

## Tilburg University

### **The impact of critical incidents and workload on functioning in the private life of police officers**

Bakker, A.H.M.; van Veldhoven, Marc; Gaillard, A.W.K.; Feenstra, Margot

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**The Impact of Critical Incidents and Workload on  
Functioning in the Private Life of Police Officers: Does  
Weakened Mental Health Act as a Mediator?**

Journal:	<i>Policing: A Journal of Policy and Practice</i>
Manuscript ID	Draft
Manuscript Type:	Original Article
Keyword:	police officers, critical incidents, life tasks, spillover

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Manuscripts

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3 **The Impact of Critical Incidents and Workload on Functioning in the Private**  
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5 **Life of Police Officers: Does Weakened Mental Health Act as a Mediator?**  
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7

8 Abstract  
9

10 The present study examined the disintegrating effects of critical incidents and  
11 workload on the mental health status and private-life tasks of 166 police officers. In addition,  
12 it investigated whether diminished mental health status mediated the impact of critical  
13 incidents and workload on private-life tasks. This mediation effect was based on the work-  
14 home resources model of Brummelhuis and Bakker (2012). The respondents were police  
15 officers functioning in? the front line, experiencing critical incidents and working in urban  
16 areas. We investigated the effects on the following five private-life tasks: *Social life*,  
17 *Maintaining mental health*, *Household and finance*, *Giving meaning*, and *Maintaining*  
18 *positivity*. The results showed that critical incidents only had a negative effect on *Maintaining*  
19 *positivity*. Respondents reporting more critical incidents had a lower mental health status,  
20 which in turn, had a direct effect on the functioning in all private-life tasks except *Social life*.  
21 When mediated by mental health status, critical incidents were associated with less effective  
22 functioning in all private-life tasks except for *Social life*. Thus, the effects of critical incidents  
23 on functioning in private-life tasks (except *Social Life*) were larger for respondents with a  
24 low mental health status. The largest effects were found for *Maintaining mental health* and  
25 *Maintaining positivity*. In the workload model, no significant indirect effects were found on  
26 life tasks.  
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51 *Keywords:* police officer, critical incidents, life tasks, spillover  
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## Introduction

Police officers report higher stress levels than other members of the workforce and a higher rate of absenteeism (Houtman, Jettinghoff, Brenninkmeijer, & van den Berg, 2005; Tang & Hammontree, 1992). Individuals in rescue work professions (e.g., police officers, ambulance personnel, firefighters) are at greater risk for mental health problems, such as depression, PTSD, burnout and substance abuse, than individuals in other professions (Asmundson & Stapleton, 2008; Austin-Ketch, T.L., Violanti, J., Fekedulegn, D., Andrew, M.E., Burchfield, C.M. & Hartley, T.A. (2012); Davey, Obst, & Sheehan, 2000; Maia, D. B., Marmar, C. R., Metzler, T., Nobrega, A., Berger, W. & Mendlowics M. V. (2007); Shochet I.M., Shakespeare-Finch J., Craig C., Roos C., Wurfl A., Hoge R., Young R.M., Brough, P. (2011)). Research findings by Green (2004) revealed that PTSD is four to six times more prevalent among police officers than in the general public. Furthermore, police officers have a higher risk of developing heart problems, gastrointestinal disorders and diabetes (Violanti, J. M., Andrew, M. E., Burchfiel, C. M., Dorn, J., Hartley, T. & Miller, D. B. 2006). Police work is generally recognized as highly demanding and high-risk (Gershon, Barocas, Canton, Li, & Vlahov, 2009). A Dutch study (Houtman, Jettinghoff, Brenninkmeijer, & Van den Berg, 2005) showed that job stress for police officers is higher than for average Dutch employees. Their jobs entail a higher tempo and contain more sources of tension. Similarly, a British study (Paton, 2005) established stress as the most frequent cause of sick leave in British police officers. A Swiss study among police officers (Gerber, Hartmann, Brand, Holsboer-Trachsler, & Pühse, 2010) linked increased stress to poorer health. It is important to realize that different rescue work occupations have different roles and responsibilities. The comparable aspect is that in these occupations the personal and professional risk is taken to save one's life and/or take care for safety of others. Even for policemen a substantial part of their job is first aid help like resuscitations. "The job context of policework has special

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3 aspects that influence their job experience, health, and private life. For example; working in  
4 shifts Vila (2002, 2006) Shreffler (2011), confronted with moral dilemmas, political pressure  
5  
6 (Birch,G.S., Vickers,P., Kennedy, M.H. ,Michael H., 2016). In the latter a central concern  
7  
8 was that the rights of police officers are not the same as a citizen's, where "innocent until  
9  
10 proven guilty" is the rule. Police officers remain under an informal scrutiny and often times  
11  
12 speculation that became problematic. In addition, police work also entails working at a high  
13  
14 pace and working overtime which diminishes the ability to relax and recover from work  
15  
16 demands (Sanz-Vergel et al., 2010). The influence of work on the person and his or her life is  
17  
18 developed in work psychology. Arnold (2005) page 52. In work psychology five factors are  
19  
20 important: 1; the particular thoughts, behavior, emotion in question, 2; differences between  
21  
22 people to which they characterize their behavior, 3; situational factors, 4; the consequences of  
23  
24 interaction between 2 and 3, 5; any ways in which particular thoughts, behaviors or emotions  
25  
26 might feedback to produce changes in 2 and 3. Life tasks represent the perceived  
27  
28 effectiveness of the ability to build up a life. Witmer and Sweeney (2001) developed a  
29  
30 holistic model for wellness and prevention over the life span. In this model the theory of  
31  
32 Adler (1956) and Maslow (1970) is an important base. They describe five life tasks;  
33  
34 spirituality, self-regulation, work, love and friendship. Perceived efficacy in life tasks act as  
35  
36 resources for good mental health and well-being. They help people flourish in their life. It  
37  
38 requires discipline and proactive behavior to maintain life tasks when under pressure. The  
39  
40 pressure that workers experience and the stress that builds up take a toll on their family life,  
41  
42 which in turn affects their resources such as a stable relationship and family life, happiness,  
43  
44 vitality and financial position (Cicognani, Pietrantonio, Palestini, & Prati, 2009; Gershon,  
45  
46 Barocas, Canton, Li, & Vlahov, 2009; Heshmati, 2007; Maddi, 2007; Shapiro, 2004; Slottje,  
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48 P., Twisk, J.W.R., Smidt, N, Huizink, A.C., Witteveen, A.B., Mechelen W. van & Smid,  
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50 2007).

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8 Research on job stress has linked work-family conflicts to negative outcomes,  
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10 including poor health and well-being, for individuals and their families (Bakker &  
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12 Demerouti, 2012; Bianchi et al., 2005; Wierda-Boer, H., Gerris, J., Vermulst, A., Malinen, K.  
13  
14 & Anderson, K. 2009). Shreffler, Meadows and Davis (2011) also associated occupational  
15  
16 stress, long working hours (more than 60 hours a week) and lack of sleep with greater work-  
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18 to-family conflicts and a higher perceived burden of childcare. The mental health problems of  
19  
20 police officers thus extend to their family members (Davidson, Berah, Moss, 2006).  
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23  
24 Longitudinal research demonstrates that the larger the number of years in service and  
25  
26 the number of critical incidents experienced results in more mental health complaints, poorer  
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28 health and a higher rate of sick leaves (Gerber, Hartmann, Brand, Holsboer-Trachsler, &  
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30 Pühse, 2010; Morren, Dirkzwager, Kessels, & IJzermans, 2007; Paton, 2005).  
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33 Recent studies have shown that the accumulation of critical incidents makes rescue workers  
34  
35 susceptible to developing psychological and physical symptoms such as PTSD, depression,  
36  
37 health problems, state anger, anger out, emotional dissonance and burnout (Alexander, &  
38  
39 Klein, 2009; Boer et al., 2011; Castro, 2008; Goodson, , Helstrom, A., Halpern, ,  
40  
41 Ferenschak,, Gillihan, & Powers, 2011; Bakker, & Heuven, 2006); Monnier, Cameron,  
42  
43 Hobfoll & Gribble, 2002). Critical incidents account for 53% of the variance in the officers'  
44  
45 posttraumatic stress disorder (PTSD) (Menard & Arter, 2013). Situations in which police  
46  
47 officers were confronted with the victims' vulnerability (e.g., abuse, murder cases) were  
48  
49 associated with higher rates of reported PTSD (Carlier, Voerman, & Gersons ,2000).  
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53 Furthermore, critical incidents in which children were involved and/or there was a shortage  
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55 of supplies/resources were linked to higher reported distress (Declercq, Deheegher, & Van  
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57 Hoorde, 2011). Hence, we hypothesize that critical incidents have a direct negative effect on  
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3 mental health status (hypothesis 1).  
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5 In addition to critical incidents, a heavy workload also leads to an increase in stress  
6 among police officers. A heavy workload is associated with more reported somatic and  
7 psychological complaints (Gerber, 2010; Wang, Lawler, Walumbwa, & Shi, 2010). Enhanced  
8 and prolonged physiological stress reactivity can lead to depletion of resources over time  
9  
10 (Anderson, J., Wade, M., Possemato, K., & Quitmette, P. 2010).  
11

12 Rescue workers can develop work-related psychological problems and physical symptoms  
13 even 12- and 18- months post adversity, leading to additional sick leaves. This demonstrates  
14 the pressing need to reduce work-related stress at work among rescue workers (Morren et al.,  
15 2007; Wang, et al., 2010).  
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17 On the basis of the above results we expect that workload has a direct negative effect on  
18 mental health status (hypothesis 2).  
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### 26 **Negative work-home spillover**

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33 To examine whether the impact of the demands of police work on the functioning in their  
34 private life is mediated by mental health status, we based our study on the causal chain,  
35 postulated in the work-home resources model (W-HR) (Brummelhuis & Bakker, 2012). In  
36 this study we used one part of this model the path of the diminished process (decline of  
37 resources). In this research; negative work demands like workload and critical incidents,  
38 diminish positive resource mental health and causes negative home outcomes, lower  
39 effectiveness on private life tasks.  
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53 This model is based on the conservation of resources (COR) theory, which regards  
54 stress as a loss of energy (Hobfoll & Freedy, 1993). According to Hobfoll (1998), Monnier  
55 (2002) and Brummelhuis & Bakker (2012) we regard stress as a response to the loss (Or the  
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3 threat of loss) of resources and is based on the premise that individuals strive to obtain,  
4 retain, protect and foster those things that they value. Stress is believed to occur when  
5 individuals or groups are faced with situations with threat of loss of resources or there is  
6 already loss of resources.  
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15 Bakker and Demerouti (2012) have asserted that employees who are confronted with  
16 work overload and high emotional demands have more difficulties balancing their work and  
17 their private life. High job demands require employees to devote more resources (e.g., time,  
18 energy) to work, leaving them with fewer resources to devote to their family (Frone, Yardley,  
19 & Markel, 1997). Another way in which work demands hamper functioning at home is when  
20 experiences at work (e.g., negative emotions, fatigue) spill over to the home domain (Bakker  
21 & Demerouti, 2012).  
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31 It is hypothesized that mental health status has a direct negative effect on private-life  
32 tasks (hypothesis 3) and that critical incidents have a direct negative effect on private-life  
33 tasks (hypothesis 4). Furthermore, we also hypothesize that workload has a direct negative  
34 effect on private-life tasks (hypothesis 5). We expect that work demands (critical incidents  
35 and workload) induce a negative spillover from work to home, which results in a reduced  
36 effectiveness in life tasks. Since these work demands are also assumed to diminish mental  
37 health status, we expect that the negative impact of work demands on effectiveness in  
38 private-life tasks will be higher when the mental health status is weakened.  
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50 In a longitudinal study, Demerouti, Bakker and Bulters (2004) examined how chronic  
51 effects develop. When work demands have a negative impact on effectiveness in life tasks,  
52 home resources (e.g., recovery opportunities, social support) may decrease. This in turn may  
53 result in difficulties in dealing with the work demands. Due to this so-called loss spiral, work  
54 pressure and exhaustion have causal and reversed causal relationships with functioning in life  
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3 tasks over time. For example, work pressure causes exhaustion and in turn exhaustion makes  
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5 it difficult to handle work pressure and worsens the exhaustion.  
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8 The loss spiral has also been found in a prospective longitudinal study of healthy  
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10 police officers, duty-related depression was found after 12 months, pressing the need for  
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12 strategies to reduce work stress (Wang, 2010). Finally, Morren et al. (2007) found that sick  
13  
14 leave and psychological problems increased 18 months post trauma compared to a control  
15  
16 group of noninvolved rescue workers. In a one-year follow-up study with ambulance  
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18 workers, Sterud, Hem, Lau, and Ekeberg (2011) found that job satisfaction was reduced and  
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20 health problems were increased. Lower job satisfaction was associated with a lack of support  
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22 from superiors and with the severity of challenging job tasks.  
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26 It is presumed that critical incidents have a negative effect on the effectiveness in  
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28 private-life tasks when mediated by mental health status (*Hypothesis 6*). Moreover, we  
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30 assume that workload has a negative effect on effectiveness in private-life tasks when  
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32 mediated by mental health status (*Hypothesis 7*).  
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35  
36 In sum, the purpose of the present study was to gain more insight into the impact of  
37  
38 work demands on the private life of policemen. In this study, we examine the depletive  
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40 effects of critical incidents and workload on mental health and the consequent degrading  
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42 effect on functioning in private life. We particularly investigated whether mental health plays  
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44 a mediating role in these effects. The results are analyzed and discussed based on the work-  
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46 home resources model (Brummelhuis & Bakker, 2012).  
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## 54 **Method**

### 55 **Participants**

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57 The respondents were police officers who were referred to psychological help for  
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3 their psychological complaints and absenteeism. Only police officers who have been exposed  
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5 to critical incidents in the line of duty were included in the study. Depending on the severity  
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7 of their complaints and problems, they received 10 to 20 sessions of psychological personal  
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9 training. Prior to starting psychological personal training, they completed psychological  
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11 questionnaires. Participants signed an informed consent form to participate in this study. The  
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13 sample consists of 166 police officers. All participants were selected from an urban area in  
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15 the Netherlands. Of these respondents, 69 (41.57%) were female and 90 (54.22%) were male;  
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17 ages were between 16 and 63 years, with a mean of 44.55 years (sd = 10.43). A total of 77  
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19 (46.4%) of the participants lived with a partner. The mean service years amounted to 17.57  
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21 (sd = 11.69). Most participants had one or more children (69.4%). Education was mostly  
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23 middle level (66.9%), and 18.1% reported higher education. All participants were selected  
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25 from an urban area in the Netherlands.  
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### 33 **Measures**

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37 ***Critical incidents inventory*** (Monnier et al., 2002). This inventory was used to measure the  
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39 number of critical incidents. In line with Monnier and colleagues (2002) we adopted the  
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41 following definition: “The trauma events faced by rescue workers during the course of their  
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43 job are critical incidents (for example responding to a motor vehicle accident) (pg. 12)  
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47  
48 This self-report instrument consists of 24 items, and participants responded on a four-  
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50 point Likert scale, ranging from 0 ‘never experienced this event’ to 3 ‘experienced three or  
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52 more times’. Examples of items included ‘Line of duty death of a fellow emergency worker’  
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54 and ‘Incident requiring police protection while on duty’. Monnier et al. (2002) reported a  
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56 median of 8.5 incidents and a range of 0-53. This was considerably lower than in our sample.  
57  
58 In the present study, the following values were obtained: M = 25.93, SE = 18.53 and median  
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3 = 25. This result cannot be seen as the total amount of critical incidents because the final  
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5 answer involves the frequency 'three or more times' only. In this study, we asked about  
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7 critical incidents during their entire career as rescue workers. Comparing the internal validity  
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9 with a norm group is not possible because other studies used different questions over a  
10  
11 different time period (see also Monnier et al., 2002).  
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17 ***Experienced workload.*** This scale is taken from the Dutch organizational stress  
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19 questionnaire (VOS-D; Bergers, Marcelissen, & Wolff, 1986; Caplan & Jones, 1975). The  
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21 scale used a four-point response Likert scale, ranging from 'never' through 'often'. An  
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23 example of one of the items was 'Are there moments where you can take it easier during  
24  
25 work?' Cronbach's alpha of the workload scale in the current study is 0.86, which is good.  
26  
27 The descriptive statistics in this research were compared with the norm group 'middle class  
28  
29 employees', composed by the authors for the validation of the VOS-D questionnaire.  
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31 Respondents were supposed to score these questions on a five-point Likert scale, ranging  
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33 from 'very high' to 'very low' and 'very often' to 'rarely'.  
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41 ***Mental health status.*** To measure mental health status, we used the widely  
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43 administered SCL-90 (symptom checklist) to evaluate experienced mental health complaints.  
44  
45 It provided an indication of the general mental health complaints that hinder the respondent's  
46  
47 performance in his/her daily life, such as anxiety, agoraphobia, depression, somatic  
48  
49 complaints, distrust, interpersonal sensitivity, hostility and sleep disorders. For the current  
50  
51 study, we only used the total score on general mental health as included in the Dutch version  
52  
53 of SCL-90, which is considered valid and reliable (Arrindell & Ettema, 1986). Respondents  
54  
55 were asked to indicate symptoms that occurred in the past week. The SCL-90 has been used  
56  
57 in several studies on rescue workers (e.g., Van der Velden, Van Loon, Benight, & Eckhardt,  
58  
59  
60

2012; Velden, Kleber, Grievink & Yzermans (2010); Wagner, McFee & Martin ,2010). In the current sample, the Cronbach's alpha was 0.85. The used scale is the PSNEUR, which is a total score of the subscales. These subscales of health complaints are: agoraphobia (I am afraid to go home alone), anxiety (I feel anxious), depression (I feel lonely), somatic complaints (I feel dizzy), insufficiency in thinking and feeling (I have difficulties making decisions), interpersonal sensitivity (I am critical to others), hostility (I feel bored and irritated), sleeping problems (I have difficulties falling asleep). The response categories are: very low, low, below average, average, above average, high, very high (a seven-point likert-scale). The scores for mental health status ( $M = 185.51$ ,  $SE = 57.79$ ) were higher than two standard deviations above the mean score found by Arrindell and Ettema (1986) in their norm group ( $M = 118.28$ ,  $SE = 32.38$ ,  $n = 2368$ ). This was a very high result in comparison with the normal population as a whole and comparable with the mean scores of psychiatric patients.

***Life tasks.*** This self-report instrument was specifically developed for measuring effectiveness in private-life tasks (Bakker et al., 2015). The scale has a five-point Likert scale ranging from 'very bad' through 'very good'. The higher the score, the higher the perceived effectiveness in life tasks. In the domain of *Social life*, respondents were presented with four questions or statements. For example, 'I can maintain friendships. The Cronbach's alpha of the Social life scale in the current study was 0.78, which is considered to be good. The second scale was *Maintaining mental health*, assessed with five questions. For example, 'I can deal with my emotions effectively'. In comparison to the SCL-90, this questionnaire does not address specific complaints about mental health problems. Cronbach's alpha for this scale was 0.72. The third scale, *Household and finance*, consisted of four questions. A typical item for this scale was 'I can manage money effectively'. Cronbach's alpha for this scale is 0.67. The fourth scale is *Giving meaning*. It includes five questions. An example of one of the

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3 questions was 'I try to learn from the things that I experience in life'. Cronbach's alpha for  
4  
5 this scale was 0.65. The last scale was *Maintaining positivity*, which was measured by two  
6  
7 questions. An example of an item was 'The disturbing incidents I experience at work make it  
8  
9 hard for me to stay positive'. Cronbach's alpha for this scale is 0.90.

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15 <<<Insert Figure 1 about here>>>

### 21 22 **Statistical analysis**

23  
24 The model that is researched in this paper is illustrated in Fig. 1. It constitutes a mediation  
25  
26 model. Path a shows the direct effects of the critical incidents/workload on mental health  
27  
28 status. Path c shows the direct effects of critical incidents/workload on the life tasks and path  
29  
30 b the direct effects of the mediator mental health status on the life tasks. Path c' shows the  
31  
32 full mediation model, namely the indirect (bootstrapping) effects of critical  
33  
34 incidents/workload on life tasks when mediated by mental health status.  
35  
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37  
38 The hypotheses were tested using conditional process analysis, developed by Hayes and  
39  
40 Preacher (2014), in SPSS version 23, after standardizing the variables. This analysis is  
41  
42 generally accepted as the procedure of choice for analyzing mediation, moderation and  
43  
44 combinations of these. In this case, we examined potential mediation effects. We expected  
45  
46 that critical incidents and workload not only had a (direct) effect on private-life tasks, but  
47  
48 also indirect effects, when mediated by mental health status. We report statistical tests for  
49  
50 direct effects and indirect effects as well as confidence intervals for these effects. This means  
51  
52 that the negative impact of demands on life tasks are expected to be larger when mental  
53  
54 health status is reduced. The effects are tested by the bootstrapping, which consists of  
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56 repeatedly randomly sampling observations with replacement from the data set to compute  
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3 the desired statistic in each sample. Computing over thousands in this study, of bootstrap  
4  
5 resamples provide an approximation of the sampling distribution of the statistic of interest”.  
6  
7  
8 (Preacher and Hayes (2004, 2008)).  
9

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15 <<<Insert Table 1 about here>>>

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17 <<< Insert Tables 2 and 3 about here >>>

## 18 19 **Results**

20  
21 Table 1 displays the scales, means, standard deviations, scale reliabilities, and  
22  
23 intercorrelations of all variables in this study. The measures relevant in this study are: critical  
24  
25 incidents correlate with mental health status and with *Maintaining positivity*. Furthermore,  
26  
27 mental health status correlated with the life tasks: *Maintaining mental health, Household and*  
28  
29 *finance, Giving meaning and Maintaining positivity*.  
30  
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32

33  
34 Table 2 and 3 display the results of the conditional analysis on the effects of critical  
35  
36 incidents and workload, respectively, on mental health status and the five life tasks. The first  
37  
38 rows show the direct effects, and the bottom rows present the results of the indirect effects.

39  
40 Hypothesis 1. Critical incidents had a direct negative effect on mental health status. :  $b =$   
41  
42  $0.59$ ,  $t = 2.47$ ,  $p < 0.01$ ; 95% CI [0.12; 1.06].

43  
44 Hypothesis 2. Workload did not have a direct negative effect on mental health status:  $b = -$   
45  
46  $0.08$ ,  $t = -1.00$ ,  $p = 0.32$ ; 95% CI [-0.23; 0.08].

47  
48 Hypothesis 3. Mental health status was negatively related to effectiveness in private-life  
49  
50 tasks. Negative effects were found for the following life tasks: *Maintaining mental health* ( $b$   
51  
52  $= -0.01$ ,  $t = -7.06$ ,  $p < 0.01$ ; 95% CI [-0.01; -0.004]), *Household and finance* ( $b = -0.003$ ,  $t = -$   
53  
54  $3.52$ ,  $p < 0.01$ ; 95% CI [-0.005; -0.001]), *Giving meaning* ( $b = -0.002$ ,  $t = -3.52$ ,  $p < 0.01$ ;  
55  
56 95% CI [-0.004; -0.001]), and *Maintaining positivity* ( $b = -0.01$ ,  $t = -6.41$ ,  $p < 0.01$ ; 95% CI [-

0.011; -0.006]). No effect was found on Social life task. Similar results were found in the workload model (see Table 3).

Hypothesis 4. Critical incidents only had a negative effect on *Maintaining positivity* ( $b = -0.01$ ,  $t = -3.16$ ,  $p < 0.002$  and 95% CI [-0.02; -0.005]). No direct effects were found for the other life tasks: *Social life*, *Maintaining mental health*, *Household and finance*, and *Giving meaning*.

Hypothesis 5 stated that workload has a direct negative effect on private-life tasks (path c). The data provide no support for this hypothesis whatsoever.

Hypotheses 6 and 7, we hypothesized that critical incidents and workload have a negative effect on effectiveness in private-life tasks when mediated by mental health status. In the critical incidents model, the indirect coefficient for Social life was not significant, but significant effects were found for the other life tasks: *Maintaining mental health* ( $b = -0.003$ ; 95% CI [-0.01; -0.0006]), *Household and finance* ( $b = -0.002$ ; 95% CI [-0.001; -0.0003]), *Giving meaning* ( $b = -0.001$ , 95% CI [-0.004; -0.0002]), and *Maintaining positivity* ( $b = -0.01$ , 95% CI [-0.011; -0.001]).

The mediated effects of the workload model did not reach significance for any of the five life tasks. The mediation analysis demonstrated that the effects of critical incidents on functioning in private-life tasks (except *Social Life*) were larger for respondents with a low mental health status.

## Discussion

As expected, critical incidents had a direct negative effect on mental health status, which was consistent with many studies (Alexander, & Klein, 2009; Boer et al., 2011; Castro, 2008; Goodson et al., 2011; Bakker, & Heuven, 2006; Monnier, Cameron, Hobfoll & Gribble, 2002, Menard & Arter, 2013) and demonstrated that police work is a high-risk job.



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3 In contrast, workload had no direct negative effect on mental health status, which was not  
4 consistent with other research (e.g. Gerber, 2010; Wang, Lawler, Walaumbwa, & Shi 2010).

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7 A probable explanation was that this group of participants was assessed during sick leave,  
8 and the daily workload may have been experienced less as a stressor (at the time of the study  
9 they were not actively employed) compared to the impact of critical incidents.

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12 The distinctive aspect of this study is the combination of predictor critical incidents and  
13 workload. There are more studies that press the impact of critical incidents (Monnier 2002,  
14 Boer 2011, Ploeg, E. van der, & Kleber, R. J. 2003, Wagner 2010) and others the impact of  
15 organization problems like workload in rescue work (Pisanti 2011, Kleber 2010, Berg, van  
16 den 2006, Lechner 2008). No study was found to examine both predictors. This study shows  
17 that critical incidents and workload are both to be taken seriously when it comes to  
18 understanding the impact of rescue work.

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21 Hypothesis 3 was confirmed. Mental health status had a direct negative effect on private-life  
22 tasks, with the exception of *Social life*. This is in line with research showing that lower  
23 mental health puts private life under pressure, (Bakker & Demerouti, 2012; Bianchi et al.,  
24 2005; Wierda-Boer, Gerris, & Vermulst, 2009). This result may be explained by the fact that  
25 police officers' function as teams and find social support among their colleagues. This  
26 interpretation is supported by the research of Bartone (2002) on the importance of  
27 camaraderie in groups. Argentero et al (2011) found in 782 rescue workers that a supportive  
28 working environment in particular favors engagement, reducing probability of developing  
29 burnout. Allen, T.D., Herst, D.E., Bruck, C.S. & Sutton, M, 2000) showed that a supportive  
30 organization with attention for family, colleagues and supervisor support improves job  
31 satisfaction, organizational commitment and less work-family conflict.

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34 As postulated in hypothesis 4, critical incidents had a direct negative effect on private-life  
35 tasks, which was only confirmed for *Maintaining positivity*. This lack of effect is not in line

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3 with research that shows negative effects on private life (Heshmati, Hoseinifar, Rezaeinejad  
4 & Miri, 2010; Shapiro, Gottman & Carrerre, 2000; Maddi, 2007; Cicognani et al., 2009;  
5  
6 Slottje et al., 2007). Research on so-called posttraumatic growth shows the importance of  
7  
8 maintaining positivity. Positive emotions can foster posttraumatic growth and enhance  
9  
10 psychological resources, which act as buffers against depressive symptoms (Calhoun &  
11  
12 Tedeschi, 2014). A lack of *Maintaining positivity* makes it difficult to handle the negative  
13  
14 impact of major events (Frederickson, 2000).  
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19 Contrary to hypothesis 5, no direct effects of workload were found on private-life tasks. This  
20  
21 is not in line with research showing a negative impact of workload on private life (Shreffler,  
22  
23 Meadows, & Davis, 2011; Innstrand, S. T., Langballe, E. M., Espnes, G. A., Aasland, O. &  
24  
25 Falkum, E. 2010; Rau,2006). As argued above, this may be explained by a reduced impact of  
26  
27 workload during sick leave, whereas critical incidents continue to have an impact.  
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30 Hypothesis 6 postulated that the impact of critical incidents on private-life tasks would be  
31  
32 mediated by mental health status. This hypothesis was confirmed for four life tasks, but not  
33  
34 for *Social life*. Hypothesis 7 regarding the mediation model of workload was not confirmed.  
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36 The impact of critical incidents was rather large (4 indirect and one indirect effect) and  
37  
38 represents a process of erosion; while employed, critical incidents degrade mental health  
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40 status, which in turn reduces the effectiveness in private-life tasks. This process is a typical  
41  
42 example of the loss spiral described by Bakker and Demerouti (2012) and confirm the  
43  
44 diminished process (decline of resources) in the work-home resources model (W-HR) (  
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46 Brummelhuis & Bakker, 2012). Critical incidents diminish mental health and cause lower  
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48 perceived effectiveness in private life tasks.  
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53 The current study showed that effectiveness in life tasks is mediated by mental health status.  
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55 These processes have been shown in longitudinal studies, including Sterud et al. (2011),  
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57 Morren et al. (2007), and Wang et al. (2010). Although very little is known about the factors  
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3 that determine the impact on private-life tasks, some general remarks can be made. For police  
4 officers, critical incidents may have additional consequences; their home can become unsafe  
5 due to triggers related to critical incidents. Rosner and Powell (2014) showed the importance  
6 of safety and the fulfillment of basic needs to foster post traumatic growth. In a meta-analysis  
7 of predictors of PTSD, Bredwin, Andrews, and Valentine (2000) concluded that people who  
8 live in unsafe circumstances and lack basic needs have a higher risk of developing PTSD  
9 symptoms. This is applicable to the present group of police officers, who appear to  
10 experience working and living in the same location as a burden because they are confronted  
11 in private life with an environment in which critical incidents occurred and with unsafe  
12 situations due to their professional knowledge and experience. Furthermore, they can miss  
13 basic needs and may, for example, experience financial problems due to lower income and ill  
14 health.

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30 The life task *Social Life* was not affected by work demands. One explanation may be that  
31 police officers' function in a team and regard themselves as effective in social relations.  
32  
33 Bartone (2002) showed camaraderie in militaries. Argentero (2011), Sterud (2011), show the  
34 importance of colleague and supervisor support for job satisfaction and mental health.  
35  
36 Another probable explanation is that they also find it important to keep functioning in the  
37 outside world normally, notwithstanding a low mental health status. Finally, they may find it  
38 difficult to admit their weaknesses. To be able to cope with the (occasionally extreme)  
39 demands of their work, it is important to have a strong self-presentation (Bakker et al., 2015)  
40 to the outside world. These interpretations are also based on our experience obtained in  
41 providing psychological help to rescue workers. The concept of perceived effectiveness,  
42 measured with the life task test, can be defined as the ability to master one's life, even under  
43 very demanding (work) circumstances. Perceived effectiveness provides control, which is an  
44 important basis for mental health (Bakker et al., *in press*). Although this concept is situation-

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3 specific, it has several similarities to that of self-efficacy as introduced by Bandura in 1997.  
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5 Self-efficacy has been demonstrated to play a critical role in the recovery from posttraumatic  
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7 stress (Bandura, Caprara, Barbaranelli, Gerbino; Benight & Harper 2002; & Patterson, 2003)  
8  
9 and the impact of loss of resources (Benight, Ironson & Durham, 1999). Several studies  
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11 (Prati, Pietrantonio & Cicognani, 2010; Regehr, Hill & Cla, 2003; Heinrichs, Wagner, Schoch,  
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13 Soravia & Hellhammer, 2005) have shown that self-efficacy buffered the impact of stressful  
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15 encounters on the quality of life.  
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### 21 **Limitations of this study and future research**

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23 This research focused on one specific sample group: police officers with psychological health  
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25 complaints currently on sick leave. The high scores on mental health problems corroborate  
26  
27 the specificity of this group. The experienced workload may have been lower because at the  
28  
29 time of the study, they were at home and not confronted with the daily hassles of the  
30  
31 workload. During sick leave, critical incidents can have more impact as they tend to weigh on  
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33 the mind. We recommend performing similar research on healthier groups, both in the police  
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35 and among other rescue workers functioning on the front line. The lack of a comparison  
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37 group in this study makes it difficult to generalize the results to other groups. For future  
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39 research it is important to include a control group.  
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45 Another point of attention is that in research, a variety of instruments are used to  
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47 measure critical incidents. It is suggested that future research use a standardized instrument  
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49 regarding the type of questions and period measured. Additionally, more longitudinal studies  
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51 (such as Sterud et al., 2011) are needed to examine the long-term effects of this depletion  
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53 process. Future research should pay more attention to the influence of the professional and  
54  
55 private contexts on mental health, rather than treating it as an isolated phenomenon, unrelated  
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57 to the resources, or lack of them, of daily work and life. In addition, more longitudinal  
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3 research is needed if we are to gain more insight into the loss spiral and process of erosion in  
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5 rescue work and the prevention of this process.  
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### 10 **Practical implications**

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12 Our results provide several clues to improve interventions and training for rescue  
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14 workers. This is in line with the review of Van de Kolk (2015) on guidelines for the treatment  
15  
16 and support of traumatized people; he stressed the importance of psychological training for  
17  
18 veterans in their everyday lives. They should be trained to cope with stressful job demands to  
19  
20 prevent negative spillover from work to private-life tasks. When treating mental health  
21  
22 problems, such as PTSD, depression and anxiety, recovery of effectiveness in life tasks may  
23  
24 help to improve mental health. Individuals who function well in life tasks feel energized and  
25  
26 fulfilled, even in high-risk jobs. Sacrificing effectiveness in private life and losing resources  
27  
28 is too high a price to pay for rescue work. Prevention in the form of increased recovery time,  
29  
30 personal influence on the choice of shifts, temporary retreat from the line of fire, limitations  
31  
32 to years on the front line, support from colleagues and leaders and on-the-job mental health  
33  
34 training can be meaningful and help to maintain resources. More research still has to be  
35  
36 conducted on identifying and implementing buffering effects. Furthermore, it would be  
37  
38 helpful if the idea that a high-risk job demands a high-care job context would find more  
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40 acceptance.  
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For Peer Review

Table 1

*Descriptive Statistics, and Intercorrelations.*

	<i>Mean</i>	<i>Sd.</i>	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>	<i>6</i>	<i>7</i>	<i>8</i>
1. Critical incidents	25.93	18.51								
2. Workload	3.07	.57	-.13**							
3. Mental health status	185.51	57.79	-.19*	-.08						
4. Social life	3.73	.49	-.09	.11	-.14					
5. Mental health	3.20	.67	.04	.09	-.47**	.31**				
6. Household and finance	3.86	.62	.06	-.01	-.25**	.28**	.44**			
7. Giving meaning	3.79	.50	.02	-.02	-.26**	.27**	.50**	.39**		
8. Maintaining positivity	3.02	1.11	-.30**	.09	-.48*	.09	.35**	.16*	.27*	

*Note.* \*  $p < .05$ , \*\*  $p < .01$ .  $N = 166$



Table 2

Results on the effects of Critical incidents (Cri) on Mental Health Status (Mhs) and life tasks, as well as the effects of critical incidents on life tasks as mediated by mental health status (bootstrapping).

<i>Direct Effects</i>	<i>b</i>	<i>SE</i>	<i>t</i>	<i>p</i>	<i>95% CI</i>	
Cri – Mhs	.59	.24	2.47	.01*	.12	– 1.06
Cri – Social life	-.002	.00	-.75	.46	-.01	– .003
Cri – Mmh	-.005	.00	-1.84	.07	-.0003	– .01
Cri – Household and finance	-.004	.00	-1.47	.14	-.001	– .01
Cri – Giving meaning	.002	.00	.96	.34	-.002	– .01
Cri – Maintaining positivity	-.01	.00	-3.16	.002**	-.02	– -.00
Mhs – Social life	-.001	.00	-1.58	.12	-.002	– -.00
Mhs – Mmh	-.01	.00	-7.06	.01**	-.01	– -.00
Mhs – Household and finance	-.003	.00	-3.52	.01**	-.005	– -.00
Mhs – Giving meaning	-.002	.00	-3.52	.01**	-.004	– -.00
Mhs – Maintaining positivity	-.01	.00	-6.41	.01**	-.011	– -.01
<hr/>						
<i>Indirect Effects: Bootstrapping</i>	<i>b</i>	<i>SE</i>			<i>95% CI</i>	
Cri – Mhs – Social life	-.001	.00			-.003	– .0001
Cri – Mhs – Mmh	-.003	.00			<b>-.01</b>	– <b>-.0006</b>
Cri – Mhs – Household and finance	-.002	.00			<b>-.001</b>	– <b>-.0003</b>
Cri – Mhs – Giving meaning	-.001	.00			<b>-.004</b>	– <b>-.0002</b>
Cri – Mhs – Maintaining positivity	-.01	.00			<b>-.011</b>	– <b>-.001</b>

Note. N =166. CI = confidence interval 95%; \* p < .05, \*\* p < .01. Confidence Intervals in bold are significant. MMH = Maintaining mental health.

Table 3

Results on the effects of Workload on Mental Health Status and life tasks, as well as the effects of workload on life tasks as mediated by mental health status (bootstrapping).

<i>Direct Effects</i>	<i>b</i>	<i>SE</i>	<i>t</i>	<i>p</i>	<i>95% CI</i>
WI – Mhs	-.08	.08	-1.00	.32	-.23 – .08
Mhs – Social life	-.05	.04	1.24	.22	-.03 – .12
Mhs – Mmh	-.04	.05	.83	.41	-.05 – .13
Mhs – Household and finance	-.01	.05	-.34	.73	-.11 – -.08
Mhs – Giving meaning	-.02	.04	-.53	.60	-.10 – -.06
Mhs – Maintaining positivity	-.06	.08	-.79	.43	-.09 – -.21
WI – Social life	-.06	.04	-1.65	.10	-.14 – .01
WI – Mmh	-.31	.05	-6.69	.001**	-.40 – -.22
WI – Household and finance	-.15	.05	-3.30	.001**	-.25 – -.06
WI – Giving meaning	-.13	.04	-3.42	.001**	-.21 – -.06
WI – Maintaining positivity	-.53	.08	-6.86	.01**	-.68 – -.37
<hr/>					
<i>Indirect Effects: Bootstrapping</i>	<i>b</i>	<i>SE</i>		<i>95%</i>	<i>CI</i>
WI – Mhs – Social life	.005	.01		-.003	.03
WI – Mhs – Mmh	.02	.03		-.03	.08
WI – Mhs – Household and finance	.01	.01		-.01	.05
WI – Mhs – Giving meaning	.01	.01		-.01	.04
WI – Mhs – Maintaining positivity	.04	.04		-.04	.13

Note.  $N = 166$ . \*  $p < .05$ , \*\*  $p < .01$ . Confidence Intervals in bold are significant. MMH = the life task of "Maintaining Mental Health".