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Validation of the Copenhagen Psychosocial Questionnaire Version III and Establishment of Benchmarks for Psychosocial Risk Management in Sweden

Hanne Berthelsen ^{1,*} , Hugo Westerlund ², Gunnar Bergström ^{3,4} and Hermann Burr ⁵

¹ Centre for Work Life and Evaluation Studies (CTA) & the Faculty of Odontology, Malmö University, 205 06 Malmö, Sweden

² Department of Psychology, Stress Research Institute, Stockholm University, 106 91 Stockholm, Sweden; hugo.westerlund@su.se

³ Department of Occupational Health Sciences and Psychology, Centre for Musculoskeletal Research, University of Gävle, 801 76 Gävle, Sweden; gunnar.bergstrom@hig.se

⁴ Institute of Environmental Medicine, Unit of Intervention and Implementation Research for Worker Health, Karolinska Institute, 171 77 Stockholm, Sweden

⁵ Division 3 Work and Health, Federal Institute of Occupational Safety and Health (BAuA), 10317 Berlin, Germany; burr.hermann@baua.bund.de

* Correspondence: hanne.berthelsen@mau.se

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Abstract: This study presents the Swedish standard version of the Copenhagen Psychosocial Questionnaire, COPSOQ III, and investigates its reliability and validity at individual and workplace levels with the aim of establishing benchmarks for the psychosocial work environment. Cross-sectional data from (1) a random sample of employees in Sweden aged 25–65 years (N = 2847) and (2) a convenience sample of non-managerial employees at 51 workplaces (N = 1818) were analysed. Internal consistency reliability was evaluated as well as the effects of sex, work sector and blue/white-collar work. Population benchmarks and mean scores for major occupational groups were computed based on weighted data. ICC(1) and ICC(2) estimates were computed to evaluate aggregation to the workplace level and Pearson inter-correlations to evaluate construct validity at individual and aggregated levels. The reliability and scale characteristics were satisfactory, with few exceptions, at both individual and workplace levels. The strength and direction of correlations supported the construct validity of the dimensions and the amount of variance explained by workplace justified aggregation to the workplace level. The present study thus supports the use of COPSOQ III for measurement at the workplace level and presents benchmarks for risk management as well as for research purposes.

Keywords: psychosocial risk assessment; psychosocial risk management; benchmark; organizational and social work environment; psychometric evaluation; occupational health

1. Introduction

Measuring the psychosocial work environment in a valid and reliable way is increasingly seen as a necessary part of systematic occupational safety and health management [1–4]. A widely used research-based non-commercial tool for psychosocial workplace surveys is the Copenhagen Psychosocial Questionnaire (COPSOQ). Originally developed in 2000 for use in research and at workplaces in Denmark, it has today been validated in 18 countries, and results from research from even more language versions have been reported in hundreds of peer-reviewed articles [5]. COPSOQ

is intended for both workplace measurement, usually comparing work groups, departments or companies, and for research, e.g., investigating effects of work environment on health or labour market attainment. The International COPSOQ Network recently released a revised third version, COPSOQ III [5], which is an update of the two previous versions of the instrument [6,7]. The changes are primarily based on experiences from practical use of previous versions for workplace assessments and research but have also taken labour market changes and theoretical developments into consideration [5]. Importantly, the new version is designed to allow flexible adaptation to national and industry-specific contexts without compromising the potential for international comparisons and for comparisons over time. Items labelled as “core”, “middle” and “long” compose the international COPSOQ III structure. While inclusion of core items is mandatory for national versions, it is important to underline that they do not constitute a short version of the instrument. National versions can be established by the national COPSOQ teams of each country based on all “core” items supplemented with enough items labelled as “middle” or “long” to form a reliable and relevant measurement in the given context. Therefore, all future national versions will include the same mandatory core items, while the total number of items in scales and number of scales are allowed to differ [5].

The new Swedish standard version of COPSOQ III is based on preceding development, adaptation and testing of COPSOQ II for use at workplaces and research in the Swedish context [8–10] also taking the new COPSOQ III into account [5]. Several studies have corroborated different aspects of reliability and validity of the Swedish version of COPSOQ II. An iterative process including translation-back-translation procedures and cognitive interviewing methods supported the face and content validity, as well as the cross-cultural equivalency of COPSOQ II and COPSOQ III test items [8–10]. The nomological validity has been corroborated by operationalization of an extended JD-R model by the instrument with aspects of workability as outcome [11] as well as need for recovery [12] and also in relation to the newly introduced dimensions in the COPSOQ III of Work Engagement, Quality of Work [13] and Cyber Bullying [14]. Studies across different occupations have corroborated the internal consistency reliability and construct validity of the scales [11–13,15–19]. The ability to distinguish different groups (organizations with similar missions, work teams or occupational groups) has been demonstrated [20–22], as also the relevance of multilevel analyses and for intervention and organizational change studies [23–29].

As part of a research and development project for use in Swedish workplaces, several workplace surveys have been conducted in close collaboration with stakeholders from different organizations. The data and experiences from this process have contributed to the international development of COPSOQ III, e.g., selection of items, changes in wording and inclusion of new dimensions [5].

Now the Swedish standard version of COPSOQ III has been developed. As it is adapted to the Swedish context, it differs from the international version of COPSOQ III, which showed satisfactory basic psychometric properties in findings from 6 countries (including data collected at Swedish workplaces) [5,30]. The factor structure of the mandatory “core” items defined for COPSOQ III has been validated in Canada [31] and the COPSOQ III domain for Social Capital has been validated by qualitative and quantitative methods in Sweden [10,32].

Aggregated group means for organizations or departments are of high relevance for the assessment, implementation and evaluation of organizational interventions [33]. Although this approach is widely applied when applying COPSOQ for psychosocial risk management in workplaces, the emphasis of validation studies has so far been on the individual level. Nevertheless, a validation study is needed for the presentation and evaluation of the adapted Swedish national standard version of COPSOQ III, to establish population-based benchmarks for Sweden, and especially the aggregation to workplace group means has yet to be validated.

A Need for Benchmarks for Use at Workplaces

Benchmarks can provide various kinds of relevant information for use at workplaces. Population-based benchmarks/reference values are the key to interpreting COPSOQ survey results from a risk management perspective [34]. For COPSOQ II, such population-based reference values are established, for example, for the working populations in Denmark, Spain, Canada, and France. For Sweden, the opportunities for comparisons have so far included mean scores from a convenience sample of workplace surveys (www.copsoq.se). Such comparisons can give an idea about the level for each scale for specific occupations but are not representative for the average level in the population. This forces occupational safety and health companies, organizational consultants, HR departments, policy-makers and researchers to interpret results from Swedish surveys with Danish reference values in order to assess psychosocial risks. This is not an ideal situation for several reasons: The data used for establishing the Danish reference values was collected 15 years ago [7]; the Danish labour market and legislation differs from the Swedish; the Danish benchmarks have not been validated for use in the Swedish context or with a Swedish language version; and finally the values relate to COPSOQ II. Introducing COPSOQ III accentuates the need for updated reference values based on the Swedish labour market of today.

The purpose of this study is to present and evaluate aspects of reliability and construct validity at both individual and workplace levels for the Swedish standard version of COPSOQ III, with the aim of establishing benchmarks for the organizational and social work environment for the adult working population in Sweden.

2. Materials and Methods

The present validation study builds on data from a cross-sectional national survey for the establishment of reference values and for psychometric evaluation of scale characteristics at the individual level. Nested data from a convenience sample of 51 workplace surveys is used for evaluation of the appropriateness of aggregating individual-level COPSOQ dimensions to the organizational level.

2.1. Random Sample

A cross-sectional survey was conducted by Statistics Sweden (SCB) at the request of the research group. Data collection took place from September to November 2018 by post, including an information letter, a paper version together with a stamped return envelope, and a personal link to a web questionnaire. Non-respondents received up to two reminders, the last of these included new paper questionnaires and return envelopes.

From the Swedish employment directory, SCB drew a random sample of 11,556 persons from all 4,525,274 inhabitants in Sweden aged 20–65 years and registered as gainfully employed. In total, 3642 responded (30.9%). Of these, 53 declined participation, 374 were not currently in work, and 33 were excluded based on an ID-check comparing register data with self-reported data. Due to a response rate as low as 6% for those aged 20–24 years and the fact that many in this age group were still in education, we decided to exclude this age group (74 cases) from the analyses for this paper. In addition, 185 business owners and 76 respondents stating that they had neither a superior nor colleagues were excluded from all main analyses. For an overview of the sampling process, see Figure 1.

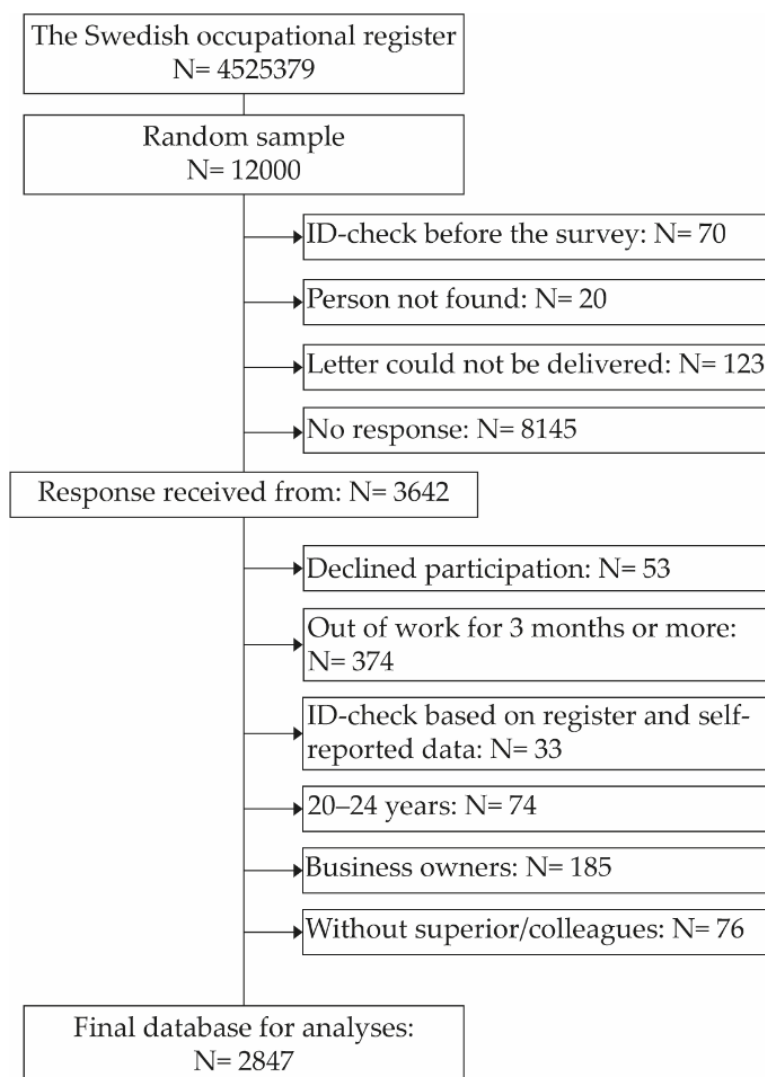


Figure 1. The selection process for the national random sample study. Inclusion criteria were 25–65-year-old workers living in Sweden, gainfully employed during the last 3 months before the survey and having a superior/colleagues.

In general, women, the oldest age group, and those with tertiary education were the most likely to respond. This was also reflected in the differences seen across major occupational groups based on the International Standard Classification of Occupations, ISCO-08. People born in Scandinavia were more likely to respond than those born elsewhere, and those with the highest income responded to a larger extent than others.

The study population is presented in Table 1. Out of the 2847 respondents in the analytic sample, 56% were women, the most frequent major occupational group was Professionals (group 2, 35%), and less than half of the respondents worked in the private sector (47%). Two out of three were in a non-managerial position (67%) and most respondents (81%) reported having direct contact with patients, customers, clients, pupils, etc., at work. More details regarding the study population stratified by major occupational groups (ISCO-08 1-digit) are presented in Table A1 (Appendix A).

Table 1. Description of respondents based on a random sample of inhabitants in Sweden aged 25–65 years, gainfully employed (N = 2847).

Dimension	Group	% of Sample
Sex	Men	43.9
	Women	56.1
Age, mean (SD)	47.7 (10.8) years	
Age distribution	25–39 years	25.1
	40–54 years	42.9
	55–65 years	32.0
Occupational group	0. Armed Forces Occupations	0.20
	1. Managers	7.80
	2. Professionals	34.7
	3. Technicians and Associate Professionals	14.8
	4. Clerical Support Workers	7.70
	5. Services and Support Workers	16.9
	6. Skilled Agricultural, Forestry and Fishery Workers	0.70
	7. Craft and Related Trades Workers	5.90
	8. Plant and Machine Operators and Assemblers	5.30
	9. Elementary Occupations	3.10
	Not classified	2.90
Educational level	Primary education	5.10
	Secondary education	45.5
	Tertiary education	49.5
Income level	Up to 300,000 SEK	25.9
	300,001–400,000 SEK	31.6
	More than 400,000 SEK	42.5
Region of birth	A Scandinavian country	90.8
	Other countries	9.20
Sector	Private	47.1
	Public	44.7
	Other	5.60
	Not stated	2.60
Weekly work hours	<21	3.90
	21–30	5.40
	31–40	55.1
	41–50	30.7
	>50	2.80
	not stated	2.10
Work situation	Have direct contact with patients, customers, clients, pupils etc. at work	81.1
	Non-managerial position	66.8
Normal work time	Day hours between 6–18 o'clock	78.5
	<5 people	14.3
Size of local workplace (span of nearest leader)	5–10 people	22.4
	11–20 people	25.1
	21–40 people	22.5
	41–60 people	6.90
	>60 people	5.20
	Do not know/not stated	3.60

2.2. Workplace Sample

Cross-sectional data was collected from 2016 to 2019 as part of a validation and development project for the use of COPSOQ at workplaces (Grant: AFA Insurance 130301). All staff members in a convenience sample of 51 workplaces (organizations with max. 200 employees each; 26 public and 25 private) received an email with a link to an online questionnaire and an introduction and information about the research project. Each survey was open for 3–4 weeks and included two reminders. The overall response rate for the workplaces was 77% (ranging from 50% to 100%) and

analyses included data from 1818 non-managerial employees. The average number of respondents at the workplaces was 28 (SD 18, range 8–138). For this convenience sample, 28% of the employees were under 35 years of age, 22% were 35–44, 27% were 45–54, and 21% were aged 55 or older and 51% were women. The corresponding distribution for the target population 2017 was according to SCB statistics: 26% below age 35, 26% were 35–44 years old, 28% were 45–54 and 21% were 55 or older and 48% were women. Most employees were Professionals (36% ISCO group 2), Technicians and Associate Professionals (24% ISCO group 3), Clerical Support Workers (11% ISCO group 4) or Services and Support Workers (12% ISCO group 5).

2.3. Variables

The questionnaire for the national study comprised 132 items in total and a free text field for comments. We included 12 background factors regarding work situation and personal characteristics in addition to register data obtained from Statistics Sweden. From COPSOQ III, 85 items were included in the questionnaire to cover 33 dimensions. Furthermore, 35 items were included for other research purposes. The questionnaire applied to employees at workplaces was regarding COPSOQ III items similar to the questionnaire used for the national survey.

2.4. The National Swedish Standard Version of COPSOQ III

In the present study, we evaluate the national Swedish standard version of COPSOQ III. It includes 76 items (according to the international COPSOQ III structure: 32 mandatory “core” items, 15 additional “middle” items and 29 additional “long” items) to cover 33 work environment dimensions (24 multi-item scales, nine single item measures (incl. five items on conflicts and offensive behaviours)). Table A2 from Appendix B gives an overview of the Swedish standard version of COPSOQ III and its correspondence with the international middle version of COPSOQ III and with the Swedish middle version of COPSOQ II. A detailed overview, including formulations in Swedish, is available as an online Supplementary Materials. In relation to the previous Swedish version, the present third version includes five new dimensions and six dimensions have changed name, one dimension has changed response options, 16 dimensions have a reduced number of items, two items are replaced and five have changes in wording. Decisions regarding the selection of dimensions were guided by the perceived relevance to the Swedish context, cognitive interviews, pilot tests and dialogue with stakeholders, taking the item level in the international COPSOQ III and item-level ICC(1) values into consideration for not jeopardizing the ability to differentiate workplaces, as recently suggested by Bliese and colleagues [35].

2.5. Analyses

Scales were computed as means of items with range 0–100, where the scale score was set to missing if respondents had replied to less than half of the items included in the scale [5]. Each scale was scored in the direction indicated by its name [5].

To draw correct inferences about the target population, two sets of weights were calculated for the national representative sample; one based on sex, age, income and educational level for calculating benchmarks for the general population of 25–65-year-old employees in Sweden; and another set of weights based on sex and age for the purpose of calculating representative mean scores for each of the ISCO major occupational groups. The benchmarks for the Swedish standard version of COPSOQ III were computed as mean scores with standard deviations for scales, and frequencies of conflicts and offensive behaviours such as bullying, harassment and violence based on weighted data to match the target population of 25–65-year-old employees working in Sweden. Mean scale scores, standard deviation and frequency of conflicts and offensive behaviours were also computed for each major occupational group, weighted within each group to match the target population (ISCO 1-digit, 25–65 years). Internal consistency reliability was analysed with Cronbach’s alpha for scales with three or more items and Spearman-Brown Coefficient for two-item scales [36]. The proportion of respondents selecting the lowest (floor) and highest (ceiling) response options for all items in a scale

were determined for all scales, as well as the proportion of respondents having replied to less than half of the items in each scale (scale missing). More than 15% of the respondents choosing the lowest or highest response options was considered evidence of a floor or ceiling effect, respectively [37]. Mean scores and frequency of conflicts and offensive behaviours were calculated according to sex (men/women), work sector (private/public) and white/blue-collar work (ISCO groups 1–2–3 versus 6–7–8–9). Differences within each group were tested with t-tests and Chi-square tests, and Cohen's *d* was calculated for evaluation of the effect of sex, sector, and kind of work. A Cohen's *d* value of 0.2 indicates a small effect, 0.5 a medium effect and 0.8 a large effect [38] and a 5–10 point mean score difference is considered a minimum important difference [39].

ICC(1) and ICC(2) were calculated for each dimension based on aggregation of individual level data to ISCO major occupational group (national sample) and to workplace (workplace sample). ICC(1) represents the amount of variance in the employees' responses that can be explained by their membership of a group (occupation or workplace) [35,40–42]. ICC(1) values of 0.05 can be considered as a small to medium effect and higher values indicate stronger effects [42], ICC(2) is an estimate of reliability of the aggregated group means [35,40,41]. Values <0.5 indicate poor reliability, 0.5–0.75 moderate and >0.75 indicate good reliability of group-level means [43]. Finally, for the sample of workplaces, we calculated the aggregated level mean, standard deviation, minimum, maximum, range and comparison of mean scores with the Benchmark for each scale.

Bivariate Pearson correlations between scales were calculated for the national sample of 25–65-year-old employees (individual level) and for the convenience sample of workplaces (individual and workplace level) for evaluation of construct validity (distinctiveness of dimensions and concurrent validity).

2.6. Ethics

Informed consent was obtained from all individual participants included in the study. All procedures performed were in accordance with the ethical standards of the national research committee and with the 1964 Helsinki Declaration and its later amendments or comparable ethical standards. The Regional Ethical Review Board of Sweden approved the study (Dnr 2015-476; 2018-392; 2019-05904).

3. Results

Benchmarks for the Swedish standard version of COPSOQ III are presented in Table 2 in addition to scale psychometric characteristics.

The internal consistency reliability was above 0.70 for all scales, except for the two-item scale for Quality in Work (0.69). Most dimensions had low floor and ceiling effects. High floor effect and low mean scores were seen for Job Insecurity (34.8%) and Insecurity over Working Conditions (28.1%). A strong ceiling effect and high mean values were seen for the single item Meaning of Work (40.6%) and for Social Support from Supervisor (30.3%) and Social Support from Colleagues (32.5%). Internal non-response for dimensions was between 0.4% and 1.6%.

The mean scores differed statistically significantly for most scales by sex, work sector and white/blue-collar work (Table 3).

Table 2. For the Swedish standard version of COPSOQ III for 25–65-year-old workers in Sweden: Benchmarks with standard deviations (SD) and frequency of conflicts and offensive behaviours (based on weighted data) and scale characteristics (number of items, reliability coefficient, floor, ceiling and scale missing percentages, based on raw data).

Population Benchmarks				Scale Characteristics				
Dimension and Abbreviation	Mean	SD	No. of Items	Reliability Coefficient ¹	Floor %	Ceiling %	Scale Missing %	
Quantitative Demands	QD	40.9	22.1	3	0.85	4.9	1.1	1.2
Work Pace	WP	59.9	20.5	2	0.70	0.6	4.9	0.9
Emotional Demands	ED	46.8	25.5	3	0.86	3.9	1.5	1.1
Influence	IN	50.2	20.1	4	0.75	0.9	0.6	1.1
Possibilities for Development	PD	70.4	20.0	3	0.75	0.4	10.1	0.4
Variation of Work	VA	68.0	22.5	1		1.9	16.7	1.1
Meaning of Work	MW	78.3	22.4	1		0.9	40.6	1.6
Predictability	PR	60.2	21.3	2	0.73	1.5	5.3	1.1
Recognition	RE	65.6	23.3	2	0.74	2.0	11.2	1.1
Role Clarity	CL	78.1	16.7	3	0.78	0.0	16.1	0.2
Role Conflicts (incl. illegitimate tasks)	CO	42.2	19.6	3	0.71	2.0	0.5	0.6
Quality of Leadership	QL	54.1	24.8	3	0.87	4.6	4.8	0.9
Social Support from Supervisor	SS	75.3	24.5	2	0.88	1.8	30.3	0.4
Social Support from Colleagues	SC	80.2	19.6	2	0.81	0.4	32.5	0.4
Sense of Community at Work	SW	79.9	15.0	3	0.78	0.1	17.7	0.4
Commitment to the Workplace	CW	64.7	24.5	3	0.83	1.1	9.8	1.2
Work Engagement	WE	69.4	19.2	3	0.84	0.4	5.4	0.9
Job Insecurity	JI	20.2	20.9	3	0.75	34.8	0.4	1.1
Insecurity over Working Conditions	IW	24.9	23.2	2	0.77	28.1	1.4	1.1
Quality of Work	QW	68.2	18.6	2	0.69	0.6	6.6	0.4
Job Satisfaction	JS	64.4	20.2	4	0.84	0.7	5.2	0.8
Work Life Conflict	WF	39.7	25.7	3	0.90	9.5	3.6	0.6
Horizontal Trust	TE	71.3	20.1	1		1.2	17.6	1.4
Vertical Trust	TM	69.3	19.0	3	0.77	0.4	7.0	0.9
Organizational Justice	JU	59.7	20.2	3	0.78	0.8	3.5	0.9
Self-Rated Health	GH	61.3	23.9	1		2.6	12.8	1.0
Stress	ST	36.0	24.2	3	0.86	11.2	1.3	1.2
Burnout	BO	36.2	24.7	3	0.88	10.2	1.4	1.0
Threats of Violence	TV	10.5%		1				1.1
Physical Violence	PV	5.3%		1				1.4
Bullying	BU	10.3%		1				1.4
Sexual Harassment	SH	6.0%		1				1.2
Cyber Bullying	HSM	2.7%		1				1.2

¹ Cronbach's alpha for scales with 3 or more items and Spearman-Brown Coefficient for two-item scales.

Moderate to large differences in mean scores were found between white- and blue-collar workers, in particular. White-collar workers had higher mean scores for Quantitative Demands, Emotional Demands, Influence, Possibilities for Development, Variation and Meaning of Work, while lower for Job Insecurity compared to blue-collar workers. Emotional Demands was the only dimension showing large differences for sex, work sector and kind of work. Women workers, employees working in the public sector and white-collar workers reported the highest levels of Emotional Demands (scale means 15–19 points higher than for their respective counterparts). We found a corresponding pattern with the same groups most exposed to conflicts and offensive behaviours. An additional comparison revealed that business owners scored statistical significantly higher for the outcome dimensions Work Engagement (77) and Job Satisfaction (72), and lower for Stress (31) and Burnout (31) than the study sample did (results not shown in table).

Table 4 displays psychometric characteristics for major occupational groups based on the ISCO-08 classification. Of the 24 relevant scales, 16 revealed satisfactory reliability values for all major occupational groups. Reliability coefficients below 0.70 were mainly seen among Managers and Elementary Occupations (e.g., Work pace, Recognition, Role conflicts and Quality in work), and only in one case did a reliability coefficient reach below 0.60 (Work Pace/Elementary Occupations). Managers

reported the most beneficial scores across occupations (14 out of 28 scales) and the group having the most problematic weighted mean scores was Plant and Machine Operators and Assemblers (13 out of 28 scales). Services and Support Workers was the group most exposed to Threats of Violence, Physical Violence and Sexual Harassment. Clerical Support Workers reported bullying most frequently, while Managers were the group most exposed to Cyber Bullying. The widest range for mean scores across ISCO major occupational groups was found for Emotional Demands, Variation, Quantitative Demands and Influence.

The bivariate intercorrelations between dimensions for the total national sample (individual level data) are presented in Table 5 and for the workplace sample (both individual and organizational level) in Table 6. Too strong intercorrelations may indicate that the scales do not measure distinct constructs. For individual level data, only 6 out of the 378 correlations in the national sample and 9 correlations in the workplace sample were above 0.70. The strongest correlations at the individual level were largely those between scales that were most strongly correlated also at the workplace level, for example, the correlation between Stress and Burnout ranged from 0.79 to 0.83. The correlations were in general stronger between scales aggregated to the organizational level than the corresponding correlations at the individual level. Nevertheless, for the scales Role Clarity and Quantitative Demands, most of the correlations with other dimensions were strongest at individual level. We found differences in the pattern of correlations between individual and workplace level data in relation to a few dimensions, in particularly Role Clarity and Job Insecurity. For example, a moderate negative correlation was seen between Job Insecurity and Quantitative Demands (-0.53) at an organizational level, while the corresponding correlation was non-significant at an individual level. Conversely, a moderate positive correlation between Role Clarity and Social Community at Work was significant at an individual level ($0.37/0.34$) but insignificant at a workplace level.

Table 7 displays measures relating to aggregation of data to major occupational groups and to organizational level. The ICC(2) scores indicate a moderate to good reliability of group mean scores for major occupational groups as well as for workplaces. Only aggregation of the individual characteristic Self-Rated Health to workplace level showed poor reliability. A small to medium effect of respondents' major occupational group was seen for Quantitative Demands, Emotional Demands, Influence, Possibilities for Development, Variation, Meaning of Work, and in addition for Job Insecurity (ICC(1)). In relation to the effect of workplace, the largest explained variance was seen for scales reflecting job demands and aspects of leadership, while small to medium effect sizes were found for all other exposures. The aggregated workplace mean scores ranged from 23 to 54 points.

Table 3. Scale mean scores and frequency of conflicts and offensive behaviours according to sex, work sector and white/blue-collar work for the Swedish standard version of COPSOQ III for 25–65-year-old workers in Sweden. Differences between groups tested with t-tests, Chi² tests ¹ and Cohen’s *d*.

Dimension ²	Sex				Work Sector				Kind of Work			
	Men (<i>n</i> = 1250)	Women (<i>n</i> = 1597)	<i>p</i>	Cohen’s <i>d</i>	Private Sector (<i>n</i> = 1341)	Public Sector (<i>n</i> = 1271)	<i>p</i>	Cohen’s <i>d</i>	White Collar (<i>n</i> = 1630)	Blue Collar (<i>n</i> = 428)	<i>p</i>	Cohen’s <i>d</i>
QD	41.2	43.2	*	0.1	40.6	44.3	**	0.2	47.7	33.0	**	0.7
WP	57.8	60.9	**	0.2	59.7	59.6		0.0	60.1	58.0		0.1
ED	39.4	54.1	**	0.6	38.5	57.1	**	0.8	49.9	33.2	**	0.7
IN	53.9	48.6	**	0.3	52.4	49.2	**	0.2	54.6	46.1	**	0.5
PD	70.2	71.7	*	0.1	70.0	72.5	**	0.1	75.4	62.6	**	0.7
VA	67.7	71.3	**	0.2	67.9	71.8	**	0.2	74.1	59.6	**	0.7
MW	76.0	82.2	**	0.3	74.5	84.9	**	0.5	81.8	70.5	**	0.6
PR	60.3	60.9		0.0	60.4	61.2		0.0	61.6	58.0	*	0.2
RE	66.9	64.9	*	0.1	66.6	65.0		0.1	67.8	62.5	**	0.2
CL	76.8	78.9	**	0.1	77.7	78.7		0.1	76.5	79.6	**	0.2
CO	42.5	41.3		0.1	40.1	43.9	**	0.2	43.0	39.8	*	0.2
QL	54.0	54.1		0.0	54.3	53.8		0.0	54.9	51.6	*	0.1
SS	75.2	75.0		0.0	76.6	73.3	**	0.1	75.8	72.1	*	0.2
SC	79.2	81.3	*	0.1	79.9	81.0		0.1	81.4	77.0	**	0.2
SW	80.1	80.0		0.0	81.1	79.1	**	0.1	80.6	79.1		0.1
CW	65.6	65.2		0.0	65.8	65.0		0.0	66.9	62.4	**	0.2
WE	68.3	71.9	**	0.2	69.0	71.5	**	0.1	71.8	65.0	**	0.4
JI	20.3	17.8	**	0.1	21.7	14.9	**	0.3	15.2	26.3	**	0.6
IW	23.9	24.5		0.0	23.8	24.7		0.0	22.6	26.2	*	0.2
QW	68.5	67.4		0.1	69.4	66.2	**	0.2	67.6	69.9	*	0.1
JS	65.3	64.8		0.0	65.8	64.5		0.1	67.2	61.6	**	0.3
WF	37.5	41.7	**	0.2	38.2	41.6	**	0.1	42.0	35.9	**	0.2
TE	72.5	70.7	*	0.1	72.3	70.5	*	0.1	73.5	68.3	**	0.3
TM	68.5	70.2	*	0.1	69.9	69.3		0.0	70.6	66.5	**	0.2
JU	60.6	58.5	*	0.1	61.0	57.8	**	0.2	60.6	57.9	*	0.1
GH	63.2	60.6	*	0.1	63.3	60.2	**	0.1	63.9	58.2	**	0.2
ST	32.6	37.7	**	0.2	33.9	36.9	*	0.1	36.8	31.7	**	0.2
BO	31.2	38.1	**	0.3	32.9	37.4	**	0.2	34.4	33.9		0.0
TV	8.1%	12.5%	**		5.3%	16.4%	**		9.6%	6.9%		
PV	2.7%	7.5%	**		1.7%	9.4%	**		4.2%	1.4%	*	
BU	8.4%	11.8%	*		9.1%	11.4%	*		9.0%	10.1%		
SH	2.4%	6.8%	**		4.5%	5.1%			4.2%	4.0%		
HSM	2.8%	2.8%			1.7%	3.8%	**		3.3%	1.4%	*	

¹ * *p* < 0.05 level, ** *p* < 0.001 level. ² Abbreviations of dimensions explained in Table 2.

Table 4. Mean scale scores and standard deviation and frequency of conflicts and offensive behaviours according to occupational groups for the Swedish Standard version of COPSOQ III (aged 25–65 years, weighted within ISCO major occupational groups). Reliability Coefficients ²(RC) based on unweighted data.

Dimension ¹	ISCO 1 Managers			ISCO 2 Professionals			ISCO 3 Technicians and Associate Professionals			ISCO 4 Clerical Support Workers			ISCO 5 Services and Support Workers			ISCO 7 Craft and Related Trades Workers			ISCO 8 Plant and Machine Operators and Assemblers			ISCO 9 Elementary Occupations		
	Mean	SD	RC	Mean	SD	RC	Mean	SD	RC	Mean	SD	RC	Mean	SD	RC	Mean	SD	RC	Mean	SD	RC	Mean	SD	RC
QD	51.5	19.8	0.86	48.5	20.0	0.82	43.8	20.4	0.84	39.7	21.6	0.83	34.5	22.1	0.85	36.0	20.3	0.83	32.0	19.6	0.82	27.8	20.2	0.80
WP	63.3	18.0	0.68	60.5	18.7	0.70	57.6	18.7	0.71	57.1	20.3	0.72	60.0	21.9	0.76	58.1	18.4	0.62	59.0	21.5	0.74	58.6	23.2	0.46
ED	53.7	20.6	0.82	53.1	25.5	0.87	40.3	23.1	0.82	37.4	24.2	0.85	59.5	22.8	0.82	31.4	18.4	0.78	34.7	21.0	0.77	34.4	22.5	0.72
IN	62.1	17.0	0.74	53.8	17.5	0.73	52.8	17.6	0.71	43.7	20.2	0.77	45.2	20.1	0.73	49.5	18.8	0.72	41.0	22.4	0.83	45.8	21.6	0.75
PD	79.3	15.7	0.72	76.3	17.1	0.73	71.1	18.1	0.74	62.8	21.9	0.77	67.4	19.1	0.72	66.2	19.2	0.69	58.5	22.4	0.74	61.4	21.5	0.72
VA	79.4	15.3		74.8	18.0		69.9	18.6	-	62.3	23.3	-	67.0	22.8	-	66.7	20.9	-	53.9	27.5	-	54.7	27.3	-
MW	83.3	16.0		83.6	18.9		76.9	19.7	-	72.7	25.1	-	83.5	20.2	-	71.2	23.5	-	67.7	24.7	-	72.7	25.0	-
PR	68.4	19.1	0.66	60.8	19.8	0.72	60.0	20.0	0.70	58.4	20.4	0.69	61.3	21.2	0.76	56.2	20.4	0.75	57.1	24.0	0.81	62.1	23.8	0.73
RE	73.2	19.2	0.68	66.9	21.6	0.70	66.9	22.1	0.73	62.1	23.8	0.79	63.3	24.4	0.77	62.9	22.4	0.69	60.6	25.5	0.78	63.1	24.7	0.66
CL	78.7	15.2	0.77	76.0	17.0	0.79	76.4	17.3	0.81	77.4	16.1	0.74	82.8	14.3	0.76	77.3	16.6	0.79	80.7	14.3	0.64	81.9	17.3	0.77
CO	41.9	16.2	0.61	43.9	19.1	0.71	41.3	19.1	0.72	37.4	18.5	0.65	42.1	20.0	0.70	40.7	17.5	0.65	40.6	22.9	0.82	37.7	21.2	0.64
QL	57.7	22.1	0.84	54.3	22.9	0.84	55.0	25.2	0.87	52.4	26.1	0.88	54.0	25.9	0.90	48.7	24.3	0.86	50.4	25.7	0.87	58.1	24.9	0.88
SS	77.7	20.9	0.81	75.2	23.5	0.88	76.0	24.6	0.89	76.7	23.5	0.85	75.1	24.9	0.89	71.4	25.5	0.82	70.3	27.7	0.89	73.3	27.0	0.95
SC	79.6	9.9.2	0.76	81.8	18.3	0.82	81.6	18.0	0.79	78.4	19.5	0.79	80.8	19.1	0.83	79.5	18.2	0.81	74.5	23.3	0.83	75.9	22.9	0.81
SW	82.3	12.8	0.76	80.1	14.0	0.76	81.1	14.5	0.79	78.3	16.0	0.80	79.7	15.2	0.80	80.3	13.0	0.74	76.3	17.8	0.83	81.2	16.4	0.77
CW	73.3	22.1	0.85	65.7	22.9	0.82	66.5	23.8	0.83	62.8	25.7	0.84	63.7	25.4	0.83	62.8	21.8	0.76	60.8	24.7	0.82	62.2	25.4	0.81
WE	75.2	16.6	0.86	71.8	16.8	0.82	69.9	18.0	0.85	67.0	20.1	0.82	71.4	18.7	0.84	64.3	19.7	0.85	64.1	21.7	0.85	66.5	21.4	0.87
JI	17.2	18.6	0.79	12.7	16.7	0.73	20.0	19.7	0.71	27.3	21.5	0.73	20.8	22.4	0.73	21.0	20.0	0.71	29.3	24.0	0.76	31.5	24.4	0.74
IW	19.8	21.5	0.85	22.6	21.5	0.75	24.0	22.9	0.80	25.5	22.6	0.78	27.5	24.1	0.71	22.4	21.4	0.81	29.8	26.3	0.82	29.7	26.6	0.81
QW	70.1	14.9	0.64	66.6	17.5	0.68	68.5	18.4	0.72	66.6	19.5	0.74	67.2	19.3	0.69	69.0	16.6	0.74	69.5	18.9	0.64	71.6	19.3	0.63
JS	72.7	18.0	0.84	66.6	18.9	0.81	65.6	19.0	0.84	62.0	20.2	0.85	61.8	20.6	0.86	62.9	17.1	0.83	60.4	21.2	0.91	60.4	21.1	0.88
WF	44.5	24.7	0.92	43.7	24.9	0.90	36.7	23.8	0.90	36.5	24.6	0.90	38.3	27.4	0.91	35.3	23.7	0.88	39.7	27.0	0.90	32.0	25.7	0.89
TE	72.3	18.0	-	73.3	17.7	-	74.4	18.9	-	67.0	20.9	-	69.2	20.4	-	68.9	19.2	-	67.0	24.5	-	70.1	20.7	-
TM	74.8	14.7	0.74	70.2	18.0	0.77	69.4	19.0	0.81	67.5	18.5	0.77	69.0	18.5	0.72	63.9	18.8	0.74	65.8	20.6	0.79	70.5	19.1	0.64
JU	67.5	15.3	0.74	59.3	17.8	0.74	60.1	19.1	0.79	55.1	21.1	0.79	58.5	21.4	0.79	55.8	20.0	0.78	57.7	22.9	0.84	60.2	22.6	0.78
GH	67.4	22.1	-	62.3	22.9	-	65.7	23.0	-	59.5	24.4	-	57.5	24.6	-	59.5	23.0	-	56.4	25.1	-	59.8	25.5	-
ST	36.8	20.9	0.81	38.3	24.0	0.87	33.2	24.4	0.87	35.0	23.7	0.86	34.8	25.4	0.87	31.4	22.6	0.84	32.0	24.3	0.87	33.3	24.6	0.81
BO	29.5	20.3	0.83	37.0	23.4	0.87	30.7	23.7	0.87	35.1	25.0	0.89	39.1	26.2	0.90	31.6	22.4	0.85	34.9	25.9	0.91	36.9	26.0	0.88
TV	8.2%			10.5%			8.2%			8.2%			18.9%			2.4%			11.3%			8.1%		
PV	2.3%			5.0%			3.4%			2.3%			15.2%			0.0%			2.0%			3.6%		
BU	5.0%			9.6%			9.6%			14.2%			12.5%			9.6%			8.8%			14.5%		
SH	1.4%			4.6%			4.8%			2.3%			9.3%			3.0%			3.3%			8.2%		
HSM	6.4%			3.5%			1.2%			4.1%			2.1%			1.2%			1.3%			2.4%		

¹ Abbreviations of dimensions explained in Table 2. ² Cronbach’s alpha for scales with 3 or more items and Spearman-Brown Coefficient for two-item scales.

Table 5. Pearson correlations between scales for the Swedish Standard version of COPSOQ III (national sample of 25–65-year-old employees).

Dimension ¹	QD	WP	ED	IN	PD	VA	MW	PR	RE	CL	CO	QL	SS	SC	SW	CW	WE	JI	IW	QW	JS	WF	TE	TM	JU	GH	ST	BO
QD	1.00																											
WP	0.40	1.00																										
ED	0.29	0.32	1.00																									
IN	-0.03	-0.11	-0.09	1.00																								
PD	0.06	0.02	0.05	0.51	1.00																							
VA	0.13	0.02	0.12	0.37	0.50	1.00																						
MW	-0.02	0.03	0.21	0.27	0.50	0.36	1.00																					
PR	-0.21	-0.15	-0.13	0.39	0.43	0.20	0.34	1.00																				
RE	-0.19	-0.15	-0.16	0.48	0.49	0.27	0.35	0.67	1.00																			
CL	-0.26	0.04	-0.01	0.18	0.32	0.10	0.41	0.46	0.38	1.00																		
CO	0.41	0.30	0.36	-0.22	-0.20	-0.10	-0.22	-0.44	-0.41	-0.32	1.00																	
QL	-0.18	-0.12	-0.12	0.35	0.42	0.20	0.29	0.62	0.64	0.35	-0.38	1.00																
SS	-0.19	-0.15	-0.17	0.38	0.41	0.20	0.25	0.55	0.62	0.35	-0.36	0.67	1.00															
SC	-0.15	-0.15	-0.10	0.32	0.39	0.23	0.29	0.40	0.43	0.31	-0.29	0.38	0.58	1.00														
SW	-0.18	-0.09	-0.16	0.36	0.39	0.22	0.28	0.45	0.51	0.37	-0.33	0.42	0.48	0.62	1.00													
CW	-0.24	-0.19	-0.17	0.46	0.54	0.32	0.47	0.65	0.72	0.41	-0.50	0.62	0.56	0.46	0.54	1.00												
WE	-0.05	0.07	0.10	0.36	0.54	0.35	0.55	0.43	0.44	0.39	-0.27	0.39	0.31	0.28	0.37	0.58	1.00											
JI	-0.01	0.03	-0.09	-0.18	-0.32	-0.26	-0.28	-0.20	-0.26	-0.17	0.12	-0.15	-0.17	-0.23	-0.22	-0.27	-0.21	1.00										
IW	0.17	0.12	0.15	-0.28	-0.31	-0.21	-0.24	-0.38	-0.42	-0.27	0.33	-0.29	-0.31	-0.26	-0.31	-0.41	-0.26	0.55	1.00									
QW	-0.34	-0.20	-0.23	0.36	0.41	0.19	0.35	0.58	0.57	0.45	-0.49	0.54	0.49	0.41	0.49	0.67	0.43	-0.16	-0.33	1.00								
JS	-0.16	-0.14	-0.13	0.48	0.63	0.37	0.45	0.57	0.63	0.38	-0.43	0.55	0.49	0.43	0.48	0.73	0.56	-0.30	-0.41	0.59	1.00							
WF	0.49	0.42	0.36	-0.21	-0.15	-0.05	-0.14	-0.37	-0.39	-0.27	0.45	-0.32	-0.34	-0.32	-0.34	-0.48	-0.22	0.17	0.36	-0.43	-0.38	1.00						
TE	-0.13	-0.13	-0.15	0.25	0.27	0.17	0.23	0.32	0.41	0.24	-0.28	0.34	0.33	0.45	0.51	0.41	0.22	-0.20	-0.25	0.42	0.35	-0.26	1.00					
TM	-0.18	-0.15	-0.15	0.38	0.43	0.24	0.35	0.61	0.65	0.40	-0.44	0.60	0.57	0.46	0.52	0.64	0.40	-0.24	-0.39	0.61	0.58	-0.35	0.53	1.00				
JU	-0.22	-0.18	-0.18	0.45	0.46	0.23	0.32	0.65	0.74	0.38	-0.42	0.71	0.60	0.45	0.51	0.68	0.41	-0.18	-0.36	0.64	0.62	-0.38	0.48	0.76	1.00			
GH	-0.13	-0.11	-0.15	0.22	0.25	0.15	0.17	0.26	0.29	0.17	-0.20	0.23	0.21	0.23	0.29	0.32	0.30	-0.18	-0.25	0.27	0.35	-0.35	0.23	0.24	0.27	1.00		
ST	0.40	0.34	0.33	-0.22	-0.18	-0.10	-0.16	-0.35	-0.38	-0.26	0.43	-0.32	-0.31	-0.31	-0.35	-0.48	-0.27	0.17	0.32	-0.41	-0.38	0.66	-0.26	-0.33	-0.37	-0.41	1.00	
BO	0.34	0.30	0.34	-0.29	-0.26	-0.17	-0.20	-0.39	-0.42	-0.25	0.44	-0.34	-0.33	-0.31	-0.35	-0.51	-0.34	0.21	0.37	-0.42	-0.46	0.66	-0.26	-0.35	-0.40	-0.50	0.79	1.00

≥0.04 are statistically significant, $p < 0.05$; ≥0.05 are statistically significant, $p < 0.01$; ≥0.06 are statistically significant, $p < 0.001$. ¹ Abbreviations of dimensions explained in Table 2.

Table 6. Pearson bivariate intercorrelations between scales in the Swedish Standard version of COPSOQ III based on data from 51 organizations. Correlations at the organizational level are presented in the lower left part of the table and correlations at the individual level in the upper right part.

Dimension ¹	QD	WP	ED	IN	PD	VA	MW	PR	RE	CL	CO	QL	SS	SC	SW	CW	WE	JI	IW	QW	JS	WF	TE	TM	JU	GH	ST	BO	
QD		0.48	0.37	-0.12	-0.10	0.01	-0.09	-0.28	-0.21	-0.27	0.40	-0.23	-0.23	-0.19	-0.18	-0.28	-0.12	0.01	0.21	-0.31	-0.28	0.43	-0.10	-0.22	-0.27	-0.24	0.41	0.39	
WP	0.53		0.34	-0.21	-0.12	-0.06	-0.09	-0.26	-0.23	-0.11	0.38	-0.20	-0.21	-0.15	-0.12	-0.29	-0.01	-0.03	0.17	-0.22	-0.25	0.38	-0.09	-0.25	-0.27	-0.13	0.37	0.34	
ED	0.46	0.30		-0.04	-0.01	0.09	0.02	-0.20	-0.16	-0.15	0.34	-0.19	-0.16	-0.14	-0.16	-0.23	-0.01	-0.05	0.19	-0.20	-0.20	0.37	-0.13	-0.20	-0.24	-0.22	0.37	0.37	
IN	0.08	-0.37	0.04		0.60	0.49	0.45	0.46	0.54	0.23	-0.33	0.48	0.44	0.40	0.39	0.54	0.38	-0.22	-0.34	0.34	0.53	-0.27	0.30	0.48	0.53	0.26	-0.29	-0.32	
PD	0.31	-0.11	0.25	0.78		0.55	0.61	0.50	0.58	0.30	-0.35	0.52	0.46	0.44	0.44	0.60	0.53	-0.26	-0.35	0.42	0.68	-0.28	0.38	0.52	0.54	0.28	-0.33	-0.34	
VA	0.37	-0.19	0.39	0.70	0.73		0.48	0.24	0.35	0.11	-0.21	0.29	0.27	0.27	0.30	0.39	0.40	-0.20	-0.20	0.26	0.41	-0.11	0.26	0.32	0.31	0.19	-0.21	-0.23	
MW	0.15	-0.21	0.49	0.64	0.74	0.75		0.38	0.46	0.37	-0.35	0.38	0.35	0.37	0.36	0.49	0.59	-0.24	-0.24	0.39	0.55	-0.24	0.29	0.41	0.40	0.26	-0.30	-0.31	
PR	-0.17	-0.42	-0.22	0.56	0.49	0.22	0.40		0.71	0.48	-0.51	0.66	0.59	0.37	0.40	0.65	0.35	-0.17	-0.41	0.52	0.62	-0.38	0.32	0.69	0.70	0.27	-0.40	-0.40	
RE	-0.08	-0.35	-0.03	0.79	0.69	0.48	0.60	0.80		0.41	-0.45	0.67	0.65	0.48	0.48	0.72	0.44	-0.26	-0.44	0.51	0.67	-0.37	0.41	0.73	0.78	0.33	-0.41	-0.42	
CL	-0.40	-0.06	0.04	-0.06	-0.12	-0.17	0.14	0.43	0.23		-0.35	0.41	0.37	0.31	0.34	0.38	0.31	-0.16	-0.31	0.44	0.43	-0.30	0.19	0.37	0.41	0.20	-0.30	-0.27	
CO	0.39	0.57	0.35	-0.54	-0.44	-0.27	-0.38	-0.75	-0.64	-0.23		-0.45	-0.42	-0.29	-0.31	-0.52	-0.34	0.12	0.35	-0.44	-0.52	0.46	-0.25	-0.49	-0.49	-0.27	0.44	0.43	
QL	-0.12	-0.33	-0.10	0.58	0.60	0.29	0.38	0.79	0.72	0.23	-0.64		0.79	0.41	0.39	0.63	0.36	-0.13	-0.38	0.48	0.60	-0.30	0.35	0.39	0.65	0.71	0.28	-0.35	-0.37
SS	-0.19	-0.38	-0.08	0.55	0.54	0.24	0.48	0.86	0.76	0.37	-0.72	0.86		0.45	0.41	0.59	0.35	-0.13	-0.37	0.45	0.57	-0.31	0.33	0.63	0.66	0.28	-0.35	-0.36	
SC	0.13	-0.13	0.07	0.68	0.55	0.46	0.45	0.40	0.60	0.10	-0.29	0.43	0.45		0.66	0.46	0.36	-0.20	-0.27	0.39	0.45	-0.30	0.50	0.38	0.46	0.27	-0.32	-0.29	
SW	0.01	-0.18	-0.07	0.60	0.44	0.48	0.33	0.30	0.49	-0.06	-0.26	0.42	0.37	0.75		0.51	0.36	-0.25	-0.28	0.44	0.48	-0.26	0.52	0.40	0.47	0.29	-0.36	-0.33	
CW	-0.09	-0.36	-0.13	0.75	0.68	0.52	0.51	0.82	0.85	0.26	-0.69	0.81	0.77	0.58	0.59		0.50	-0.21	-0.41	0.54	0.76	-0.43	0.40	0.69	0.71	0.34	-0.49	-0.51	
WE	0.10	-0.11	0.36	0.52	0.61	0.64	0.83	0.30	0.49	0.18	-0.33	0.35	0.42	0.49	0.39	0.46		-0.11	-0.21	0.34	0.55	-0.32	0.24	0.39	0.38	0.34	-0.37	-0.41	
JI	-0.53	-0.44	-0.34	-0.38	-0.48	-0.48	-0.38	-0.01	-0.31	0.03	-0.20	0.04	0.08	-0.43	-0.34	-0.24	-0.31		0.55	-0.14	-0.23	0.16	-0.23	-0.22	-0.19	-0.25	0.20	0.22	
IW	0.01	0.01	0.29	-0.52	-0.42	-0.21	-0.17	-0.49	-0.56	-0.26	0.41	-0.33	-0.33	-0.46	-0.36	-0.61	-0.10	0.56		-0.32	-0.44	0.31	-0.26	-0.46	-0.43	-0.27	0.39	0.38	
QW	-0.17	-0.29	-0.08	0.64	0.54	0.42	0.49	0.73	0.79	0.44	-0.70	0.64	0.71	0.67	0.55	0.79	0.44	-0.28	-0.60		0.56	-0.35	0.38	0.55	0.55	0.31	-0.40	-0.38	
JS	-0.13	-0.37	-0.11	0.64	0.64	0.49	0.55	0.81	0.74	0.30	-0.76	0.68	0.77	0.41	0.44	0.87	0.42	-0.14	-0.60	0.75		-0.48	0.39	0.65	0.66	0.41	-0.52	-0.53	
WF	0.31	0.41	0.51	-0.42	-0.21	-0.03	-0.14	-0.50	-0.49	-0.03	0.59	-0.33	-0.55	-0.34	-0.32	-0.46	-0.24	0.00	0.44	-0.48	-0.65		-0.20	-0.37	-0.40	-0.43	0.66	0.63	
TE	0.22	-0.12	0.00	0.65	0.59	0.52	0.35	0.26	0.53	-0.17	-0.24	0.34	0.31	0.72	0.78	0.58	0.23	-0.48	-0.46	0.55	0.45	-0.23		0.43	0.49	0.25	-0.27	-0.27	
TM	-0.17	-0.37	-0.16	0.66	0.60	0.35	0.49	0.89	0.90	0.33	-0.74	0.76	0.83	0.44	0.36	0.85	0.35	-0.19	-0.60	0.75	0.85	-0.57	0.42		0.81	0.30	-0.40	-0.41	
JU	-0.15	-0.36	-0.17	0.79	0.65	0.41	0.49	0.81	0.94	0.26	-0.69	0.79	0.78	0.66	0.54	0.90	0.44	-0.27	-0.62	0.84	0.76	-0.52	0.56	0.89		0.33	-0.43	-0.44	
GH	-0.17	0.04	-0.29	0.24	0.19	0.11	0.21	0.32	0.38	0.23	-0.33	0.24	0.34	0.24	0.32	0.41	0.48	-0.25	-0.56	0.39	0.47	-0.54	0.17	0.45	0.39		-0.52	-0.57	
ST	0.30	0.41	0.40	-0.36	-0.28	-0.24	-0.28	-0.56	-0.58	-0.10	0.62	-0.46	-0.57	-0.31	-0.48	-0.62	-0.08	-0.06	0.45	-0.55	-0.67	0.77	-0.36	-0.64	-0.58	-0.54		0.81	
BO	0.21	0.39	0.41	-0.51	-0.40	-0.37	-0.30	-0.57	-0.63	-0.03	0.62	-0.56	-0.53	-0.29	-0.46	-0.72	-0.28	0.06	0.55	-0.50	-0.69	0.61	-0.37	-0.70	-0.64	-0.60	0.83		

Individual level correlations ≥ 0.05 are statistically significant, $p < 0.05$; ≥ 0.07 are statistically significant, $p < 0.01$; ≥ 0.10 are statistically significant, $p < 0.001$. Organizational level correlations ≥ 0.29 are statistically significant, $p < 0.05$; ≥ 0.38 are statistically significant, $p < 0.01$; ≥ 0.44 are statistically significant, $p < 0.001$. ¹ Abbreviations of dimensions explained in Table 2.

Table 7. Intraclass correlation coefficients (ICC(1) and ICC(2) *) for aggregation to occupational major group and for aggregation to organizational level (51 workplace surveys). For the workplace sample scale score: Mean and standard deviation, minimum, maximum, range and difference between the mean in the Workplace Survey compared to the weighted mean in the National Survey.

Dimension ¹	Aggregation to ISCO-Major Occupational Group		Aggregation to Workplace Level							
	National Survey		Workplace Surveys							
	ICC(1) ²	ICC(2) ³	ICC(1) ²	ICC(2) ³	Mean	SD	Min	Max	Range	Difference to Benchmark ⁴
QD	0.11	0.98	0.11	0.82	43.3	9.3	19.6	60.7	41.2	2.4
WP	0.00	0.62	0.13	0.85	58.6	9.0	37.5	78.1	40.6	-1.3
ED	0.15	0.98	0.28	0.93	45.7	14.0	22.0	80.2	58.2	-1.1
IN	0.09	0.97	0.12	0.82	47.0	7.3	30.6	60.9	30.3	-3.2
PD	0.11	0.98	0.12	0.83	63.1	9.1	39.5	78.1	38.6	-7.3
VA	0.11	0.98	0.16	0.88	67.9	11.5	31.6	85.2	53.6	-0.1
MW	0.07	0.96	0.14	0.85	78.6	8.8	52.4	90.6	38.3	0.3
PR	0.02	0.85	0.14	0.85	55.2	9.3	35.2	68.8	33.5	-5.0
RE	0.02	0.86	0.09	0.79	60.1	8.6	41.3	77.4	36.2	-5.5
CL	0.03	0.90	0.06	0.69	70.6	7.0	39.6	85.8	46.3	-7.5
CO	0.01	0.75	0.10	0.80	40.7	7.7	29.2	60.2	31.1	-1.5
QL	0.01	0.66	0.13	0.83	57.0	11.0	32.6	79.4	46.8	2.9
SS	0.00	0.51	0.10	0.80	76.8	9.9	57.4	93.8	36.4	1.5
SC	0.01	0.76	0.05	0.63	77.4	7.2	56.3	89.2	33.0	-2.8
SW	0.01	0.67	0.07	0.73	77.5	6.7	56.7	88.6	32.0	-2.4
CW	0.01	0.82	0.17	0.86	61.0	12.4	33.9	87.5	53.6	-3.7
WE	0.03	0.90	0.05	0.63	70.7	6.5	58.3	81.7	23.3	1.3
JI	0.08	0.97	0.12	0.82	19.9	8.5	3.8	40.1	36.3	-0.3
IW	0.01	0.82	0.06	0.70	25.5	8.3	10.6	45.0	34.4	0.6
QW	0.00	0.56	0.09	0.78	66.7	9.8	37.5	87.5	50.0	-1.5
JS	0.03	0.91	0.10	0.81	64.6	7.4	43.3	77.6	34.4	0.2
WF	0.02	0.90	0.06	0.69	36.1	9.0	17.6	50.6	33.0	-3.6
TE	0.02	0.86	0.15	0.86	68.1	10.5	37.5	87.5	50.0	-3.2
TM	0.02	0.85	0.25	0.92	66.6	11.3	43.1	88.1	45.0	-2.7
JU	0.02	0.88	0.19	0.89	56.0	10.7	32.5	75.2	42.7	-3.7
GH	0.02	0.87	0.02	0.39	57.1	5.9	45.2	68.0	22.8	-4.2
ST	0.01	0.74	0.05	0.65	33.0	7.7	15.8	51.5	35.7	-3.0
BO	0.02	0.86	0.05	0.66	34.6		16.7	49.0	32.3	-1.6

¹ Abbreviations of dimensions explained in Table 2. ² ICC(1) represents the amount of variance in the employees' responses that can be explained by their membership of a group (occupational/workplace). ³ ICC(2) is an estimate of reliability of the aggregated group means. ⁴ Benchmark presented in Table 2.

4. Discussion

In the present study, we have evaluated the reliability and construct validity of a Swedish standard version of COPSOQ III at both individual and organizational level and established national benchmarks for workplace surveys. A trade-off exists between the obvious need for a questionnaire of high relevance for the national context and the need to keep a high degree of correspondence with other national versions for facilitation of valid comparisons. Experiences from previous versions of the instrument have shown that practitioners and researchers to a high extent share a wish for shorter questionnaires. We have chosen to reduce the number of items in many dimensions in order to be able to make room for new dimensions covering Work Engagement, Quality of Work, Job Insecurity, Insecurity over Working Conditions and Cyber Bullying. Scales including only a few items potentially reduce the reliability and validity of the measurement. Nevertheless, our overall findings indicate that the Swedish national standard version of COPSOQ III has good psychometric properties for its intended uses.

4.1. Reliability and Scale Characteristics at Individual Level Based on the National Survey

The internal consistency reliability of the scales was satisfactory for the study population as a whole. This corresponds with findings from the international COPSOQ III validation study (Burr et al. 2019). An unacceptably low value for Work Pace was seen for respondents with an Elementary Occupation, and the reliability was questionable for Work Pace, Role Conflicts and Quality of Work for Managers, Craft and Related Trade Workers, and Elementary Occupations. This calls for caution when interpreting results for these specific combinations of scales and major occupational groups. In the future, adding more items to these scales should be considered in the Swedish context.

Compared to findings from the Danish COPSOQ II study [7] and the international COPSOQ III study [5], the internal non-response was low for all scales, and especially regarding Social Support from Supervisor and Vertical Trust. Scales referring to managers and work climate can in some cases be difficult to reply to, for example in complex organizations or among the self-employed [10]. The noticeable lower internal non-response for these scales might be due to stricter inclusion criteria in the present study in combination with the thorough adaptation of formulations based on cognitive interviewing techniques [8–10].

Floor and ceiling effects were minor for most scales, indicating the good ability of the instrument to distinguish over the full spectrum of the scales. However, for the new dimensions, Job Insecurity and Insecurity over Working Conditions, we found a high floor effect. This finding was not a surprise based on the previous findings from the international validation study [5] and from the Sixth European Working Conditions Survey [44]. In contrast, we found large ceiling effects for Meaning of Work, Social Support from supervisor and from colleagues. The finding regarding Meaning of Work is also in accordance with previous findings [5,11]. Sweden is globally among those countries with the highest proportion of workers employed in service work (2019: 80% [45]), which is typically perceived as more meaningful than manufacturing work. The high levels of reported social support contrast with the levels reported for COPSOQ II for specific occupational contexts in Sweden [11,16]. This could be a consequence of the COPSOQ III standard version including two rather than three items in each of these scales. The level is also higher than the reported international results reported for COPSOQ III [5]. This difference can probably be understood in the light of the Swedish workplace culture characterized by shared decision making, avoidance of conflicts and aiming at consensus [46].

4.2. Reliability and Validity of COPSOQ III for Use at Workplaces and for Multilevel Research Design

COPSOQ is a generic instrument intended for research purposes as well as risk management of the psychosocial work environment at workplaces [5,7,47]. Accordingly, the ability of scales to distinguish exposures for different occupational groups and across workplaces is of great importance.

Despite being an instrument, which collects responses from individual employees, the main intention is to capture workplace and organizational conditions, not individual perceptions. It is thus very important that the aggregated workplace scores refer to something that is shared by the employees in a certain work unit/organization and not just to a mean of largely unrelated individual responses. Our findings corroborated the reliability of such group mean scores regarding psychosocial exposures based on aggregation to occupation and workplace level.

The traditional criterion is a minimum of 5% explained variance for the relevance of taking the aggregated level into account [41,42]. The amount of variance explained by workplace fulfilled the criteria for all dimensions except Self-Rated Health, which is an individual outcome mainly influenced by non-work-related factors. This underlines the importance of considering the workplace level for research on the psychosocial environment and justifies the relevance of aggregating individual scores to group mean scores when reporting survey results back to workplaces. Our findings corroborate previous research on the COPSOQ II showing that job exposure matrices are of little relevance for psychosocial risk assessment of, e.g., relational factors in workplaces [48,49]. However, the low amount of variance attributed to the major occupational groups does not imply that occupation is of no relevance, as the ISCO-digit-1 grouping comprises many different occupations working in different sectors, etc., within each major group. In a specific context such as public dental services, psychosocial work environment factors have been reported to differ considerably for dentists working in different organizations, while this is not the case for dental nurses and hygienists [22]. Additionally, the traditional criterion has been questioned as even ICC(1) values as low as 0.01 in some cases are relevant to take into account in multilevel analyses [50].

We found a similar overall pattern of inter-correlations at the individual level across the two samples of the present study and those reported from the international validation study [5] (Burr et al. 2019). In general, the strength and direction of correlations supported the concurrent validity of the scales. However, the strength of the inter-correlation between Stress and Burnout and the similarity of correlation for these two scales to other dimensions calls for further clarification of whether they actually represent two separate constructs as measured here.

As one might expect, however, we found differences in the strength of correlations at the individual level when comparing the Swedish with the international findings. In particular, the two new dimensions regarding insecurity showed considerably stronger correlations with other dimensions in the Swedish sample compared to the international average correlations across national samples. A high degree of employment security on the labour market combined with a high flexibility decreases the detrimental health effect of individual employees' perceptions of job insecurity [51]. The Swedish labour market is, however, characterized by high employment security for people in fixed positions, but little flexibility in hiring and firing of workers; this combination may result in especially strong adverse reaction to individual level experienced job insecurity [51].

In accordance with what is typically reported [52], the correlations at the aggregated workplace level were in general stronger than for the individual level. We found some interesting differences in the general pattern of correlations between individual and workplace level. This may be due to conceptual differences between aggregated and individual level dimensions [33]. Stronger correlations at the individual level could also indicate individual bias, such as negative affectivity or generalized effects of health, for instance depressive symptoms [53]. Stronger correlations at the organizational level, on the other hand, could indicate generalized effects of managerial practices or financial constraints at the organizational level. For example, the Psychosocial Safety Climate (PSC) of organizations has been shown to act as a precursor to and moderator of job demands and resources in the workplace [54–56]. This underlines the importance of careful theoretical considerations and the relevance of multilevel study design in work environment research in order to avoid the ecological or the atomistic fallacy.

4.3. Strengths and Limitations

The findings of our study should be seen in the light of some advantages and limitations.

A trade-off exists between the need to optimize the relevance of a generic questionnaire to the local context and the prospects for comparison over time and context. We found it to be possible to reduce the number of items, to maintain a broad coverage and even include new dimensions of high relevance to Swedish regulations (e.g., Work Engagement and Quality of Work). Another advantage is that the Swedish national version of COPSOQ III builds on experiences from COPSOQ II and a careful adaptation process including translation-back-translation, use of cognitive interviews and perceptions from stakeholders of different kinds.

The study design allowed for analyses including individual level data and nested data from workplaces. This adds to the knowledge about the reliability and validity of the instrument for use at workplaces and for integration in multilevel analyses.

The response rate for the workplace sample was a satisfactory 77%, clearly indicating the relevance of the instrument for use in this context. For the national survey the response rate was a less satisfying 31% and for two of the major ISCO 1-digit groups the number of respondents was too low to allow for valid calculation of scale mean scores. However, the strength of this dataset is that it was based on a random sample of wage earners in Sweden and the opportunity of calculating weights for adjustment based on complementary demographic register data. A comparison of weighted and unweighted benchmarks and mean scores (not reported) showed only minor differences in estimates. While the low response rate still is a limitation of the study, we find no indication that selection bias is a major problem for the reported population-based benchmarks and mean values for the major occupational groups, which can thereby be considered representative of the underlying population.

In future studies, it will be relevant to employ a longitudinal multilevel design with integration of self-reported data and register data (e.g., absence, staff turnover and measures of performance). In particular, it will be relevant to evaluate test-retest reliability, responsiveness and predictive criterion validity. Bliese and Jex pointed out that simple analyses of means for people working together often may be appropriate for implementation and evaluation of organizational interventions and are also important to consider in stress research projects [33]. This makes further validation of the multilevel structure of the instrument and evaluation of measurement invariance across different groups and language versions highly relevant.

5. Conclusions

The present study supports the reliability and construct validity of the Swedish standard version of COPSOQ III and establishes benchmarks for workplace risk management as well as for research purposes.

Supplementary Materials: The following are available online at <http://www.mdpi.com/1660-4601/17/9/3179/s1>, Changes in items and dimensions from the Swedish version of COPSOQ II to COPSOQ III.

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Appendix B

Table A2. Overview of dimensions included in the Swedish standard version of COPSOQ III and its correspondence with the International COPSOQ III and with the existing Swedish middle version of COPSOQ II.

The Swedish Standard COPSOQ III.	No. of Items	Correspondence with the International COPSOQ III	Correspondence with the Existing Swedish COPSOQ II
Quantitative demands	3	Equal to MIDDLE	1 item shorter
Work pace	2	Equal to MIDDLE	1 item shorter
Emotional demands	3	Equal to MIDDLE	1 item shorter, 1 item changed wording
Influence	4	1 MIDDLE item replaced by 1 LONG item	No changes
Possibilities for development	3	Equal to MIDDLE	1 item shorter
Variation of work	1	1 out of 2 LONG items	No changes
Meaning of work	1	Equal to CORE	2 items shorter
Predictability	2	Equal to MIDDLE	No changes
Recognition	2	1 CORE item supplemented by 1 LONG item	1 item shorter, dimension name changed
Role clarity	3	Equal to MIDDLE	Dimension name changed
Role conflicts	3	2 CORE items supplemented by 1 MIDDLE item on illegitimate tasks	1 item shorter
Quality of leadership	3	Equal to MIDDLE	1 item shorter, dimension name changed
Social support from supervisor	2	Equal to MIDDLE	1 item shorter
Social support from colleagues	2	Equal to MIDDLE	1 item shorter
Sense of community at work	3	Equal to LONG	No changes
Commitment to the workplace	3	3 out of 5 LONG items	1 item replaced; dimension name changed
Work engagement	3	Equal to LONG	New dimension
Job insecurity	3	Equal to LONG	New dimension
Insecurity over working conditions	2	1 CORE item supplemented by 1 LONG item	New dimension
Quality of work	2	Equal to LONG	New dimension
Job satisfaction	4	4 out of 5 LONG items (1 MIDDLE item excluded)	No changes
Work life conflict	3	2 CORE items supplemented by 1 LONG item	1 item shorter, 1 item replaced, response options changed
Horizontal trust	1	Equal to MIDDLE	2 items shorter, dimension name changed
Vertical trust	3	Equal to MIDDLE	1 item shorter, 2 items changed wording, dimension name changed
Organizational justice	3	2 CORE items supplemented by 1 LONG item	1 item shorter, 2 items changed wording, dimension name changed
Self-rated health	1	Equal to CORE	No changes
Stress	3	Equal to LONG	1 item shorter
Burnout SE	3	3 out of 4 LONG version items	1 item shorter
Threats of violence	1 (2)	Equal to LONG	No changes
Physical violence	1 (2)	Equal to LONG	No changes
Bullying	1 (2)	Equal to LONG	No changes
Sexual harassment	1 (2)	Equal to LONG	No changes
Cyber Bullying	1 (2)	Equal to LONG	New dimension

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Supplementary Material. Changes in items and dimensions from the Swedish version of COPSOQ II to COPSOQ III

Dimension English	Dimension Swedish	Item name	Level international COPSOQ III	Tested in cognitive interviews	Included in SCB survey	Swedish standard COPSOQ III	Item changes from Swedish COPSOQ II to COPSOQ III	Item in English	Item in Swedish	Response options*
Demands at Work										
Quantitative Demands	Kvantitativa krav	QD1	MIDDLE	x	x	x		Is your workload unevenly distributed so it piles up?	Är din arbetsbörda ojämnt fördelad så att arbete samlas på hög?	1
		QD2	CORE	x	x	x		How often do you not have time to complete all your work tasks?	Hur ofta händer det att du inte hinner slutföra alla dina arbetsuppgifter?	1
		QD3	CORE	x	x	x		Do you get behind with your work?	Kommer du efter med ditt arbete?	1
		QD4	LONG	x			QD4 was included in MIDDLE COPSOQ II, now only in LONG version	Do you have enough time for your work tasks?	Har du tillräckligt med tid för att utföra dina arbetsuppgifter?	1R
Work Pace	Arbetstempo	WP1	CORE	x	x	x		Do you have to work very fast?	Är du tvungen att arbeta väldigt snabbt?	1
		WP2	CORE	x	x	x		Do you work at a high pace throughout the day?	Arbetar du i ett högt tempo under hela dagen?	2
		WP3	LONG	x			WP3 was included in MIDDLE COPSOQ II, now only in LONG version	Is it necessary to keep working at a high pace?	Måste du hålla ett högt arbetstempo?	2
Cognitive Demands	Kognitiva krav	CD1	LONG	**			Translation by Wentz et al. 2019**	Do you have to keep your eyes on lots of things while you work?	Måste du hålla reda på många saker samtidigt i ditt arbete?	1
		CD2	LONG	**			Translation by Wentz et al. 2019**	Does your work require that you remember a lot of things?	Kräver ditt arbete att du ska komma ihåg mycket?	1
		CD3	LONG	**			Translation by Wentz et al. 2019**	Does your work demand that you are good at coming up with new ideas?	Kräver ditt arbete att du är bra på att komma på nya idéer?	1
		CD4	LONG	**			Translation by Wentz et al. 2019**	Does your work require you to make difficult decisions?	Kräver ditt arbete att du fattar svåra beslut?	1
Emotional Demands	Känslomässiga krav	ED1	MIDDLE	x	x	x		Does your work put you in emotionally disturbing situations?	Hamnar du genom ditt arbete i känslomässigt påfrestande situationer?	1
		EDX2	CORE	x	x	x	"förhålla dig till" changed to "hantera" to match the change internationally	Do you have to deal with other people's personal problems as part of your work?	Måste du hantera andra människors personliga problem i ditt arbete?	1

		ED3	CORE	x	x	x		Is your work emotionally demanding?	Är ditt arbete känslomässigt krävande?	2
							ED4 not included in COPSOQ III			
Demands for Hiding Emotions	Krav om att dölja känslor	HE1	LONG					Are you required to treat everyone equally, even if you do not feel like it?		1
		HE2	MIDDLE	x				Does your work require that you hide your feelings?	Måste du dölja dina känslor i ditt arbete?	2
		HE3	MIDDLE	x				Are you required to be kind and open towards everyone – regardless of how they behave towards you?	Förväntas du vara vänlig och tillmötesgående mot alla, oavsett hur de beter sig mot dig?	2
		HE4	MIDDLE					Does your work require that you do not state your opinion?		1
Work Organization and Job Contents										
Influence at Work	Inflytande	INX1	CORE	x	x	x	International COPSOQ III congruent with the Swedish COPSOQ II, no changes made	Do you have a large degree of influence on the decisions concerning your work?	Har du möjlighet att påverka väsentliga beslut som gäller ditt arbete?	1
		IN2	LONG	x	x	x		Do you have a say in choosing who you work with?	Kan du påverka vem du arbetar tillsammans med?	1
		IN3	MIDDLE	x	x	x		Can you influence the amount of work assigned to you?	Kan du påverka din arbetsmängd?	1
		IN4	MIDDLE	x	x	x		Do you have any influence on what you do at work?	Kan du påverka vad du gör i ditt arbete?	1
		IN5	LONG	x				Can you influence how quickly you work?	Kan du påverka hur snabbt du arbetar?	1
		IN6	MIDDLE					Do you have any influence on HOW you do your work?		1
Possibilities for Development	Utvecklings-möjligheter						PD1 not included in COPSOQ III			
		PD2	CORE	x	x	x		Do you have the possibility of learning new things through your work?	Har du möjlighet att lära dig något nytt genom ditt arbete?	2
		PD3	CORE	x	x	x		Can you use your skills or expertise in your work?	Kan du använda ditt kunnande eller dina färdigheter i ditt arbete?	2
		PD4	MIDDLE	x	x	x		Does your work give you the opportunity to develop your skills?	Erbjuder ditt arbete möjligheter att utveckla dina färdigheter?	2
Variation of Work	Variation i arbetet	VA1	LONG	x	x	x		Is your work varied?	Är ditt arbete varierat?	1
		VA2	LONG	x	x		New item in Swedish LONG COPSOQ III	Do you have to do the same thing over and over again?	Innebär ditt arbete att man gör samma sak om och om igen?	1R

Control over Working Time	Kontroll över arbetstider						Dimension reintroduced from COPSOQ I, not included in the Swedish COPSOQ III			
		CT1	MIDDLE				Item reintroduced from COPSOQ I, not included in the Swedish COPSOQ III	Can you decide when to take a break?		1
		CT2	MIDDLE				Item reintroduced from COPSOQ I, not included in the Swedish COPSOQ III	Can you take holidays more or less when you wish?		1
	CT3	MIDDLE				Item reintroduced from COPSOQ I, not included in the Swedish COPSOQ III	Can you leave your work to have a chat with a colleague?		1	
	CT4	MIDDLE				Item reintroduced from COPSOQ I, not included in the Swedish COPSOQ III	If you have some private business is it possible for you to leave your piece of work for half an hour without special permission?		1	
	CT5	LONG				Item reintroduced from COPSOQ I, not included in the Swedish COPSOQ III	Do you have to do overtime?		1R	
Meaning of Work	Mening i arbetet	MW1	CORE	x	x	x	International COPSOQ III congruent with the Swedish COPSOQ II	Is your work meaningful?	Är ditt arbete meningsfullt?	2
		MW2	MIDDLE	x				Do you feel that the work you do is important?	Känner du att din arbetsinsats är viktig?	2
							MW3 not included in COPSOQ III			
Interpersonal Relations and Leadership										
Predictability	Förutsägbarhet	PR1	CORE	x	x	x		At your place of work, are you informed well in advance concerning for example important decisions, changes or plans for the future?	Får du information i god tid på din arbetsplats t.ex. när det gäller viktiga beslut, förändringar och framtidsplaner?	2
		PR2	CORE	x	x	x		Do you receive all the information you need in order to do your work well?	Får du veta allt du behöver för att klara ditt arbete på ett bra sätt?	2

Recognition	Erkännande						Dimension name changed in Swedish COPSQ III from <i>Belöning</i> to <i>Erkännande</i> following the change internationally			
		RE1	CORE	x	x	x		Is your work recognized and appreciated by the management?	Uppmärksammar och uppskattar ledningen din arbetsinsats?	2
		RE2	LONG	x				Does the management at your workplace respect you?	Respekteras du av ledningen på din arbetsplats?	2
		RE3	LONG	x	x	x		Are you treated fairly at your workplace?	Behandlas du rättvist på din arbetsplats?	2
Role Clarity	Rolltydlighet						Dimension name changed in Swedish COPSQ III from <i>Klarhet i rollerna</i> to <i>Rolltydlighet</i>			
		CL1	CORE	x	x	x		Does your work have clear objectives?	Finns det klara mål för ditt arbete?	2
		CL2	MIDDLE	x	x	x		Do you know exactly which areas are your responsibility?	Vet du exakt vilka som är dina ansvarsområden?	2
		CL3	MIDDLE	x	x	x		Do you know exactly what is expected of you at work?	Vet du precis vad som förväntas av dig i ditt arbete?	2
Role Conflicts	Rollkonflikter						Dimension includes IT1 in Swedish COPSQ III.			
							CO1 not included in COPSQ III			
		CO2	CORE	x	x	x		Are contradictory demands placed on you at work?	Ställs det krav som strider mot varandra i ditt arbete?	2
		CO3	CORE	x	x	x		Do you sometimes have to do things which ought to have been done in a different way?	Måste du ibland göra något som egentligen borde ha gjorts annorlunda?	2
		IT1	MIDDLE	x	x	x	Variable name changed from <i>CO4</i> to <i>IT1</i> in COPSQ III	Do you sometimes have to do things which seem to be unnecessary?	Måste du ibland göra saker i ditt arbete som kan verka onödiga?	2
Quality of Leadership	Ledarskapskvalitet						Dimension name changed in Swedish COPSQ III from "Ledningskvalitet" to "Ledarskapskvalitet"	To what extent would you say that your immediate superior ...	I vilken utsträckning anser du att din närmaste chef	
		QLX1	MIDDLE	x	x	x	International COPSQ III congruent with the Swedish COPSQ II	makes sure that the members of staff have good development opportunities?	ser till att samtliga medarbetare har bra utvecklingsmöjligheter?	2

		QL2	LONG	x	x			gives high priority to job satisfaction?	prioriterar trivseln på arbetsplatsen högt?	2
		QL3	CORE	x	x	x		is good at work planning?	är bra på att planera arbetet?	2
		QL4	CORE	x	x	x		is good at solving conflicts?	är bra på att hantera konflikter?	2
Social Support from Supervisor	Socialt stöd från överordnad	SSX1	MIDDLE	x	x	x	International COPSOQ III congruent with the Swedish COPSOQ II	How often is your immediate superior willing to listen to your problems at work, if needed?	Om du behöver är din närmaste chef beredd att lyssna på problem som rör ditt arbete?	1
		SSX2	CORE	x	x	x	International COPSOQ III congruent with the Swedish COPSOQ II	How often do you get help and support from your immediate superior, if needed?	Om du behöver, får du stöd och hjälp med ditt arbete från din närmaste chef?	1
		SSX3	LONG	x				How often does your immediate superior talk with you about how well you carry out your work?	Hur ofta talar din närmaste chef med dig om hur du utför ditt arbete?	1
Social Support from Colleagues	Socialt stöd från kollegor	SCX1	CORE	x	x	x	International COPSOQ III congruent with the Swedish COPSOQ II	How often do you get help and support from your colleagues, if needed?	Om du behöver, får du hjälp och stöd från dina kollegor?	1
		SCX2	MIDDLE	x	x	x	International COPSOQ III congruent with the Swedish COPSOQ II	How often are your colleagues willing to listen to your problems at work, if needed?	Om du behöver, är dina kollegor beredda att lyssna till dina problem med arbetet?	1
		SC3	LONG	x				How often do your colleagues talk with you about how well you carry out your work?		1
Sense of Community at Work	Social gemenskap i arbetet						Dimension name changed in International COPSOQ III, no changes made in the Swedish COPSOQ III			
		SW1	CORE	x	x	x		Is there a good atmosphere between you and your colleagues?	Är stämningen bra mellan dig och dina arbetskamrater?	1
		SW2	LONG	x	x	x		Is there good co-operation between the colleagues at work?	Är samarbetet bra mellan arbetskamraterna på din arbetsplats?	1
		SW3	MIDDLE	x	x	x		Do you feel part of a community at your place of work?	Känner du dig delaktig i en gemenskap på din arbetsplats?	1
Work-Individual Interface										
Commitment to the Workplace	Engagemang i organisationen						Dimension name changed in Swedish COPSOQ III from "Involvement på arbetsplatsen" to "Engagemang i organisationen"			

		CW1	LONG	x				Do you enjoy telling others about your place of work?		2
		CW2	LONG	x				Do you feel that your place of work is of great importance to you?	Tycker du att din arbetsplats har stor betydelse för dig?	2
		CWX3	LONG	x	x	x	International COPSOQ III congruent with the Swedish COPSOQ II	Would you recommend other people to apply for a position at your workplace?	Skulle du rekommendera andra att söka anställning på din arbetsplats?	2
		CW4	LONG	x	x	x		How often do you consider looking for work elsewhere?	Hur ofta överväger du att söka ett nytt jobb?	1R
		CW5	LONG	x	x	x	New item in Swedish STANDARD COPSOQ III	Are you proud of being part of this organization?	Är du stolt över att vara en del av den organisation som du arbetar inom?	2
Work Engagement	Arbetsengagemang	WE_T					New dimension in Swedish STANDARD COPSOQ III	How often do you experience the following?	Hur ofta upplever du följande?	
		WE1	LONG	x	x	x	New item in Swedish STANDARD COPSOQ III	At my work, I feel bursting with energy.	Jag känner mig full av energi när jag utför mitt arbete	3
		WE2	LONG	x	x	x	New item in Swedish STANDARD COPSOQ III	I am enthusiastic about my job.	Jag har ett brinnande intresse för mitt arbete	3
		WE3	LONG	x	x	x	New item in Swedish STANDARD COPSOQ III	I am immersed in my work.	Jag är starkt engagerad i mitt arbete	3
Job insecurity	Oro för arbetslöshet						New dimension in Swedish STANDARD COPSOQ III			
		J11	CORE	x	x	x	New item in Swedish STANDARD COPSOQ III	Are you worried about becoming unemployed?	Oroar du dig för att bli arbetslös?	2
		J12	LONG	x	x	x	New item in Swedish STANDARD COPSOQ III	Are you worried about new technology making you redundant?	Oroar du dig för att ny teknologi kan göra dig överflödig?	2
		J13	CORE	x	x	x	New item in Swedish STANDARD COPSOQ III	Are you worried about it being difficult for you to find another job if you became unemployed?	Är du orolig för att det skulle bli svårt att hitta nytt arbete om du blev arbetslös?	2
Insecurity over Working Conditions	Oro för förändrade arbetsförhållanden						New dimension in Swedish STANDARD COPSOQ III			
		IW1	CORE	x	x	x	New item in Swedish STANDARD COPSOQ III	Are you worried about being transferred to another job against your will?	Är du orolig för att bli omplacerad mot din vilja?	2
		IW2	LONG	x	x	x	New item in Swedish STANDARD COPSOQ III	Are you worried about your working tasks being changed against your will?	Är du orolig för att dina arbetsuppgifter förändras mot din vilja?	2

		IW3	MIDDLE				New item in Swedish LONG COPSOQ III	Are you worried about the timetable being changed (shift, weekdays, time to enter and leave ...) against your will?		2
		IW4	MIDDLE				New item in Swedish LONG COPSOQ III	Are you worried about a decrease in your salary (reduction, variable pay being introduced ...)?		2
		IW5	LONG	x			New item in Swedish LONG COPSOQ III	Are there good prospects in your job?	Finns det goda framtidsutsikter i ditt jobb?	2
Quality of Work	Kvalitet i arbetet						New dimension in Swedish STANDARD COPSOQ III			
		QW1	LONG	x	x	x	New item in Swedish STANDARD COPSOQ III	To what extent do you find it possible to perform your work tasks at a satisfactory quality?	I vilken utsträckning anser du att det är möjligt att utföra dina arbetsuppgifter med en tillfredställande kvalitet?	2
		QW2	MIDDLE	x	x	x	New item in Swedish STANDARD COPSOQ III	Are you satisfied with the quality of the work performed at your workplace?	Är du nöjd med kvaliteten på det arbete som utförs på din arbetsplats?	2
Job Satisfaction	Tillfredsställelse med arbetet	JS_T						Regarding your work in general. How pleased are you with	Angående ditt arbete i allmänhet. Hur tillfredsställd är du med	
		JS1	MIDDLE	x	x	x		your work prospects?	dina framtidsutsikter i jobbet?	6
		JS2	LONG	x	x	x	Wording changed from <i>fysiska arbetsförhållandena</i> to <i>de fysiska arbetsförhållandena</i>	the physical working conditions?	de fysiska arbetsförhållandena?	6
		JS3	LONG	x	x	x		the way your abilities are used?	det sätt dina kunskaper används på?	6
		JS4	CORE	x	x	x		your job as a whole, everything taken into consideration?	ditt arbete som helhet, allt inräknat?	6
		JS5	MIDDLE	x			New item in Swedish LONG COPSOQ III	your salary?	din lön?	6
Work Life Conflict	Konflikt mellan arbete och privatliv	WF_T						The next four questions concern the ways in which your work affects your private life:	Följande frågor handlar om relationen mellan arbete och privatliv	
		WFX1	LONG	x			Response options changed	Are there times when you need to be at work and at home at the same time?	Händer det att du behöver vara på arbetet och hemma samtidigt?	1
		WF2	CORE	x	x	x	Response options changed	Do you feel that your work drains so much of your energy that it has a negative effect on your private life?	Känner du att ditt arbete tar så mycket av din energi att det påverkar privatlivet negativt?	2

		WF3	CORE	x	x	x	Response options changed	Do you feel that your work takes so much of your time that it has a negative effect on your private life?	Känner du att ditt arbete tar så mycket av din tid att det påverkar privatlivet negativt?	2
		WF5	LONG	x	x	x	New item in Swedish STANDARD COPSOQ III	The demands of my work interfere with my private and family life?	Känner du att kraven i ditt arbete stör privatlivet?	2
		WF6	LONG				Not included in the Swedish COPSOQ III	Due to work-related duties, I have to make changes to my plans for private and family activities.		2
Social Capital										
Horizontal Trust	Horisontell tillit	TE-T					Dimension name changed from <i>Tillit och trovärdighet mellan de anställda inbördes</i> to <i>Horisontell tillit</i> , following the international change	The next questions are not about your own job but about the workplace as a whole	Arbetsplatsen sett som en helhet. Frågorna nedan avser inte ditt eget jobb utan din arbetsplats som helhet	
		TE1	LONG	x	x		<i>De anställda</i> changed to <i>medarbetarna</i> in Swedish COPSOQ III	Do the employees withhold information from each other?	Undanhåller medarbetarna information från varandra?	2R
		TE2	LONG	x	x		<i>De anställda</i> changed to <i>medarbetarna</i> in Swedish COPSOQ III	Do the employees withhold information from the management?	Undanhåller medarbetarna information från ledningen?	2R
		TE3	MIDDLE	x	x	x	<i>De anställda</i> changed to <i>medarbetarna</i> in Swedish COPSOQ III	Do the employees in general trust each other?	Litar medarbetarna i allmänhet på varandra?	2
Vertical Trust	Vertikal tillit	TM_T					Dimension name changed from <i>Tillit och trovärdighet mellan ledning och medarbetare</i> to <i>Vertikal tillit</i> , following the international change	The next questions are not about your own job but about the workplace as a whole	Arbetsplatsen sett som en helhet. Frågorna nedan avser inte ditt eget jobb utan din arbetsplats som helhet	
		TM1	CORE	x	x	x		Does the management trust the employees to do their work well?	Litar ledningen på att medarbetarna gör ett bra jobb?	2
		TMX2	CORE	x	x	x	<i>Man</i> changed to <i>medarbetarna in Swedish COPSOQ III</i> , following the international change	Can the employees trust the information that comes from the management?	Kan medarbetarna lita på den information som kommer från ledningen?	2

		TM3	LONG	x	x		<i>De anställda</i> changed to <i>medarbetarna</i> in Swedish COPSOQ III	Does the management withhold important information from the employees?	Undanhåller ledningen viktig information från medarbetarna?	2R
		TM4	MIDDLE	x	x	x	<i>De anställda</i> changed to <i>medarbetarna</i> in Swedish COPSOQ III	Are the employees able to express their views and feelings?	Är det möjligt för medarbetarna att uttrycka sina åsikter och känslor?	2
Organizational Justice	Organisatorisk rättvisa	JU_T					Dimension name changed in Swedish COPSOQ III from <i>Rättvisa och respekt to Organisatorisk rättvisa</i> , following the international change	The next questions are not about your own job but about the workplace as a whole	Arbetsplatsen sett som en helhet. Frågorna nedan avser inte ditt eget jobb utan din arbetsplats som helhet	
		JU1	CORE	x	x	x	<i>Man</i> changed to <i>medarbetarna</i> in Swedish COPSOQ III, following the international change	Are conflicts resolved in a fair way?	Löses konflikter på ett rättvist sätt?	2
		JU2	LONG	x	x	x	<i>De anställda</i> changed to <i>medarbetarna</i> in Swedish COPSOQ III	Are employees appreciated when they have done a good job?	Blir medarbetarna uppskattade för en bra arbetsinsats?	2
		JU3	LONG	x			<i>De anställda</i> changed to <i>medarbetarna</i> in Swedish COPSOQ III	Are all suggestions from employees treated seriously by the management?	Hanterar ledningen alla förslag från de medarbetarna seriöst?	2
		JU4	CORE	x	x	x		Is the work distributed fairly?	Fördelas arbetsuppgifterna på ett rättvist sätt?	2
Conflicts and offensive behaviors										
Gossip and Slander	Skvaller och förtal	GS1	LONG	x			New item in Swedish LONG COPSOQ III	Have you been exposed to gossip and slander at your workplace during the last 12 months?	Har du under de senaste 12 månaderna varit utsatt för skvaller och förtal på din arbetsplats?	4
		GS2	LONG	x			New item in Swedish LONG COPSOQ III	If yes, from whom? (You may tick off more than one)	Om ja, från vem?	5M
Conflicts and Quarrels	Bråk eller konflikter	CQ1	LONG	x			New item in Swedish LONG COPSOQ III	Have you been involved in quarrels or conflicts at your workplace during the last 12 months?	Har du under de senaste 12 månaderna varit inblandad i bråk eller konflikter på din arbetsplats?	4
Unpleasant Teasing	Retad på jobbet	UT1	LONG	x			New item in Swedish LONG COPSOQ III	Have you been exposed to unpleasant teasing at your	Har du under de senaste 12 månaderna blivit retad på din arbetsplats?	4

								workplace during the last 12 months?		
		UT2	LONG	x			New item in Swedish LONG COPSQ III	If yes, from whom? (You may tick off more than one)	Om ja, från vem?	5M
Cyber Bullying	Digitala kränkningar	HSM1	LONG	x	x	x	New item in Swedish STANDARD COPSQ III	Have you been exposed to work-related harassment on the social media (e.g. Facebook), by e-mail or text messages during the last 12 months?	Har du under de senaste 12 månaderna blivit utsatt för kränkningar på sociala medier (t.ex. Facebook), via e-post eller SMS som har något med ditt arbete att göra?	4
		HSM2	LONG	x	x	x	New item in Swedish STANDARD COPSQ III	If yes, from whom? (You may tick off more than one)	Om ja, från vem?	5M
Sexual Harassment	Icke önskvärd sexuell uppmärksamhet	SH1	LONG	x	x	x		Have you been exposed to undesired sexual attention at your workplace during the last 12 months?	Har du under de senaste 12 månaderna blivit utsatt för icke önskvärd sexuell uppmärksamhet på din arbetsplats?	4
		SH2	LONG	x	x	x		If yes, from whom? (You may tick off more than one)	Om ja, från vem?	5M
Threats of Violence	Hot om våld	TV1	LONG	x	x	x		Have you been exposed to threats of violence at your workplace during the last 12 months?	Har du under de senaste 12 månaderna blivit utsatt för hot om våld på din arbetsplats?	4
		TV2	LONG	x	x	x		If yes, from whom? (You may tick off more than one)	Om ja, från vem?	5M
Physical Violence	Fysiskt våld	PV1	LONG	x	x	x		Have you been exposed to physical violence at your workplace during the last 12 months?	Har du under de senaste 12 månaderna blivit utsatt för fysiskt våld på din arbetsplats?	4
		PV2	LONG	x	x	x		If yes, from whom? (You may tick off more than one)	Om ja, från vem?	5M
Bullying	Mobbing	TE_BU			x	x		Bullying means that a person repeatedly is exposed to unpleasant or degrading treatment, and that the person finds it difficult to defend himself or herself against it.	Med mobbing menas att man upprepade gånger blir utsatt för obehagliga eller kränkande handlingar, som det är svårt att försvara sig emot.	
		BU1	LONG	x	x	x		Have you been exposed to bullying at your workplace during the last 12 months?	Har du under de senaste 12 månaderna blivit utsatt för mobbing på din arbetsplats?	4
		BU3	LONG	x	x	x	Item name changed from BU2 to BU3 in Swedish COPSQ III, following the international change	If yes, from whom? (You may tick off more than one)	Om ja, från vem?	5M
		BU2	LONG	x			Not included in the Swedish COPSQ III	How often do you feel unjustly criticized, bullied or shown up in front of others by your colleagues or your superior?		1

Health and well-being										
Self-Rated Health	Självskattad hälsa	GH1	CORE	x	x	x		In general, would you say your health is:	I allmänhet, skulle du vilja säga att din hälsa är:	7
		GH2	LONG	x				If you evaluate the best conceivable state of health at 10 points and the worst at 0 points: How many points do you then give your present state of health?		8
Sleeping Troubles	Sömnbesvär						Dimension was included in MIDDLE COPSOQ II, now only in LONG version	Top page: These questions are about how you have been during the last 4 weeks.	Följande frågor avser hur du har haft det under de senaste 4 veckorna.	
		SL1	LONG	x			SL1 was included in MIDDLE COPSOQ II, now only in LONG version	How often have you slept badly and restlessly?	Hur ofta har du sovit dåligt eller oroligt?	9
		SL2	LONG	x			SL2 was included in MIDDLE COPSOQ II, now only in LONG version	How often have you found it hard to go to sleep?	Hur ofta har du haft svårt att somna?	9
		SL3	LONG	x			SL3 was included in MIDDLE COPSOQ II, now only in LONG version	How often have you woken up too early and not been able to get back to sleep?	Hur ofta har du vaknat för tidigt och inte kunnat somna om?	9
		SL4	LONG	x			SL4 was included in MIDDLE COPSOQ II, now only in LONG version	How often have you woken up several times and found it difficult to get back to sleep?	Hur ofta har du vaknat flera gånger och haft svårt att somna om?	9
Burnout	Utbrändhet	BO_T	LONG	x	x	x		Top page: These questions are about how you have been during the last 4 weeks.	Följande frågor avser hur du har haft det under de senaste 4 veckorna.	
		BO1	LONG	x	x	x		How often have you felt worn out?	Hur ofta har du saknat ork och energi?	9
		BO2	LONG	x	x	x		How often have you been physically exhausted?	Hur ofta har du varit fysiskt utmattad?	9
		BO3	LONG	x	x	x		How often have you been emotionally exhausted?	Hur ofta har du varit känslomässigt utmattad?	9
		BO4	LONG	x			BO4 was included in MIDDLE COPSOQ II, now only in LONG version)	How often have you felt tired?	Hur ofta har du känt dig trött?	9

Stress	Stress	ST_T						Top page: These questions are about how you have been during the last 4 weeks.	Följande frågor avser hur du har haft det under de senaste 4 veckorna.	
		ST1	LONG	x	x	x		How often have you had problems relaxing?	Hur ofta har du haft svårt att koppla av?	9
		ST2	LONG	x	x	x		How often have you been irritable?	Hur ofta har du varit lättretlig?	9
		ST3	LONG	x	x	x		How often have you been tense?	Hur ofta har du varit anspänd?	9
							ST4 excluded from COPSOQ III			Hur ofta har du varit stressad?
Somatic Stress	Somatisk stress	SO_T					New dimension in Swedish LONG COPSOQ III	Top page: These questions are about how you have been during the last 4 weeks.	Följande frågor avser hur du har haft det under de senaste 4 veckorna.	
		SO1	LONG	x			New item in Swedish LONG COPSOQ III	How often have you had stomach ache?	Hur ofta har du haft ont i magen?	9
		SO2	LONG	x			New item in Swedish LONG COPSOQ III	How often have you had a headache?	Hur ofta har du haft huvudvärk?	9
		SO3	LONG	x			New item in Swedish LONG COPSOQ III	How often have you had palpitations?	Hur ofta har du haft hjärtklappning?	9
		SO4	LONG				Not included in the Swedish COPSOQ III	How often have you had tension in various muscles?		9
Cognitive Stress	Kognitiv stress	CS_T					New dimension in Swedish LONG COPSOQ III	Top page: These questions are about how you have been during the last 4 weeks.	Följande frågor avser hur du har haft det under de senaste 4 veckorna.	
		CS1	LONG	**			Translation by Wentz et al. 2019**	How often have you had problems concentrating?	Hur ofta har du haft svårt att koncentrera dig?	9
		CS2	LONG	**			Translation by Wentz et al. 2019**	How often have you found it difficult to think clearly?	Hur ofta har du haft svårt att tänka klart?	9
		CS3	LONG	**			Translation by Wentz et al. 2019**	How often have you had difficulty in taking decisions?	Hur ofta har du haft svårt att fatta beslut?	9
		CS4	LONG	**			Translation by Wentz et al. 2019**	How often have you had difficulty with remembering?	Hur ofta har du haft svårt att minnas?	9
Depressive Symptoms	Depressiva symptom	DS_T	LONG	**			New dimension in Swedish LONG COPSOQ III	These questions are about how you have been during the last 4 weeks.		
		DS1	LONG	**			Translation by Wentz et al. 2019**	How often have you felt sad?	Hur ofta har du känt dig ledsen/nedstämd?	9
		DS2	LONG	**			Translation by Wentz et al. 2019**	How often have you lacked self-confidence?	Hur ofta har du saknat självförtroende?	9
		DS3	LONG	**			Translation by Wentz et al. 2019**	How often have you had a bad conscience or felt guilty?	Hur ofta har du haft dåligt samvete eller skuld känslor?	9
		DS4	LONG	**			Translation by Wentz et al. 2019**	How often have you lacked interest in everyday things?	Hur ofta har du saknat intresse för sådant du gör till vardags?	9

*** Response options in English and in Swedish**

1: Always (100); Often (75); Sometimes (50); Seldom (25); Never/hardly ever (0)

1R: Always (0); Often (25); Sometimes (50); Seldom (75); Never/hardly ever (100) (Reversed scoring)

2: To a very large extent (100); To a large extent (75); Somewhat (50); To a small extent (25); To a very small extent (0)

2R: To a very large extent (0); To a large extent (25); Somewhat (50); To a small extent (25); To a very small extent (100) (Reversed scoring)

3: Never (0), Seldom (25), Sometimes (50), Often (75), Always (100)

4: Yes, daily; Yes, weekly; Yes, monthly; Yes, a few times; No

5M: Colleagues, Manager/superior, Subordinates, Clients/customers/patients (Multiple response options)

6: Very satisfied (100), Satisfied (75), Neither/Nor (50), Unsatisfied (25), Very unsatisfied (0)

7: Excellent (100), Very good (75), Good (50), Fair (25), Poor (0)

8: 0, 1, 2, 4, 5, 6, 7, 8, 9, 10

9: All the time (100); A large part of the time (75); Part of the time (50); A small part of the time (25); Not at all (0)

1: Alltid (100); Ofta (75); Ibland (50); Sällan (25); Aldrig/nästan aldrig (0)

1R: Alltid (0); Ofta (25); Ibland (50); Sällan (75); Aldrig/nästan aldrig (100) (omvänd poängsättning)

2: I mycket hög grad (0); I hög grad (25); Delvis (50); I liten grad (75); I mycket liten grad (100)

2R: I mycket hög grad (100); I hög grad (75); Delvis (50); I liten grad (25); I mycket liten grad (0) (omvänd poängsättning)

3: Aldrig (0); Sällan (25); Ibland (50); Ofta (75); Alltid (100)

4: Ja, dagligen; Ja, varje vecka; Ja, varje månad; Ja, några gånger; Nej

5M: Kollegor; En överordnad; Underställda; Klienter/kunder/patienter

6: Mycket tillfredsställd (100); Tillfredsställd (75); Varken eller (50); Otillfredsställd (25); Mycket otillfredsställd (0)

7: Utmärkt (100); Mycket god (75); God (50); Någorlunda (25); Dålig (0)

8: 0, 1, 2, 4, 5, 6, 7, 8, 9, 10

9: Hela tiden (100); En stor del av tiden (75); En del av tiden (50); En liten del av tiden (25); Inte alls (0)

** For further details regarding the translation and validation of the dimensions *Cognitive Demands*, *Cognitive Stress*, *Depression* and for citation: Wentz K, Gyllensten K, Sluiter J K, Hagberg M. (2019). Need for recovery in relation to effort from work and health in four occupations. *International Archives of Occupational and Environmental Health*, 1-17.