would be to teach students to cope with stress or develop time-management competences (Collins & Foote, 2005). Since there is a relation between all study demands and mental health problems, it would be better if the faculty would seek for ways to support the students and reduce study demands in which way the mental health problems could be diminished.

## **Conclusion**

In conclusion, the present research shed light on the relation between study demands and mental health problems among veterinary students. Study demands were significant related to mental health problems. Emotional demands and work-home conflict were the most strongly related to mental health problems. There were two dimensions of recovery, psychological detachment and relaxation. Both dimensions were related to most study demands and most mental health problems. Furthermore, the mediating role of recovery was partly confirmed. recovery and psychological detachment did not function as a mediator as expected. However, relaxation showed partial mediations in almost all relations between study demands and mental health problems. Only the relation between work-home conflict was not mediated by relaxation. The present study shows that study demands in the veterinary master are an indicator for mental health problems among veterinary students. Therefore, the faculty of veterinary medicine should focus on reducing study demands in the veterinary master program. Recommended is that the faculty focuses on emotional demands and work-home conflict, because those study demands showed the most strong relations with mental health problems. Suggested is possibility is to help the students develop an attitude of “detached concern” to help them with the emotional demands. Reducing study demands will probably lead to more relaxation opportunities for students, which will probably lead to a diminished chance to mental health problems.

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## **Appendix A: Question route focus groups**

### **5 min introductie focusgroep**

*Beste studenten,*

*Welkom bij deze focusgroep over het welzijn en het functioneren van studenten in de masterfase van de opleiding diergeneeskunde. Fijn dat jullie willen deelnemen. We gaan het vanmiddag hebben over verschillende aspecten van je studie en je persoonlijke verwachtingen.*

*Ik wil benadrukken dat alles wat er vandaag besproken wordt vertrouwelijk zal zijn. Wij nemen het gesprek van vandaag op, de informatie zal alleen gedeeld worden met het onderzoeksteam van de universiteit Utrecht en zal op geen enkele wijze in verband worden gebracht met jullie persoonlijke gegevens.*

*Voor deze bijeenkomst hebben we een uur, we zullen eerst wat algemene vragen behandelen en daarna naar persoonlijke meningen/ervaringen vragen.*

*Probeer alle vragen zo open en eerlijk mogelijk te beantwoorden.*

### **5 min introductie studenten**

- Kan je wat vertellen over je master? Welk jaar zit je en welk mastertrack doe je? (iedereen komt aan de beurt/openheid en inbreng stimuleren)

*Opwarmertje*

### **10 min student algemeen**

- Welke aspecten van de studie maken de studie veeleisend en kosten energie?
- Welke aspecten van de studie of omgeving zijn helpend of leveren je energie op?

*Opwarmertjes*

### **10 min discussie burn-out**

*Intermezzo: Tot nu toe hebben we het gehad over de studie zelf, nu willen we het meer over jullie als student hebben, dus meer over persoonlijke eigenschappen. Want uit onderzoek blijkt dat hoe je zelf omgaat met je studie van invloed kan zijn op je welzijn.*



- Wat is jullie indruk van het psychisch welzijn van de gemiddelde diergeneeskunde student?

*Inleiding burnout:*

*Uit recente literatuur komt naar voren dat studenten steeds vaker last hebben van stress en teveel hooi op hun vork nemen. Klachten als druk, stress, vermoeidheid en depressie zijn herkenbaar voor bijna de helft van Nederlandse studenten (Beem, 2016) Als dit langere tijd aanhoudt, loopt iemand het risico een burn-out te krijgen. Uit recent onderzoek komt naar voren dat 18% van de Nederlandse studenten tijdens de coschappen aan de criteria voor burn-out voldoen (Conijn, Boersma, & van Rhenen, 2015).*

- In hoeverre herken je dit bij jezelf? Of bij je medestudenten?

**10 min verwachtingen werkveld:**

- Hoe kijk je naar de overgang van student naar professional? Wat zijn je verwachtingen over je functioneren en ontwikkeling?
- Hoe verwacht je dat je professionele ontwikkeling als dierenarts er uit zal zien?
- Zijn je verwachtingen over de studie over tijd veranderd en zo ja, hoe?

*Intermezzo: Bedankt voor al jullie antwoorden, om te zorgen dat we alles hebben besproken hebben, is er nog een laatste vraag:*

- Zijn er nog andere persoonlijke eigenschappen die niet aan bod zijn gekomen die een rol kunnen spelen bij de studie en toekomstig werkveld, maar wel relevant?

*Hartelijk dank voor jullie tijd, op basis van de focusgroepen kunnen we weer verder met ons onderzoek.*

**Literatuur**

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**Appendix B: Shortlist constructs focus groups**

Underlined constructs were selected to be a part of this and the future study.

<b>Study demands</b>	<b>Study resources</b>	<b>Personal demands</b>	<b>Personal resources</b>
<u>Workload</u>	Feedback	<u>Perfectionism</u>	<u>Emotional stability</u>
<u>Work-home interference</u>	<u>Social support</u>	<u>Failure</u>	<u>Optimism</u>
Job insecurity	<u>Appreciation</u>	Shyness	<u>Self-efficacy</u>
<u>Task insignificance</u>	<u>Autonomy</u>	<u>Need for control</u>	<u>Assertiveness</u>
<u>Emotional demands</u>	Development	Victimization	Perspective taking
Cognitive demands		<u>Neuroticism</u>	

## Appendix C: Questionnaire

### Demographic data

Wat is je geslacht?

- Man
- Vrouw

Wat is je leeftijd in hele jaren?

Welke mastertrack volg je?

- Gezondheidszorg Landbouwhuisdieren en Veterinaire volksgezondheid
- Geneeskunde van Gezelschapsdieren
- Gezondheidszorg Paard

In welk academisch jaar ben je met deze master gestart?

- 2012-2013
- 2013-2014
- 2014-2015
- 2015-2016
- Anders

**MBI-SS (Burnout)**

De volgende uitspraken hebben betrekking op hoe je je studie beleeft en hoe je je daarbij voelt. Vul bij iedere vraag steeds het antwoord in dat op jouw situatie van toepassing is.

	Nooit	Een paar keer per jaar of minder	Eens per maand of minder	Een paar keer per maand	Eens per week	Een paar keer per week	Elke dag
Door mijn studie voel ik me emotioneel uitgeput.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Ik twijfel aan het nut van mijn studie.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Met mijn studie bezig zijn of naar colleges gaan levert bij mij spanningen op.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Ik voel mij "opgebrand" door het studeren.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Ik heb de interesse in mijn studie verloren.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Ik heb het enthousiasme in mijn studie verloren.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Ik voel mij uitgeput aan het eind van de dag op de universiteit/kliniek.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Ik ben moe als ik 's morgens opsta en mij weer een dag op de universiteit/kliniek te wachten staat.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Ik ben cynischer geworden met betrekking tot het nut van mijn studie.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

## Recovery

De volgende stellingen gaan over wat je doet na een dag studeren.  
Vul de volgende zin aan met onderstaande stellingen.

Nadat mijn studiedag is afgelopen.....

	Helemaal niet mee eens	Niet mee eens	Noch mee eens/ noch mee oneens	Mee eens	Helemaal mee eens
...vergeet ik mijn studie.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
...denk ik helemaal niet aan mijn studie.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
...neem ik afstand van mijn studie.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
...kom ik los van de eisen van mijn studie.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
...ontspan ik me.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
...doe ik ontspannende dingen.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
...gebruik ik de tijd om te relaxen.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
...neem ik tijd voor ontspannende activiteiten.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

## Work demands

De volgende vragen gaan over je werkomstandigheden met betrekking tot je studie. Vul bij iedere vraag steeds het antwoord in dat op jouw situatie van toepassing is.

Let op: met werk wordt werk binnen de studie bedoeld.

	Nooit	Soms	Regelmatig	Vaak	Altijd
Moet je heel snel werken?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Moet je erg veel werk doen?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Werk je extra hard om dingen af te krijgen?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Moet je onder hoge tijdsdruk werken?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Heb je voldoende tijd om je werk af te krijgen?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Weet je precies wat er in de studie/de kliniek van je verwacht wordt?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Is het voor jou geheel duidelijk waar je wel en niet verantwoordelijk voor bent?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Weet je precies wat je docent/de specialist van je verwacht?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Is het voor jou geheel duidelijk, wat precies je taken zijn?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Ik kan mijzelf binnen mijn studie voldoende ontplooiën.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Mijn studie biedt mij de mogelijkheid nieuwe dingen te leren.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
In mijn studie heb ik de mogelijkheden om mijn sterke punten te ontwikkelen.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Biedt de studie je voldoende mogelijkheden om er achter te komen hoe goed je jouw werk uitvoert?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Krijg je van jouw docent/ de specialist informatie over je prestaties?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Krijg je van je medestudenten informatie over hoe goed je jouw werk uitvoert?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

### Work-home conflict

De volgende vragen gaan over je privé-situatie. Vul bij iedere vraag steeds het antwoord in dat op jouw situatie van toepassing is. Vul de volgende zin aan met onderstaande stellingen: Hoe vaak komt het voor dat...:

	Nooit	Soms	Regelmatig	Vaak	Altijd
Je moeilijk aan je verplichtingen thuis kunt voldoen omdat je in gedachten steeds met je studie bezig bent?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Je vanwege verplichtingen op je studie afspraken met je partner/familie/vrienden moet wijzigen of afzeggen?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Je zoveel aan je studie moet doen dat je niet toekomt aan je hobby's?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Je studie tijd in beslag neemt die je liever aan je partner/familie/vrienden zou besteden?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

### Emotional demands

De volgende vragen gaan over de belasting van je studie. Vul bij iedere vraag steeds het antwoord in dat op jouw situatie van toepassing is.

	Nooit	Soms	Vaak	Altijd
Is je studie emotioneel zwaar?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Wordt je in je studie met dingen geconfronteerd die je persoonlijk raken?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Kom je door je studie in aangrijpende situaties terecht?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Kom je door je studie in emotioneel beladen situaties terecht?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>



## Depression Anxiety Stress Survey (DASS-21)

De volgende vragen gaan over je welzijn. Geef voor ieder van de onderstaande uitspraken aan in hoeverre de uitspraak **de afgelopen week** voor jou van toepassing was door een antwoord te kiezen. Er zijn geen goede of foute antwoorden. Besteed niet te veel tijd aan iedere uitspraak, het gaat om je eerste indruk.

	Helemaal niet of nooit van toepassing	Een beetje of soms van toepassing	Behoorlijk of vaak van toepassing	Zeer zeker of meestal van toepassing
Ik vond het moeilijk mezelf te kalmeren.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Ik merkte dat mijn mond droog aanvoelde.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Ik was niet in staat om ook maar enig positief gevoel te ervaren.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Ik had moeite met ademen (bijv. overmatig snel ademen, buiten adem zijn zonder me in te spannen).	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Ik vond het moeilijk om het initiatief te nemen om iets te gaan doen.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Ik had de neiging om overdreven te reageren op situaties.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Ik merkte dat ik beefde (bijv. met de handen).	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Ik was erg opgefokt.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Ik maakte me zorgen over situaties waarin ik in paniek zou raken en mezelf belachelijk zou maken.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Ik had het gevoel dat ik niets had om naar uit te kijken.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Ik merkte dat ik erg onrustig was.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>