

# Standby Duty and Well-Being in Aviation: Moderating effects of personality factors



## Introduction

Standby duty is an aviation specific form of on-call work that can be described as background duty. Employees can freely choose their whereabouts, but have to be available and must be at work within a certain time. Research in other sectors shows negative impacts of on-call work on employees in terms of increased stress, impairment of sleep and mental health (Nicol & Botterill, 2004; Vahle-Hinz & Bamberg, 2009). These effects occurred regardless of whether employees were called or not (Bamberg, Dettmers, Funck, Krähe, & Vahle-Hinz, 2012).

In this study we investigated the impact of standby duty on well-being, quality of sleep and irritation of aviation personnel. Furthermore we considered moderating effects of personality traits like self-efficacy and worry disposition.

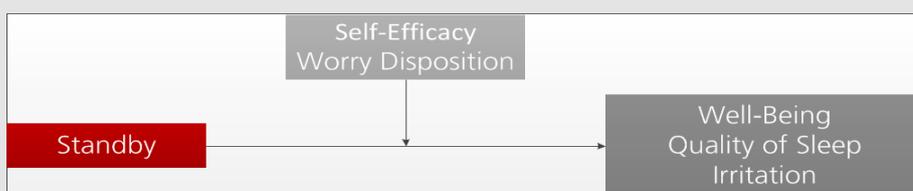
## Hypotheses

H1: Standby duty negatively effects well-being, quality of sleep, and irritation.

H2: Employees with a higher self-efficacy suffer less from standby.

H3: Employees with a lower worry disposition suffer less from standby.

## Research Model



## Method

### Sample and Procedure

N=37 pilots and flight attendants of a German airline participated in an electronic diary study comparing standby duty and days off representing the day level.

In addition, they completed an online questionnaire to assess organizational and personal factors representing the person level.

Mean age: M=36,32 (SD=7,89)

Male: 73%; Pilots: 62,2%.



## Measures

### Well-being:

Day Level: 6 Items on a 6-point scale - Multidimensional Mood Questionnaire (MDMQ; Wilhelm & Schoebi, 2007)

### Quality of Sleep:

Day Level: 4 items on the basis of a sleep problem scale (Jenkins, Stanton, Niemczyk, & Rose, 1988)

### Irritation:

Day Level: 7 items on a 5-point scale - Irritation Scale (Mohr, Rigotti, & Müller, 2009)

### Standby:

Day Level: 4 days Standby (2 weekdays and two weekends), 2 days off

### Self-efficacy:

Person Level: 10 items on a 4-point scale – General self-efficacy scale (Schwarzer & Jerusalem, 1999)

### Worry Disposition:

Person Level: 4 items on a 5-point worry disposition scale (Schulz, Schlotz, & Becker, 2004)

## Analyses

Multi-level approach (HLM).

Model 1: Null model

Model 2: Standby duty group mean centered on the day level as predictor.

Model 3: Person level-predictors (grand mean centered) testing main and interaction effects with standby duty.

## Results

Model 2:

$$Y_{ij} = \beta_{0j} + \beta_{1j}SD_{ij} + r_{ij}$$

$$\beta_{0j} = \gamma_{00} + u_{0j}$$

$$\beta_{1j} = \gamma_{10} + u_{1j}$$

	Well-Being		Sleep Quality		Irritation	
	B	SE	B	SE	B	SE
Intercept Day-Level	2.54***	.10	2.66***	.12	2.01***	.11
Standby Duty (SD)	-.32*	.02	-.41**	.11	.25*	.12

\* p < .10. \*\* p < .05. \*\*\* p < .001.

Model 3:

$$Y_{ij} = \beta_{0j} + \beta_{1j}SD_{ij} + r_{ij}$$

$$\beta_{0j} = \gamma_{00} + \gamma_{01}SE_{0j} + \gamma_{02}WD_{0j} + u_{0j}$$

$$\beta_{1j} = \gamma_{10} + \gamma_{11}SE_{1j} + \gamma_{12}WD_{1j} + u_{1j}$$

	Well-Being		Sleep Quality		Irritation	
	B	SE	B	SE	B	SE
Intercept Day-Level						
Intercept Person-Level	2.46***	.10	2.24***	.11	2.01***	.10
Self-Efficacy (SEF)	.22	.24	.25	.32	-.30	.23
Worry Disposition (WD)	-.03	.12	-.23*	.11	.30**	.10
Standby Duty (SD)						
Intercept Person-Level	-.32*	.15	-.39**	.11	.25*	.11
Self-Efficacy (SEF)	.66	.43	.07	.30	-.60*	.25
Worry Disposition (WD)	.03	.18	.10	.09	-.09	.12

\* p < .10. \*\* p < .05. \*\*\* p < .001.

## Conclusion

1. Standby duty negatively effects employees' well-being, quality of sleep, and irritation.
2. Self-efficacy does not have a direct effect on the DVs, but employees with a higher self-efficacy suffer less from standby concerning irritation.
3. Lower worry disposition positively effects quality of sleep and irritation, but has no interaction effect with standby duty.

## References

- Bamberg, E., Dettmers, J., Funck, H., Krähe, B. Vahle-Hinz, T. (2012). Effects of on-call work on well-being: Results of a daily survey. *Applied Psychology: Health and Well-Being*, 4, 299-320.
- Nicol, A.-M. & Botterill, J. S. (2004). On-call work and health: A review. *Environmental Health: A Global Access Science Source*, 3, 15.
- Vahle-Hinz, T. & Bamberg, E. (2009). Flexibilität und Verfügbarkeit durch Rufbereitschaft: Die Folgen für Gesundheit und Wohlbefinden. *Arbeit*, 18, 327-339.