

# Healthy Universities

Exploring basic psychological  
needs and health among academics

Siw Tone Innstrand, PhD

NTNU Center for Health Promotion Research

Cristina Banks, PhD

Christina Maslach, PhD

Christopher Lowenstein, MPH

**healthyworkplaces**  
AN INTERDISCIPLINARY CENTER

 **NTNU** Norwegian University of Science and Technology



# A health-promoting university



“creates a learning environment and organizational culture that enhances the health, well-being and sustainability of its community and enables people to achieve their full potential”

[www.healthyuniversities.ac.uk](http://www.healthyuniversities.ac.uk)

# Aim

What are the most important psychological needs that influence the health positively or negatively as perceived among employees in university settings?

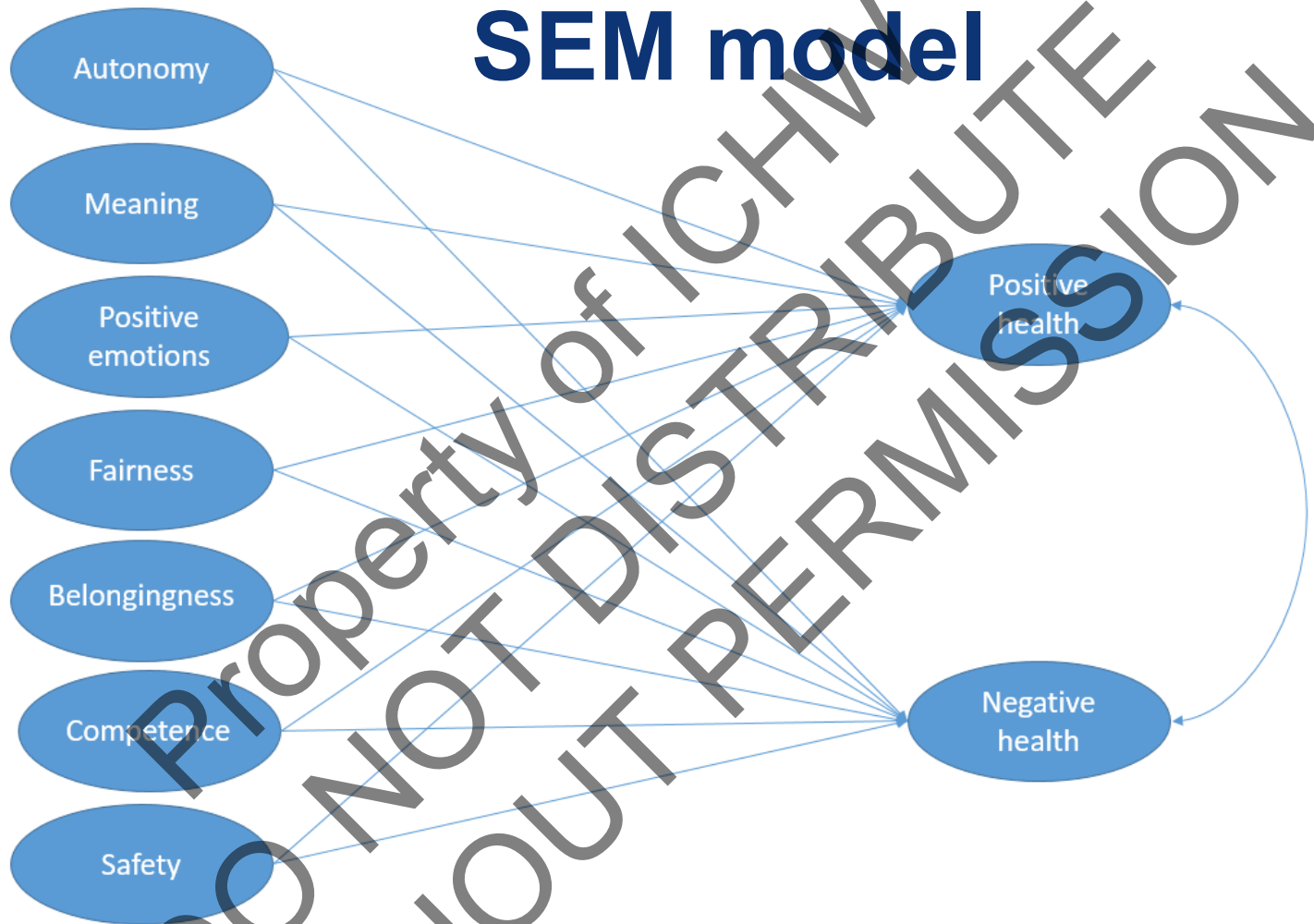


- Gender differences
- Occupational group differences

(Academics / Technical-Administrative staff / Doctorial research fellows)



# SEM model





Arbeidsmiljø- og klimaundersøkelser



- Norwegian acronym for work environment and climate study
- Health promoting intervention program in the university setting
- 18 universities and colleges in Norway (N>15.000)
- KIWEST (Knowledge Intensive Work Environment Survey Target) questionnaire

# Measures

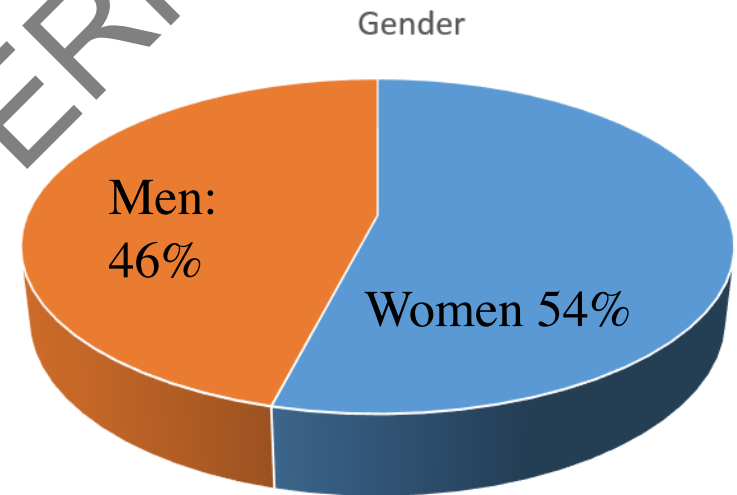


- **Autonomy** – Job autonomy. e.g., “I have a sufficient degree of influence in my work” (Näswall et al., 2010)
- **Competence** – Task completion ambiguity. e.g., “I know when a task is completed”. (Hellgren et al., 2008)
- **Belongingness** - Social community at work. e.g., “There is a good atmosphere between me and my colleagues” (Pejtersen et al., 2010)
- **Psychological safety** - Trust in unit management. e.g., “My unit management is always reliable.” (Näswall et al., 2010)
- **Fairness** - Recognition. e.g., “I am treated fairly by the unit management.” (Pejtersen et al., 2010)
- **Meaning** – e.g., “My work is meaningful” (Pejtersen et al., 2010)
- **Positive emotions** - Utrecht Work Engagement Scales (UWES) e.g., “At my work, I feel bursting with energy” (Schaufeli, Bakker, & Salanova, 2006)
- **Health**- “My work has a positive/negative influence on my health”

# Sample



- Employees with regular payroll for minimum 20% position (N=12,170)
  - 4,562 Academics (research and teaching)
  - 1,452 PhD students
  - 5,519 Administrative/technical staff
  - 637 Leaders



# Statistical analyses



The data analyses proceeded in three steps.

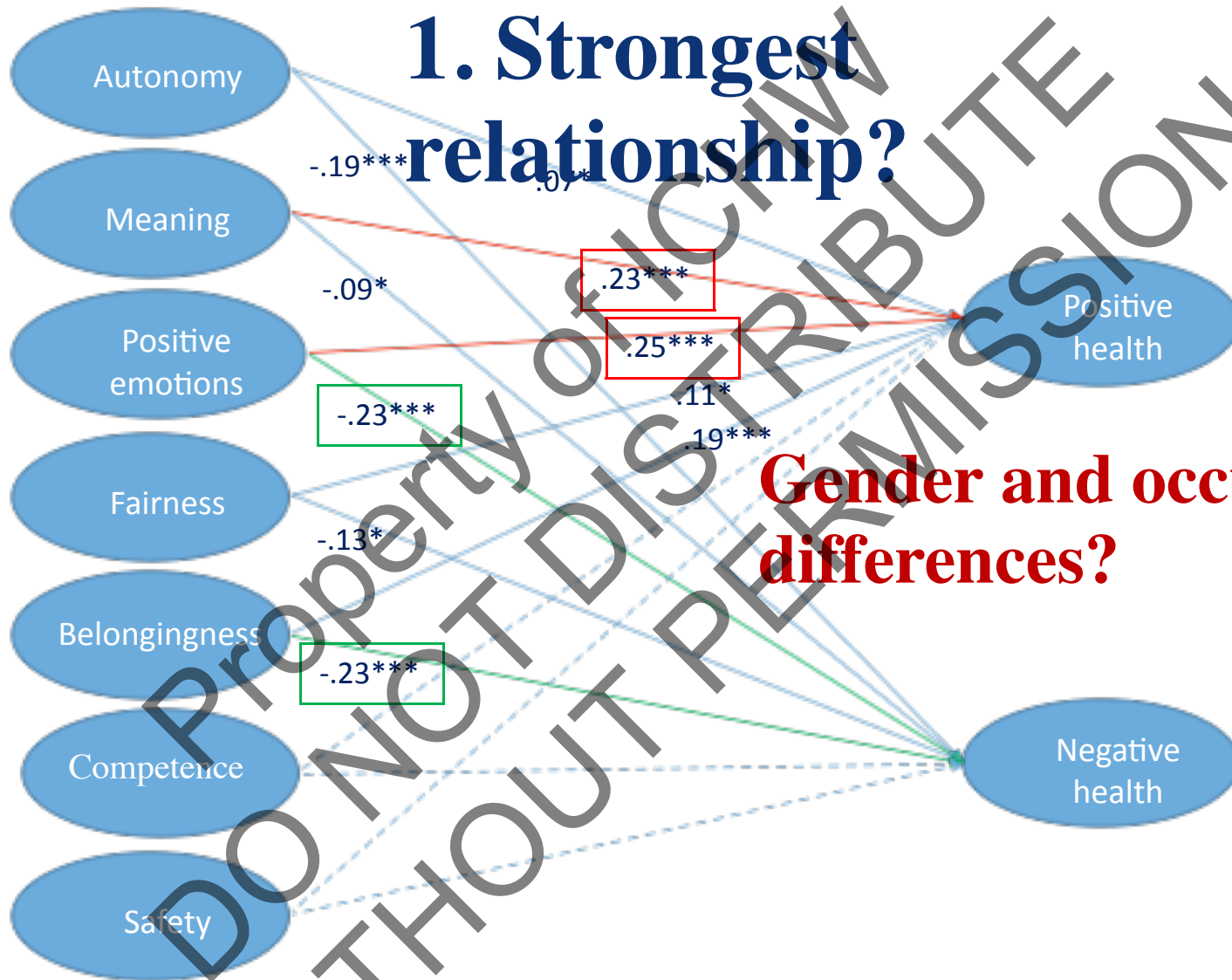
Confirmatory factor analyses (CFA)

Structural equation modeling (SEM)

Multi-group analyses in SEM\*

\*As latent variables are not associated with measurement error, latent mean analysis is more sensitive than traditional statistical techniques like and is more likely to detect between-group differences (Hancock, Lawrence, & Nevitt, 2000; Hong, Malik, & Lee, 2003).

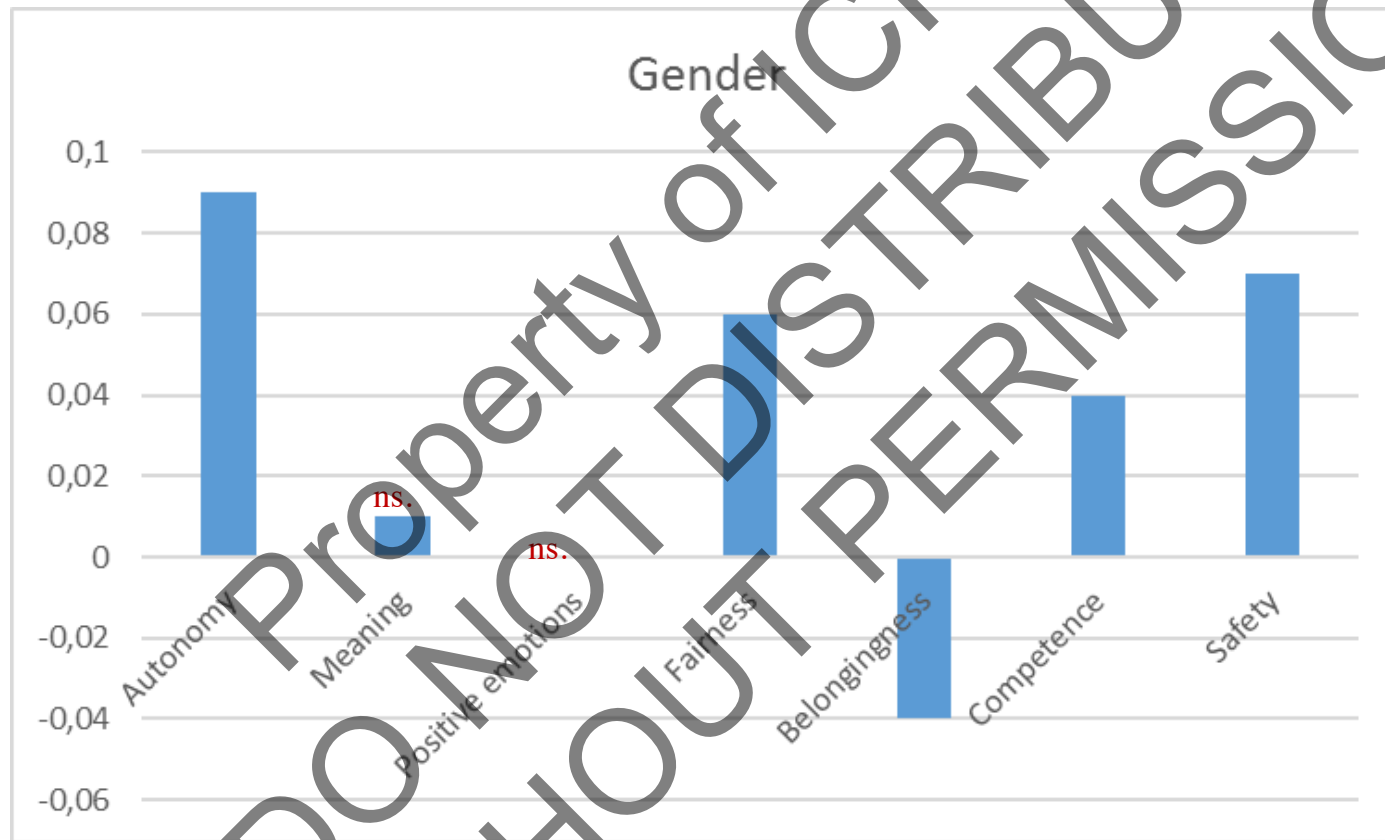
# 1. Strongest relationship?

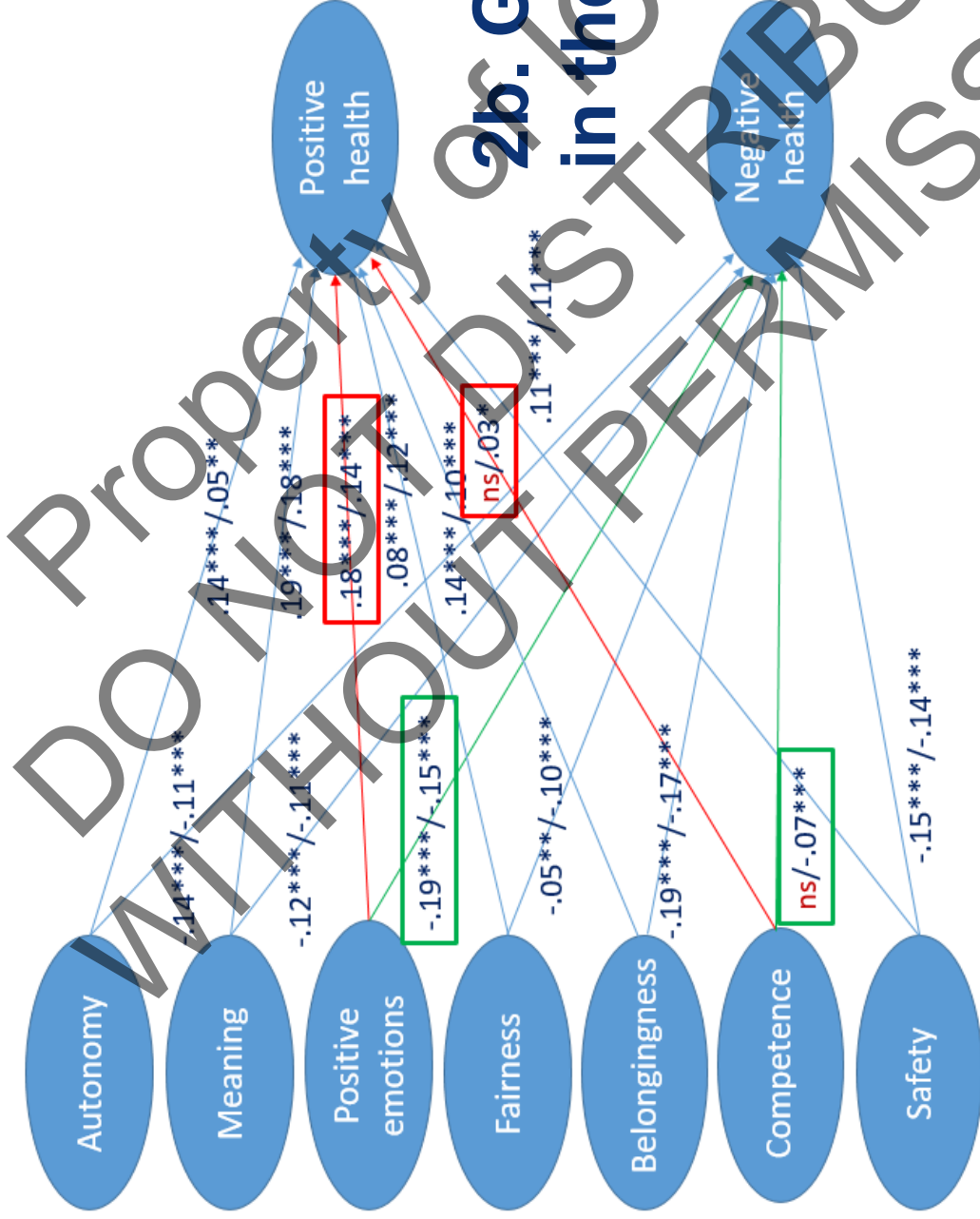
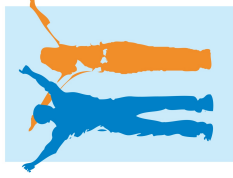


**Gender and occupational differences?**

## 2a. Gender differences in the level of needs

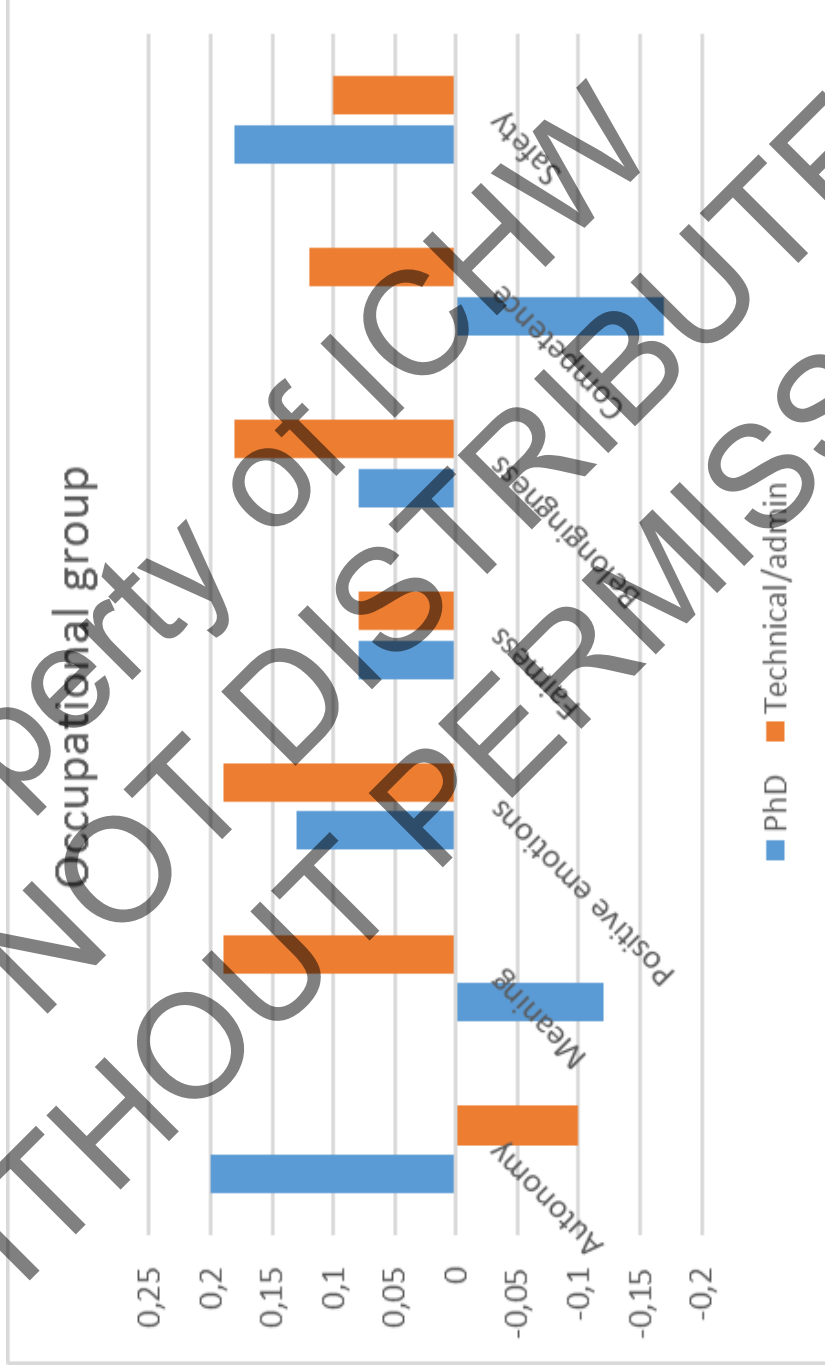
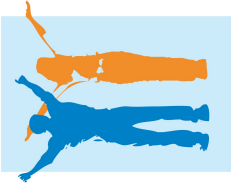
(Multi-group analyses: Female used as reference group)

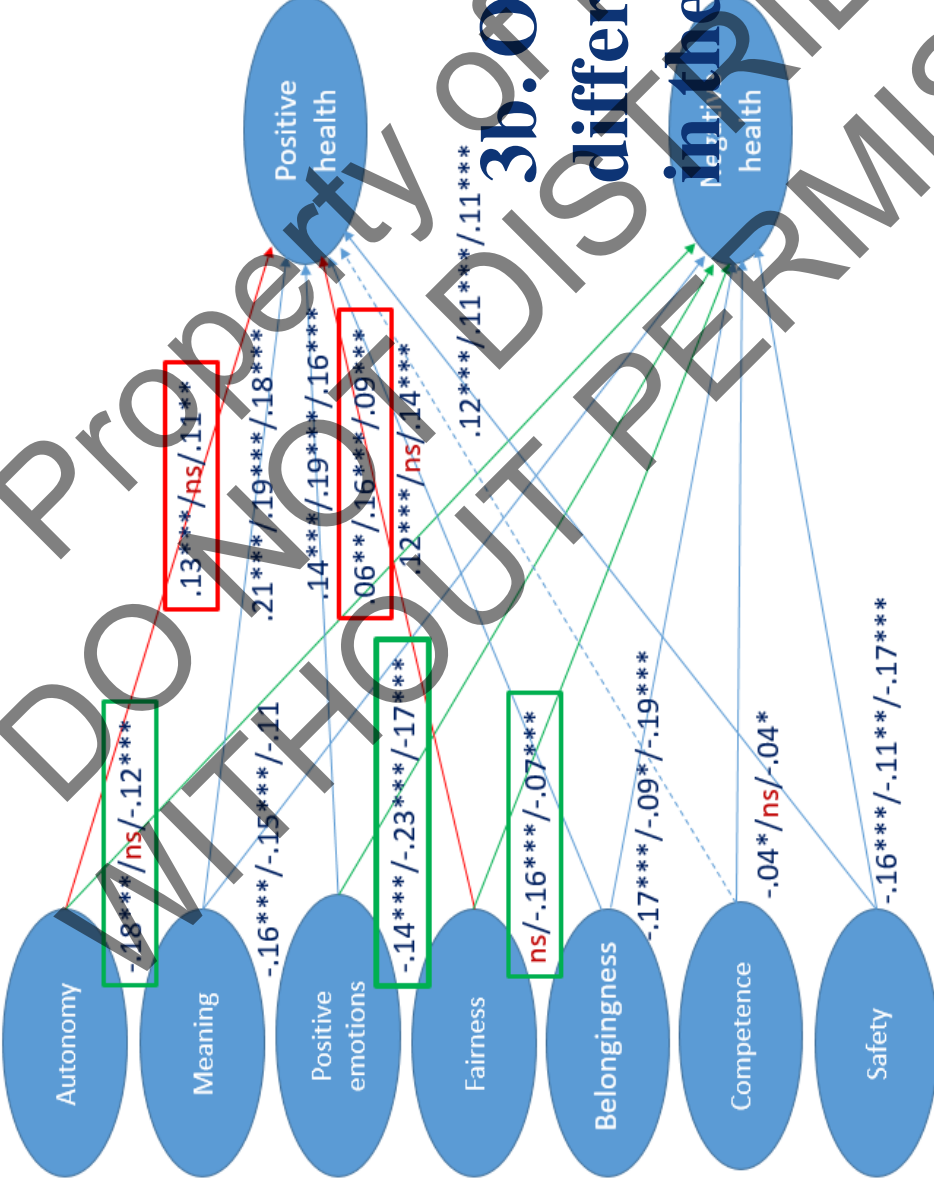




## 2b. Gender differences in the relationships (Female/Male)

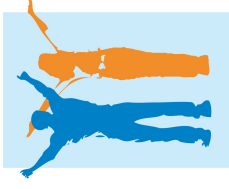
### 3a. Occupational differences in the level of needs (Multi-group analyses: Academics used as reference group)



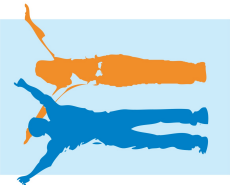


### 3b. Occupational differences in the relationships

(Academics/PhD/Technical-Admin)



# Summary and practical implications

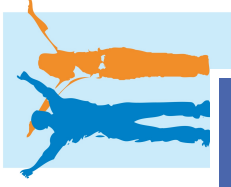


- Needs relate differently to positive and negative health  
→ *Mechanisms for promoting health are likely to differ from those for preventing illness*
- Gender and occupational groups differ in the level of needs  
→ *Why these differences exist needs to be explored further*
- There are gender and occupational differences in how needs are related to positive and negative health



Property of ICHW  
DO NOT DISTRIBUTE  
WITHOUT PERMISSION  
**Thank you**

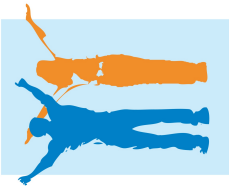
# Means and Standard deviation (SD) for latent



| Needs             | All  |      | Female |      | Male  |      |
|-------------------|------|------|--------|------|-------|------|
|                   | Mean | SD   | Mean   | SD   | Mean  | SD   |
| Autonomy          | 3.84 | .64  | 3.81   | .64  | 3.89  | .64  |
| Meaning           | 4.01 | .68  | 4.01*  | .67  | 4.01* | .68  |
| Positive emotions | 4.58 | 1.05 | 4.60*  | 1.05 | 4.56* | 1.05 |
| Fairness          | 3.79 | .85  | 3.76   | .85  | 3.82  | .85  |
| Belongingness     | 3.97 | .77  | 4.00   | .76  | 3.94  | .77  |
| Competence        | 3.58 | .79  | 3.57   | .81  | 3.61  | .77  |
| Safety            | 3.71 | .91  | 3.68   | .92  | 3.76  | .91  |

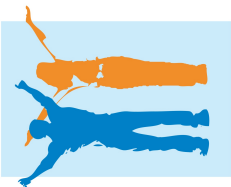
\*Not significant different

# Means and Standard deviation (SD) for latent variables



|                   | Academics   |           | Doctorial Research Fellows |           | Technical/ Administrative |           |
|-------------------|-------------|-----------|----------------------------|-----------|---------------------------|-----------|
|                   | <u>Mean</u> | <u>SD</u> | <u>Mean</u>                | <u>SD</u> | <u>Mean</u>               | <u>SD</u> |
| Autonomy          | 3.86        | .65       | 4.03                       | .58       | 3.77                      | .63       |
| Meaning           | 4.12        | .63       | 4.00                       | .75       | 3.92                      | .68       |
| Positive emotions | 4.72        | .94       | 4.55                       | 1.02      | 4.47                      | 1.12      |
| Recognitions      | 3.74        | .90       | 3.81                       | .74       | 3.83                      | .84       |
| Belongingness     | 3.87        | .80       | 3.93                       | .75       | 4.06                      | .73       |
| Competence        | 3.67        | .76       | 3.49                       | .81       | 3.54                      | .81       |
| Safety            | 3.64        | .97       | 3.82                       | .79       | 3.74                      | .90       |

# SDT: autonomy, competence, and relatedness



7 “*Essential elements*” for the twenty-first-century faculty work:

Academic freedom  
Professional growth  
Collegiality  
Job security  
Equity  
Shared governance  
Respect

(Gappa & Austin, 2010)

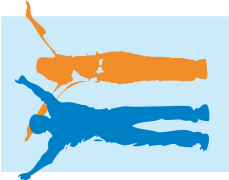
7 “*Needs*” with potential to boost work motivation and well-being:

Autonomy  
Competence  
Belongingness  
Psychological safety  
Fairness  
Meaning  
Positive emotions

(Maslach & Banks, in press)

# Results

Multi-group differences in the level of needs



| Group              | Autonomy | Meaning | Positive emotions | Fairness | Belongingness | Competence | Safety |
|--------------------|----------|---------|-------------------|----------|---------------|------------|--------|
| Gender             |          |         |                   |          |               |            |        |
| Male               | 0.09***  | .01     | -.00              | .06***   | -.04**        | .04*       | .07*** |
| Occupational group |          |         |                   |          |               |            |        |
| Technical/admin    | -.10***  | -.19*** | -.19***           | .08***   | .18***        | -.12**     | .10*** |

NTNU used as reference group with mean level constrained to be 0. \* p < 0.05; \*\* p < 0.01; \*\*\* p < 0.001.