

Designing and evaluating OHS intervention programmes in small enterprises (focus on the construction industry)

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The aim of this presentation

1. To address the challenges of designing intervention programmes by presenting a systematic model for the tailoring process based on our latest article
2. To illustrate how existing evidence can be used in the design of new intervention programmes through a case study: a tailored working environment intervention programme for small enterprises in the construction industry
3. To outline the evaluation design of this intervention and some preliminary results

Hasle, P., Kvorning, L.V., Rasmussen, C.D., Smith, L.H., Flyvholm, M.A., 2012. *A model for design of tailored working environment intervention programmes for small enterprises*. Safety and health at work 3.

The political setting for our case study

The Prevention Fund

- was established by Danish Government in 2007
- has the objective to reduce long-term effects of physical strain in the musculoskeletal system along with psychosocial exposures and health promotion and avoid exclusion from the labour market
- grants financial support – ca. 70 million NZD annually.

Outcome: Small enterprises did not apply => Design of Prevention Packages for small enterprises

The Prevention Packages

- Designed in 2010 by researchers from NRCWE and Danish Working Environment Authority, launched in 2011.
- Predefined interventions consisting of a specific description and a budget
- Should exceed the minimum requirements of the law, implementable with a minimum of external support and low costs
- Should be evidence-based interventions and focus on essential work environment problems (in relation to musculoskeletal discomfort, psychosocial exposures and health promotion) and concrete, effective solutions and methods (context specific)
- Enterprises could choose to participate on a voluntary basis

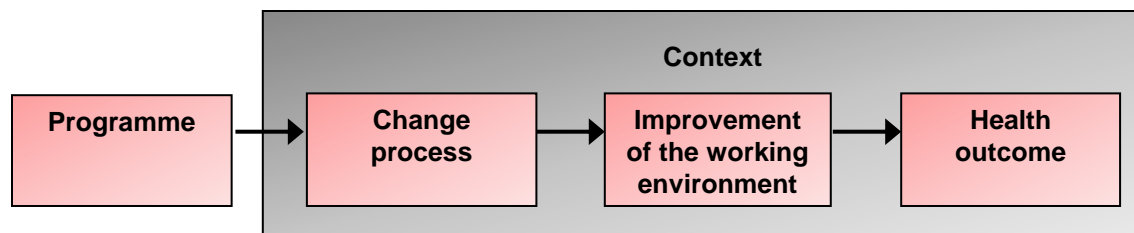
Development of the prevention packages

- **Political objective:** to reduce long-term effects of physical strain in the musculoskeletal system along with psychosocial exposures and health promotion and avoid exclusion from the labour market
- **Target group(s):** small enterprises in high-risk sectors (the construction industry among others e.g. auto repair shops, cleaners, taxi-drivers)
- **Theory-based interventions:** outlining the underlying assumptions (the programme theory) of how the prevention packages would work in the target group

Development of the Prevention Packages

The systematic model's five steps:

1. Identifying occupational health and safety challenges of the target group
2. Selecting methods to improve the working environment
3. Identifying mechanisms that would motivate the target group to change of action
4. Analysing the specific context of the target group
5. Designing the intervention based on the preceding steps



Step 1) Identifying occupational health and safety challenges of the target group

The evidence available:

- Review of intervention studies (academic research)
- Reports and studies about the sector (grey literature)
- Quantitative and qualitative data from inspections from the Authority
- Qualitative data from workplace visits, labour unions, employers' associations, etc.

Results of the review

- high exposure to physically demanding work tasks, such as heavy lifting and carrying as well as awkward working postures
- high prevalence compared to other sectors of MSD, sickness, absence, and early retirement , but no higher prevalence of psychosocial exposures

Step 2) Selecting methods to improve the working environment

- Reduction of heavy lifting using technical equipment
- Improve planning and coordination – systematic OHS approach
- Health promotion (training) – *NB not possible to realise*

Step 3) Identifying mechanisms that would motivate the target group to change of action

- Economic support – compensation, hire of technical equipment
- Facilitator from the Danish Working Environment Authority (equivalent to DoL inspector)
- Introduction of the programme by the labour unions, employer associations, the labour inspectors, etc.

Step 4) Analysing the specific context of the target group

Characteristics of small enterprises:

- Owner-manager role
- Social relations
- Perception of working environment

Characteristics of small construction enterprises:

- Temporary nature of the work
- Few facilities at home address
- Difficulties in planning due to e.g. limited possibilities to control the construction process

Step 5) Designing the intervention based on the preceding steps

The Prevention Packages for the construction industry:

- Small enterprises: ≤ 9 employees could apply
- Length of process: three to six months
- Financial support: predefined budget (salaries and costs during the implementation process)
- A facilitator from the Danish Working Environment Authority
- A step-by-step manual/guide describing the implementation process

Two prevention packages

1) Prevention Package: Heavy lifting and use of technical aids

- i. Discussing the work routines and tasks in terms of what technical equipment would be relevant for the enterprise
- ii. Demonstrating and testing of the technical equipment
- iii. Evaluating and planning the use of technical equipment in both short-and long-term projects

2) Prevention Package: Improved planning and coordination

- i. Discussing how the work is planned and what should be changed
- ii. Introducing new planning tools e.g. kick-off meetings, construction meetings, toolbox meetings
- iii. Implementating and evaluating the new tools

Participating enterprises

In total 165 enterprises were approved for a Prevention Package

- Heavy lifting and use of technical aids = 117
- Improved planning and coordination = 21
- Both packages = 27

The applicants were

- Carpenters = 66
- Electricians = 36
- Bricklayers = 26
- Plumbers = 26
- Others = 11

Evaluation of the Prevention Packages

- Mixed-method study design
 - Self-reported questionnaires
 - Qualitative data (telephone and face-to-face interviews, focus group interviews)
- Thematic content analysis based on theoretical assumptions (the programme theory)

Mixed-method study design

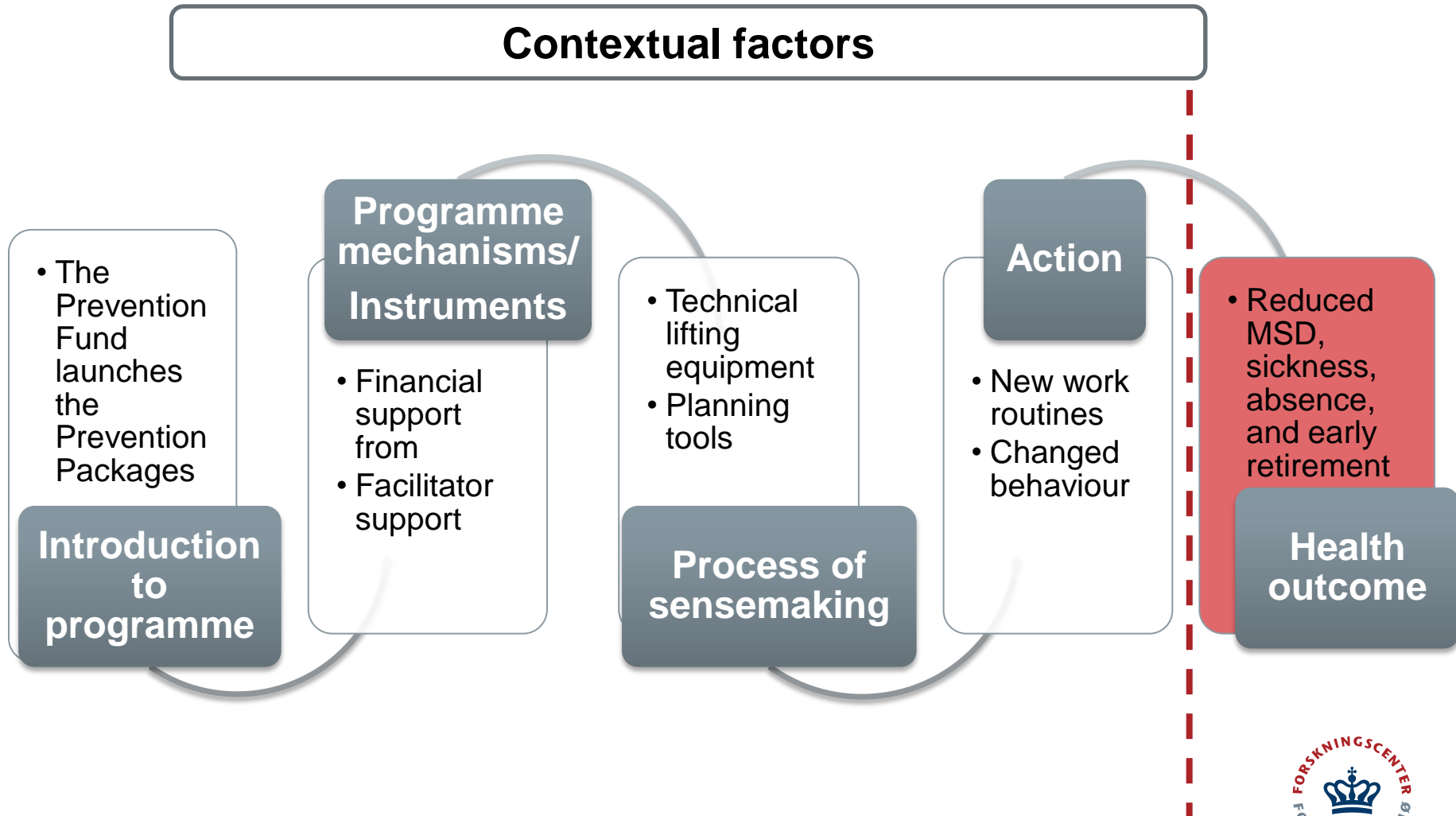
Quantitative data

- Self-reported questionnaires at the start and at the end of the process to all participants (manager and employee)
 - Outcome measures: e.g. psycho-social work environment, musculoskeletal discomfort, physical work environment, health promotion, workability, sickness absence
 - Process measures: e.g. introduction, expectations, motivation, readiness for change, participation, improvements
- Self-reported questionnaires at the start and at the end of the process to all participating managers
 - Background information:: e.g. management, organisational structure, contextual changes
 - Process measures: e.g. introduction, expectations, motivation, the facilitator engagement, improvements

Qualitative data

- Telephone interview survey with 20 managers => 9 cases selected
- Face-to-face interviews with managers (midway, end and follow up)
 - Questions on e.g. management, organisational structure, OHS, contextual changes, introduction, expectations, motivation, the facilitator, engagement, implementation process, improvements
- Focus group interviews with employees (end)
 - Questions on e.g. introduction, the facilitator, engagement, i implementation process, improvements
- Face-to-face interviews with facilitator from the 'Authority' of each of the selected enterprises
 - Questions on the implementation process, improvements and evaluation
- Face-to-face interviews with employer associations, labour unions and staff from The Prevention Fund
 - Questions on introduction and engagement in the Prevention Packages

Analytical approach



Preliminary results

Introduction of the prevention packages	% of the responses (N=144)
The Danish Working Environment Authority	72%
Employer association	25 %
Network	12 %
Websites or news letter	12 %
Other	13 %

The instigator of the application	% of the responses (N=145)
The employer	87%
An inspector from the Danish Working Environment Authority	27%
The employee(s)	12%
Other	1 %

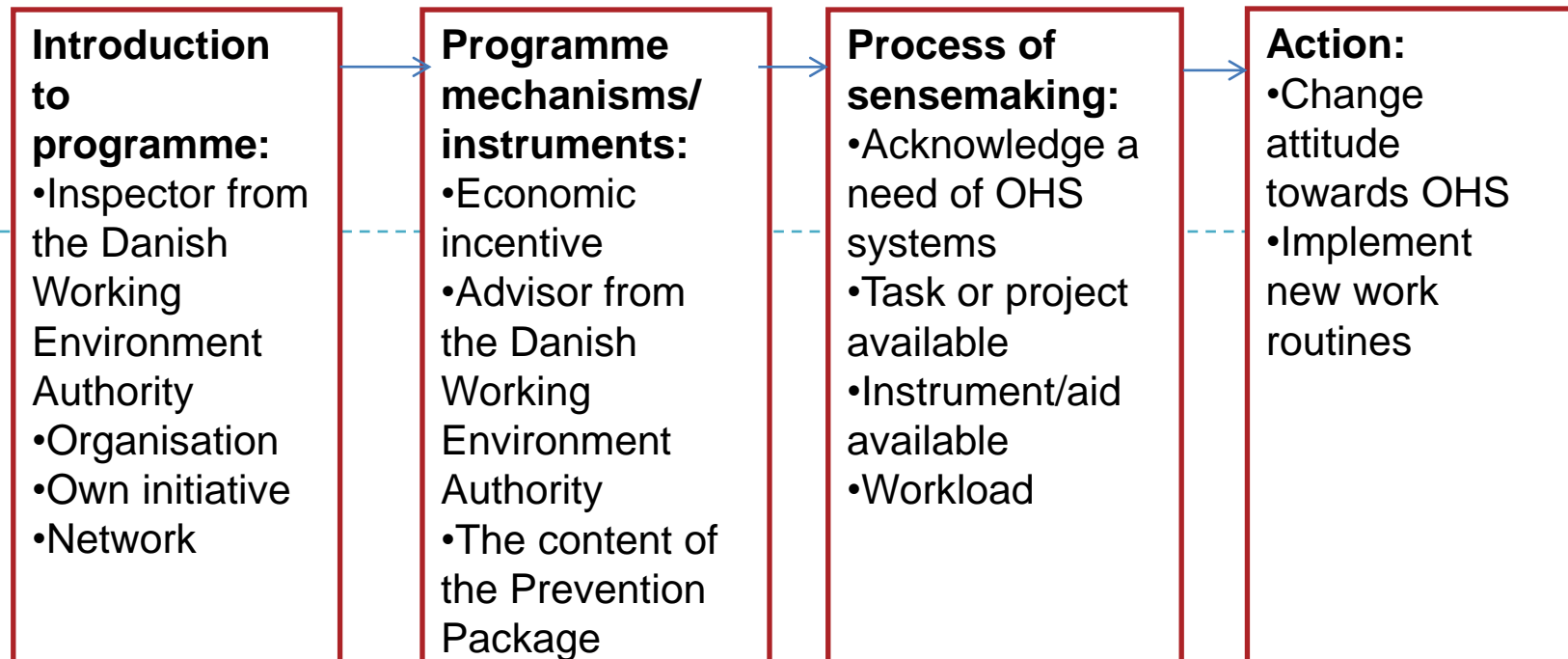
Preliminary results - The 9 case enterprises

Trade	Owner's experience	Number of employees	Employee turnover	Employed bookkeeper	Physical workplace	Prevention Package
Carpenter	14 years	5 employees	Reduced from 12 employees	Yes, part time assistant	Workshop and office	Both
Various construction work (sewer work)	23 years	1 employee	Reduced from 22 employees	No	Workshop and office at home	"Planning"
Carpenter	20 years	8 employees	Reduced from 11	Yes, assisting wife full time	Workshop and office at home	Both
Carpenter	7 years	2 employees	No changes	No	Office at home	"Planning"
Carpenter	10 years	3 employees	No changes	No	Workshop and office	"Planning"
Bricklayer	6 years	6 employees	Increased after 5 years alone	No	A small storage for equipment	"Heavy lifting"
Electrician	Not known	4 employees	Not known	No	Workshop and office	"Heavy lifting"
Bricklayer	17 years	5 employees	Increased after 1-2 years alone	Not known	Workshop and office at home	"Heavy lifting"
Carpenter	5 years	6 employees	Increased from 1 employee	Yes, part time assistant	Office at home	"Heavy lifting"

An extended programme theory

Contextual factors:

- The society: political priorities, state of the market
- The sector: attitude towards authorities, union/employer organisation, OSH standards, general procedures and requirements
- The enterprise: physical environment/workplace, experience, skills, workplace culture



Questions

- What are your experiences using the available evidence to tailor new intervention programmes to a specific target group?
- What do you do when there are only few intervention studies which include information about the implementation process as well as information about the context of the programmes?
- What do you think about the use of programme theory as a tool to identify why the programme works or not?

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Thank you for your attention

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