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Health and well-being at work: The key role of supervisor support

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ABSTRACT

This study aims to explore whether and in what way social support from different sources and domains makes an additional or different and independent contribution to various health and work-related outcomes. Cross-sectional data were used from an employee survey among the workforces of four service companies from different industries in Switzerland. The study sample covered 5,877 employees of working age. The lack of social support from a spouse, relatives, friends, direct supervisors, closest colleagues at work and other co-workers in case of problems at work and at home were assessed and studied individually and jointly as risk factors with respect to a total number of eight outcomes. Health-related outcomes covered poor self-rated health, musculoskeletal disorders, stress feelings and burnout symptoms. Work-related outcomes included feeling overwhelmed at work, difficulty with switching off after work, job dissatisfaction and intention to turnover. Social support from multiple sources in contrast to only individual sources in both life domains was found to be more frequent in women than in men and proved to be most protective and beneficial with regard to health and well-being at work. However, after mutual adjustment of all single sources of social support from both domains, a lack of supervisor support turned out to be the only or the strongest of the few remaining support measures and statistically significant risk factors for the studied outcomes throughout and by far. Being unable to count on the support of a direct supervisor in case of problems at work and even at home was shown to involve a substantially increased risk of poor health and work-related outcomes (aOR = up to 3.8). Multiple sources of social support, and particularly supervisor support, seem to be important resources of health and well-being at work and need to be considered as key factors in workplace health promotion.

Introduction

Considerable research has been carried out over the past few decades on the role and contribution of social support, social relationships or social networks to and in the context of health and well-being, particularly with regard to disease and mortality (see inter alia Berkman, Glass, Brissette & Seeman, 2000; Berkman and Syme, 1979; Holt-Lunstad, Smith, & Layton, 2010; Kawachi and Berkman, 2001; Schwarzer and Leppin, 1989; Uchino, 2006; Uchino, 2004). Social support of different types (emotional, functional or instrumental, structural) and from different networks (personal, professional, community) or sources (family or relatives, spouse, friends, neighbors, supervisors, co-workers, the organization) and from different domains (work, home or non-work) has turned out to have positive or protective effects on general, physical and mental health as well as on psychological or emotional and occupational well-being.

Numerous studies suggest that social support is (directly) linked and (causally) related to health in general (Holden, Lee, Hockey, Ware & Dobson, 2015; Kumar, Calvo, Avendano, Sivaramakrishnan & Berkman, 2012; Uchino, Bowen, Carlisle & Birmingham, 2012; Van Woerden, Poortinga, Bronstering, Garrib & Hegazi, 2011; Wright, 2006) and positively associated with physical health (Barth et al., 2010; Fiori and Jager, 2012; Uchino, 2009), and with mental health in particular (Kawachi and Berkman, 2001; Plaisier, de Bruijn, de Graaf, ten Have, Beekman & Penninx, 2007; Sinokki et al., 2010; Sinokki et al., 2009). Previous studies and reviews also indicated that (perceived) social support even protects from cardiovascular disease and all-cause mortality (Barth et al., 2010; Brummett et al., 2005; Uchino, 2006). So it is widely undisputed and strongly evident that social support is generally – although not always – beneficial for health (and health behavior).

Since most studies on health effects of social support focus on support from close relations, personal networks or confidants such as a spouse or closest friend who are believed to play the most important role in this regard, evidence about other and multiple sources of social support and their effects on health and well-being is limited and scarce with few exceptions (see inter alia Fuhrer and Stansfeld, 2002; Li et al., 2014; Van Daalen et al., 2005; Van Daalen et al., 2006; Van Woerden et al., 2011). Nevertheless, different sources of social support were found to have different effects on health and well-being in different populations or social groups (Li et al., 2014; Van Woerden et al., 2011).

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Counting on multiple sources of support seems to be more characteristic of women, while men report receiving more but rather exclusive support from a closest person who is most often their spouse (Fuhrer and Stansfeld, 2002). And since network size and number of contacts and relationships were found to be associated with greater availability of social support (Seeman and Berkman, 1988), multiple sources of support likewise are expected to have a greater potential for providing support than individual sources as they presumably go along with a larger network and number of relationships.

Apart from positive health effects, social support seems to be equally beneficial for well-being at work. In particular, social support has been shown to reduce job stress (Beehr, Farmer, Glazer, Gudanowski & Nadig Nair, 2003; Oginska-Bulik, 2005), to enable people to cope better with or provide a buffer against specific job demands or work stressors such as work and time pressure (Willemse, de Jonge, Smit, Depla & Pot, 2012) or work-family conflict (Carlson and Perrewé, 1999; Kossek, Pichler, Bodner & Hammer, 2011; Selvarajan et al., 2013; Van Daalen et al., 2006), to increase job satisfaction (Willemse et al., 2012), to improve job performance (Nagami, Tsutsumi, Tsuchiya & Morimoto, 2010), to prevent turnover intention (Galletta, Portoghese, Penna, Battistelli & Saiani, 2011), to protect from burnout (Jenkins and Elliott, 2004; Gibson et al., 2009) and from work-related musculoskeletal ill-health and associated absence due to sickness as well as early retirement (Woods, 2005).

Many studies have looked at (a lack of) work-related sources of social support and their direct or moderating effects on health and work-related well-being such as job stress, job satisfaction, job performance, turnover intention or work-family conflict (Beehr et al., 2003; Galletta et al., 2011; Gibson et al., 2009; Jenkins and Elliott, 2004; Kossek et al., 2011; Nagami et al., 2010; Nakata et al., 2004; Selvarajan et al., 2013; Willemse et al., 2012). Social support at work comes mainly from supervisors or co-workers. Low supervisor support has been shown to increase the risk of mental health problems and particularly of depressive and anxiety disorders (Sinokki et al., 2009) or severe depressive symptoms (Rugulies, Bültmann, Aust & Burr, 2006). (Perceived) supervisor support has been found to be additionally and positively associated with job satisfaction (Galletta et al., 2011; Willemse et al., 2012), negatively and strongly correlated with emotional exhaustion (Willemse et al., 2012), burnout (Gibson et al., 2009), anxiety and psychological strain (Beehr et al., 2003), and turnover intention (Galletta et al., 2011). Co-worker support was shown to be positively related to job performance (Nagami et al., 2010) and negatively to job dissatisfaction and psychological strain (Beehr et al., 2003) or insomnia (Nakata et al., 2004).

Only very few studies have examined the effects of social support from work-related and non-work-related sources simultaneously (Jenkins and Elliott, 2004; Van Daalen et al., 2005; Van Woerden et al., 2011). And even less interest has been devoted to both health and work-related outcomes in case of difficulties at home as well as problems at work. This is presumably the first study to compare the significance and independent contribution of social support from two domains or settings (support from reference persons in private and work life) and six sources (spouse, friends, relatives, supervisors, closest colleagues at work and other co-workers) in two different situations (in case of problems at work and at home) with regard to a number of poor outcomes in the fields of health and work.

The research questions addressed in this study include the following:

- Do multiple sources of social support from different domains and reference persons produce and provide more (perceived) support and therefore result in better health or more health protection and better well-being at work than individual sources?
- Which sources or reference persons in which situations (problems at home or at work) matter most in this respect, i.e. are most supportive and protective with regard to poor health and work outcomes?

Methods

Data and study sample

The study was based on cross-sectional data collected in 2007 from a large-scale employee survey carried out among the workforces of four large and medium-sized service companies from different industries (insurance, banking, transportation, and healthcare). The participating companies were a multinational reinsurance company, a large Swiss bank, a global cargo and aircraft ground-services company, and a large public hospital in the canton of Zurich. In one company (hospital), a stratified random sample of the personnel was taken. In all other companies, full samples were used. The response or return rates among the four companies ranged from 35% to 68% with an average return rate of 56%. The transportation company recorded the lowest return rate by far (34.8%), followed by the hospital (52.3%), the insurance company (55.0%) and, finally, the banking company (67.5%) with the highest return rate by far. The sizes of the subsamples varied strongly between the four companies, or rather industries, due to differing workforce sizes and participation rates: banking (n = 3,127), insurance (n = 1,696), transportation (n = 766), healthcare (n = 502). In total, the aggregate sample covered a number of 6,091 employees from all hierarchical levels or job positions and various professions. In particular, the large and heterogeneous survey population included blue-collar workers such as unskilled baggage porters or cleaners as well as white-collar workers such as private and investment bankers or risk managers as well as highly qualified healthcare workers such as physicians or therapists. The sample selected for this study was limited to those 5,877 respondents who gave answers on their sex, age and education.

Compared to a nationally representative standard population of employees, i.e. a weighted random sample of the resident and employed population in Switzerland aged 15 to 65 from the 2007 data collection of the Swiss Household Panel (see Table 1), university graduates and other highly educated employees are strongly over-represented in the survey population. The same applies to executive employees, full-time employees and Swiss citizens. Men are also disproportionally represented in the study sample compared to the standard population.

Measures

Social support

The way in which social support is conceptualized, defined and measured often varies between studies (Reblin and Uchino, 2008, Schwarzer and Leppin, 1989). Social support in this study and the underlying survey was measured by a series of dichotomized yes/no questions about both the emotional and instrumental support (understanding, practical help, advice) given by confidants, peers or reference persons (spouse, friends, relatives, supervisor, closest colleague at work and other co-workers) in case of problems or difficulties a) at work, and b) at home (or in private life). Participants were asked about their perceived rather than actually received social support from these sources. This distinction is important since perceived support refers to a person's potential access to or perception of the availability of assistance or help from other people if needed, whereas received support refers to the reported actuality or offer of assistance or help (Uchino, 2009).

Questions of the two 6-item measures on perceived support in case of problems at home and at work were taken and adapted from the so-called and much-noticed Stress Study, a nationally representative telephone survey in Switzerland on the costs and covariates of stress that has been conducted for the first time in 2000 (and repeated in 2010) on behalf of the State Secretariat for Economic Affairs.

Questions and items were fully adopted from this survey and its questionnaire while response scales were dichotomized (yes/no) from

Table 1
Characteristics of the study population in comparison with a nationally representative standard population of employees in Switzerland.

		Study population Company survey 2007 (N = 5,877)	**Standard population**[a] Swiss Household Panel 2007 (N = 3,885)
Sex	Men	57.2%	49.0%
	Women	42.8%	51.0%
Age	(15)-30 years	24.9%	28.4%
	31–40 years	32.0%	23.0%
	41–50 years	27.4%	26.0%
	51 years and older	15.7%	22.5%
Education (highest level achieved)	No vocational education	5.8%	19.1%
	Basic vocational education (apprenticeship)	37.1%	39.2%
	University-entrance diploma (high-school graduation)	6.5%	9.8%
	Higher vocational education	30.9%	16.0%
	University	19.7%	15.9%
Nationality	Swiss (incl. dual citizenship)	87.6%	78.8%
	Other nationality	12.4%	21.2%
Number of persons living in household	1 (mostly singles)	18.9%	19.8%
	2 (mostly couples or single parents with one child)	36.7%	29.2%
	3+ (mostly families with two or more children)	44.4%	51.0%
Job status	Management position (member of managing board)	5.2%	4.7%
	Supervisory/training position	34.8%	24.1%
	Production position (standard level)	60.0%	71.2%
Employment rate	Part-time (<50%)	5.3%	17.4%
	Part-time (50–90%)	21.5%	24.2%
	Full-time (100%)	73.2%	58.4%

[a] Employees of a private company or government organisation (employees of private households or partners in a relative's firm are excluded) of working age between 15 and 65 years and with permanent residence in Switzerland; weighted data.

originally used 4-point frequency scales (from 'never' to 'very often'). For this study, the six items for both cases (in case of problems at home and at work) were used individually as well as consolidated. In other words: The extent or total amount of social support was operationalized by the accumulated number of reported sources ('yes') of social support. The number of sources was then classified into three frequency categories: few (0–2 sources), some (3–4 sources) and many (5–6 sources).

Health

A global health measure (self-rated health), a physical health measure (musculoskeletal disorders) and two mental health measures (stress feelings, burnout symptoms) were used as health outcomes in this study.

- To rate one's own health as moderate, bad or very bad was considered as poor self-rated health, which is probably the most widely used and best validated indicator of ill health and predictor of morbidity and mortality in health surveys. This single-item measure of general health status is used in all health-related population-based national surveys in Switzerland such as the Swiss Health Survey, the Swiss Household Panel or the Swiss Labour Force Survey.
- Reports of suffering from backache or low back pain combined with reported neck or shoulder pain in the last four weeks (with higher levels of severity for at least one of these pains) were categorized as accumulated musculoskeletal disorders. The two combined items were taken from the Swiss Health Survey – out of a selection of ten health complaints.
- Stress feelings were measured by a well-validated single-item measure of general psychological stress symptoms used in the Occupational Stress Questionnaire (Elo et al., 2003). A listing of selected stress symptoms such as tension, restlessness, nervousness, anxiety or sleeplessness due to a troubled mind was first given as a definition, followed by a question about how often respondents had felt stressed in such a way in the last twelve months with response categories on a 4-point scale from "never" to "very often". Responses of "often" and "very often" were classified as frequent stress feelings.
- Finally, burnout was measured by using eight items selected from the Copenhagen Burnout Inventory (CBI; Kristensen, Hannerz, Hogh & Borg, 2005) with response categories on a 5-point frequency scale from "never" (score 0) to "always" (4). Three items each were taken from two subscales of the CBI indicating personal burnout (e.g. "How often do you feel emotionally drained?") and work burnout (e.g. "How often do you feel empty and exhausted at the end of a working day?"). Two additional items from the third dimension of client burnout (e.g. "How often are you tired of working with clients?") were also used. Due to the small number of selected items for each of the three dimensions of the CBI, a total score was calculated instead of three subscales. A score of 20 and more on this multiple-item and multidimensional measure (Cronbach's alpha = .83) with a maximum score of 32 was categorized as increased burnout symptoms.

Well-being at work

Work-related outcomes used for this study were recognized indicators of job stress, namely experiences of excessive work demands and, thus, feeling overwhelmed or being overchallenged at work on the one hand and having difficulty to switch off after work indicating "the long arm of the job" or more precisely the long arm of job stress on the other. Additional indicators of poor well-being at work were low job satisfaction and "inner resignation" or rather intention to turnover.

- Excessive work demands were measured by the following statement: "I often feel overwhelmed at work." Responses of 'yes, it applies to me and bothers me to a certain extent', 'a lot' or 'extremely' were categorized as feeling overwhelmed or being overchallenged at work. Responses of 'no' or 'yes, it applies to me but it bothers me not at all' were categorized as not facing excessive demands or feeling overwhelmed at work.
- Difficulties with shutting down or switching off after work were

Table 2
Number of sources of social support in case of problems at home and at work by sex and in total.

	Social support in case of problems					
	at home[a]			at work[b]		
	Men	Women	**Total**	Men	Women	**Total**
Support from						
Few sources (0–2)	19.3%	10.8%	**15.8%**	13.1%	7.3%	**10.7%**
Some sources (3–4)	46.4%	45.1%	**45.9%**	41.3%	36.6%	**39.4%**
Many sources (5–6)	34.3%	44.2%	**38.4%**	45.6%	56.0%	**49.9%**
Total	100.0%	100.0%	**100.0%**	100.0%	100.0%	**100.0%**
N	3,109	2,230	**5,339**	3,069	2,205	**5,274**

[a] Contingency coefficient = 0.13, p < .001;
[b] Contingency coefficient = 0.12, p < .001.

assessed by a single question taken from the Swiss Household Panel ("How difficult is it for you to leave the work behind when the work day is over?"). Scores of 8 to 10 on the 11-point response scale that ranges from 'not difficult at all' (0) to 'extremely difficult' (10) were classified as having major difficulties to switch off after work.

- Job satisfaction was measured with a single question ("How satisfied are you with your work in general?") and an 11-point response scale from 'not satisfied at all' (0) to 'very satisfied' (10). This single-item measure again was adopted from the Swiss Household Panel. Scores between 0 and 4 were categorized as low job satisfaction.
- Turnover intention is defined as an employee's intention to voluntarily change his/her job or employer and was measured by asking participants whether they had ever thought of quitting their job since joining the company, following Richter (1999) who developed and operationalized this concept of "inner resignation" accordingly. A response of 'yes, and nothing has improved' was considered as a turnover intention or internal resignation.

Analysis

The statistical analyses were based on pooled and unweighted survey data from the four participating companies. As already mentioned and in order to avoid missing values, the study sample originally comprising 6,091 survey participants with submitted and completed questionnaires was restricted to 5,877 participants who provided information on their sex, age and education – variables that were needed and used for stratification and adjustment of association analyses in this study.

First, the total number of reported sources of social support was calculated and classified into three frequency groups in order to investigate whether the assumed difference between the two sexes in this regard really does hold. Bivariate (and adjusted) regression analyses were then made to find out if broader and/or stronger social support measured by a higher number of sources really is protective with regard to poor health outcomes and beneficial with regard to work-related outcomes. Sex-stratified bivariate analyses between measures of social support (from different domains and sources) on the one hand and different health and work-related outcomes on the other were subsequently performed by calculating cross tabulations (or contingency tables). Finally, multiple logistic regression analyses were performed and multiple adjusted odds ratios were calculated to explore which sources of social support from which domains are most predictive and have the strongest independent effect on the outcomes under study. All statistical analyses were carried out with SPSS (Statistical Package for the Social Sciences), Version 22.

Results

Initial results have shown that men tend to have (or report) substantially fewer sources of social support than women. This applies to both support in case of difficulties at home and in case of problems at work (see Table 2). Results further showed impressively that fewer sources of support go along with a significantly increased risk of poor health, accumulated musculoskeletal disorders, feeling generally and frequently stressed and showing increased burnout symptoms (see Table 3). Workers having only few sources of social support showed associations with poor health outcomes of adjusted odds ratios between 1.7 and 4.8 compared to those who could count on multiple sources. The same holds true for work-related outcomes: the lower the number of sources of support, the higher the relative risk of feeling overwhelmed at work, having major difficulties to switch off after work, being relatively dissatisfied with the work or having internally resigned from the job (see Table 4). Having only few sources of social support compared to many sources in case of problems at home/work was associated with these work-related outcomes of adjusted odds ratios between 1.8 and 3.8.

Stratified bivariate analyses (cross tabulations) showed for both sexes separately that all considered types and sources of social support were associated with the health and work-related outcomes studied,

Table 3
Health-related outcomes by number of sources of social support.

	Poor self-rated health (3–5)		**Accumulated musculoskeletal disorders (3–4)**		**Frequent stress feelings**		**Increased burnout symptoms (20–32)**	
	12.9%		13.1%		26.8%		5.3%	
	OR[a]	95% CI	OR[a]	95% CI	OR[a]	95% CI	OR[a]	95% CI
Support in case of problems at home from								
Many sources (5–6)	1		1		1		1	
Some sources (3–4)	1.26	1.04–1.51	1.26	1.05–1.51	1.55	1.35–1.78	2.26	1.66–3.07
Few sources (0–2)	1.91	1.52–2.39	1.84	1.46–2.33	2.17	1.81–2.61	3.99	2.80–5.69
No. cases in model	5,300		5,270		5,336		5,196	
Support in case of problems at work from								
Many sources (5–6)	1		1		1		1	
Some sources (3–4)	1.59	1.33–1.90	1.33	1.11–1.58	1.52	1.33–1.74	1.95	1.47–2.59
Few sources (0–2)	1.88	1.45–2.43	1.68	1.29–2.19	2.47	2.03–3.02	4.82	3.43–6.78
No. cases in model	5,232		5,207		5,271		5,136	

[a] Odds ratios adjusted for sex, age and education.

Table 4
Work-related outcomes by number of sources of social support.

	Feeling overwhelmed at work (3–5) 17.2%		Major difficulties to switch off after work (8–10) 12.4%		Low job satisfaction (0–4) 10.1%		Intention to turnover ('inner resignation') 13.1%	
	OR[a]	95% CI	OR[a]	95% CI	OR[a]	95% CI	OR[a]	95% CI
Support in case of problems at home from								
Many sources (5–6)	1		1		1		1	
Some sources (3–4)	1.18	1.01–1.39	1.42	1.18–1.72	2.40	1.92–3.01	2.21	1.82–2.69
Few sources (0–2)	1.84	1.50–2.26	1.93	1.53–2.45	3.77	2.88–4.93	2.82	2.22–3.59
No. cases in model	5,308		5,324		5,317		5,264	
Support in case of problems at work from								
Many sources (5–6)	1		1		1		1	
Some sources (3–4)	1.40	1.19–1.64	1.29	1.07–1.55	2.04	1.67–2.50	1.79	1.49–2.14
Few sources (0–2)	2.23	1.79–2.79	2.39	1.87–3.05	3.60	2.74–4.72	3.32	2.60–4.23
No. cases in model	5,243		5,258		5,251		5,198	

[a] Odds ratios adjusted for sex, age and education.

Table 5
Prevalence rates of several health-related outcomes by type and source of social support and by sex.

		Poor self-rated health (3–5) %		Accumulated musculoskeletal disorders (3–4) %		Frequent stress feelings %		Increased burnout symptoms (20–32) %	
		m	f	m	f	m	f	m	f
Total study population		12.8	13.1	**10.0**	**17.3**	**25.3**	**28.9**	**4.8**	**6.1**
Support in case of problems at home from									
Spouse, partner (19.0%[a])	Yes	12.5	**12.0**	9.7	17.0	**24.4**	28.0	**4.3**	6.1
	No	14.2	**16.4**	11.7	19.1	**29.3**	30.8	**7.1**	6.7
Friends, colleagues (8.3%[a])	Yes	**12.1**	**12.7**	10.0	**16.8**	**24.0**	**28.1**	**4.1**	**5.7**
	No	**17.5**	**23.1**	10.4	**26.7**	**34.2**	**43.1**	**9.5**	**15.4**
Family members, relatives (13.8%[a])	Yes	**11.8**	**12.1**	**9.3**	**16.2**	**24.0**	**27.5**	**3.9**	**5.3**
	No	**17.4**	**22.3**	**13.3**	**27.0**	**31.8**	**42.0**	**8.6**	**13.9**
Supervisor, line manager (53.3%[a])	Yes	**11.5**	**10.4**	9.6	**14.1**	**20.5**	**23.0**	**2.4**	**3.4**
	No	**13.8**	**16.0**	10.3	**20.1**	**29.2**	**35.1**	**6.7**	**9.2**
Closest colleague at work (42.4%[a])	Yes	**11.6**	**12.1**	9.4	**16.0**	**21.8**	**24.7**	**3.5**	**4.9**
	No	**14.0**	**15.2**	10.7	**20.1**	**28.9**	**37.5**	**6.0**	**9.2**
Other co-workers (62.1%[a])	Yes	**11.0**	11.9	8.9	**15.0**	**22.7**	27.4	**3.5**	**5.0**
	No	**13.7**	14.3	10.6	**18.8**	**26.7**	30.5	**5.4**	**7.3**
Support in case of problems at work from									
Spouse, partner (26.1%[a])	Yes	12.1	**11.7**	9.8	**16.6**	24.7	28.1	**4.3**	5.9
	No	14.3	**17.0**	11.0	**20.2**	27.0	30.6	**6.2**	7.3
Friends, colleagues (22.2%[a])	Yes	**11.5**	12.6	9.6	**16.5**	**24.1**	28.3	4.3	5.8
	No	**15.7**	16.0	11.3	**20.6**	**28.9**	31.9	5.9	7.9
Family members, relatives (36.7%[a])	Yes	**10.3**	**12.2**	**8.8**	16.1	24.2	**27.3**	**4.0**	**5.2**
	No	**15.5**	**15.5**	**11.5**	19.3	27.0	**33.1**	**5.6**	**8.6**
Supervisor, line manager (18.9%[a])	Yes	**11.5**	**11.5**	**9.2**	**15.5**	**22.2**	**25.0**	**2.9**	**4.3**
	No	**17.7**	**19.0**	**12.6**	**22.9**	**39.1**	**44.8**	**12.7**	**14.1**
Closest colleague at work (17.0%[a])	Yes	**11.9**	**11.8**	**9.3**	16.9	**23.0**	**26.5**	**3.3**	**5.5**
	No	**16.0**	**19.1**	**13.2**	18.8	**35.8**	**44.6**	**10.4**	**10.8**
Other co-workers (40.6%[a])	Yes	**11.5**	**11.9**	9.3	**15.4**	**23.1**	**26.8**	**3.7**	**4.4**
	No	**14.0**	**14.9**	10.8	**19.4**	**28.3**	**32.9**	**6.3**	**9.3**

Chi-square tests: $p \leq .05$ (**bold print**).
[a] Proportion of lack of such support in the entire study population.

Table 6
Prevalence rates of several work-related outcomes by type and source of social support and by sex.

		Feeling overwhelmed at work (3–5) %		Major difficulties to switch off after work (8–10) %		Low job satisfaction (0–4) %		Intention to turnover ('inner resignation') %	
		m	f	m	f	m	f	m	f
Total study population		17.7	16.4	**13.1**	**11.4**	9.6	10.7	13.3	12.9
Support in case of problems at home from									
Spouse, partner (19.0%[a])	Yes	**17.0**	15.7	13.7	11.5	**8.8**	**10.1**	**12.7**	13.3
	No	**21.1**	18.3	11.4	12.2	**13.1**	**14.2**	**16.5**	13.0
Friends, colleagues (8.3%[a])	Yes	**16.7**	**15.7**	**11.7**	**11.3**	**9.0**	**10.5**	**12.7**	**12.7**
	No	**24.2**	**30.3**	**23.0**	**17.6**	**13.3**	**16.7**	**16.6**	**20.6**
Family members, relatives (13.8%[a])	Yes	**16.1**	**15.7**	**12.1**	**10.4**	**8.8**	**10.1**	**12.4**	**12.1**
	No	**24.8**	**23.4**	**17.3**	**22.0**	**13.1**	**17.0**	**17.1**	**22.8**
Supervisor, line manager (53.3%[a])	Yes	**15.9**	**13.3**	**10.0**	**8.7**	**4.7**	**6.0**	**7.0**	**7.1**
	No	**19.3**	**19.7**	**15.7**	**14.5**	**13.5**	**15.8**	**18.4**	**19.3**
Closest colleague at work (42.4%[a])	Yes	**15.4**	**15.1**	**11.3**	**9.7**	**6.6**	**8.4**	**11.7**	**10.6**
	No	**19.8**	**19.2**	**15.1**	**15.4**	**12.5**	**16.2**	**14.8**	**18.2**
Other co-workers (62.1%[a])	Yes	15.9	14.9	11.8	10.4	**7.7**	**8.3**	11.8	**11.0**
	No	18.3	17.7	13.8	12.7	**10.5**	**13.2**	14.2	**14.9**
Support in case of problems at work from									
Spouse, partner (26.1%[a])	Yes	16.9	**15.4**	**14.0**	11.6	**8.7**	10.4	**12.3**	13.4
	No	19.3	**19.2**	**11.1**	11.8	**11.8**	12.8	**16.2**	12.6
Friends, colleagues (22.2%[a])	Yes	**16.2**	**15.6**	12.4	11.1	9.0	10.9	13.1	13.0
	No	**20.9**	**20.5**	14.9	13.5	11.0	11.2	13.5	13.5
Family members, relatives (36.7%[a])	Yes	**15.4**	**14.8**	**11.6**	**10.2**	**8.7**	**9.9**	12.2	12.5
	No	**20.0**	**20.2**	**15.3**	**15.0**	**10.8**	**13.2**	14.4	14.8
Supervisor, line manager (18.9%[a])	Yes	**16.2**	**14.1**	**10.9**	**9.1**	**6.2**	**7.2**	**8.6**	**8.4**
	No	**23.8**	**26.8**	**22.5**	**20.9**	**24.4**	**24.6**	**33.9**	**31.3**
Closest colleague at work (17.0%[a])	Yes	**16.2**	**15.2**	**11.3**	**10.1**	**8.0**	**9.5**	**11.9**	**11.4**
	No	**23.5**	**23.0**	**20.3**	**20.8**	**16.1**	**18.8**	**19.3**	**23.0**
Other co-workers (40.6%[a])	Yes	**16.0**	**14.6**	12.5	**9.8**	9.0	**8.8**	**11.8**	**10.5**
	No	**19.5**	**19.5**	14.0	**14.5**	10.3	**14.8**	**15.5**	**17.7**

Chi-square tests: $p \leq .05$ (**bold print**)
[a] Proportion of lack of such support in the entire study population.

with consistently but not always significantly higher prevalence rates of poor health and work outcomes for those participants without perceived social support (see Tables 5 and 6). After mutual adjustment for all support measures and additional covariates or control variables in multiple logistic regression analyses (see Tables 7 and 8), a single – and mainly one specific – source of support in each domain (home, work) remained significant in most cases as a predictor or risk factor for poor health and work outcomes: support or rather lack of support from one's direct supervisor. Lack of supervisor support was almost consistently found to have the strongest negative effect or impact of all studied factors on both health and well-being at work. The negative effect or relative risk of lacking supervisor support turned out to be particularly strong or high in case of problems at work and with regard to burnout (aOR = 2.6), job satisfaction (aOR = 3.6) and turnover intention (aOR = 3.8). For some outcomes and under certain circumstances, lack of support from family members in case of problems at home and from closest colleagues or co-worker in case of problems at work also had an independent and significant, but mostly minor negative effect on health and well-being at work. Overall, the lack or non-existence of supervisor support turned to be the most (or second most) important work stressor and health risk factor of all considered sources of support, regardless of the type or domain of the problems involved.

Discussion

The main aim of this study was to explore the associations between measures of social support from different domains and sources on the one hand and various health and work outcomes on the other. Although there is quite a lot of detailed evidence and research from outside Switzerland on such associations, and on the association between social support and health in particular, social supports from different sources and networks have rarely been studied simultaneously and compared directly with each other (Jenkins and Elliott, 2004; Van Daalen et al., 2006; Van Woerden et al., 2011). Previous studies have either used measures of general social support or measures of support from a single source or a small number of sources. Also, hardly any studies have investigated perceived social support from networks of both major life domains or settings (i.e. from personal and professional lives) and even fewer have looked at the different situations requiring social support (i.e. in case of problems at home and at work). This study therefore provides initial evidence on these issues by investigating the associations between measures of social support of two types (home- and work-related) and from six sources or reference groups in private and work life on the one hand and different health and work-related outcomes on the other.

The study results showed that social support from multiple sources is more common among women, whereas in men support from

Table 7
Perceived lack of domain-specific social support in association with health-related outcomes.

		Poor self-rated health (3-5) 12.9%		Accumulated musculoskeletal disorders (3-4) 13.1%		Frequent stress feelings 26.8%		Increased burnout symptoms (20-32) 5.3%	
		aOR[a]	95% CI	aOR[a]	95% CI	aOR[a]	95% CI	aOR[a]	95% CI
Support in case of problems at home from									
Spouse, partner (19.0%[b])	Yes	1		1		1		1	
	No	1.00	0.73-1.38	0.98	0.71-1.37	1.13	0.87-1.46	0.89	0.56-1.42
Friends, colleagues (8.3%[b])	Yes	1		1		1		1	
	No	1.22	0.90-1.65	0.96	0.69-1.33	1.26	0.99-1.61	1.50	0.99-2.27
Family members, relatives (13.8%[b])	Yes	1		1		1		1	
	No	1.27	0.98-1.63	**1.49**	1.15-1.93	**1.28**	1.04-1.56	**1.64**	1.15-2.34
Supervisor, line manager (53.3%[b])	Yes	1		1		1		1	
	No	1.11	0.90-1.37	0.98	0.80-1.21	**1.21**	1.04-1.42	**1.69**	1.20-2.39
Closest colleague at work (42.4%[b])	Yes	1		1		1		1	
	No	0.94	0.76-1.17	1.11	0.90-1.38	1.17	1.00-1.38	0.96	0.70-1.32
Other co-workers (62.1%[b])	Yes	1		1		1		1	
	No	1.02	0.82-1.27	1.11	0.89-1.38	0.87	0.74-1.03	0.81	0.57-1.14
Support in case of problems at work from									
Spouse, partner (26.1%[b])	Yes	1		1		1		1	
	No	1.16	0.87-1.55	1.13	0.84-1.54	0.90	0.71-1.14	1.24	0.81-1.90
Friends, colleagues (22.2%[b])	Yes	1		1		1		1	
	No	1.08	0.86-1.35	1.07	0.85-1.34	1.06	0.88-1.26	0.88	0.62-1.25
Family members, relatives (36.7%[b])	Yes	1		1		1		1	
	No	1.17	0.94-1.46	0.99	0.80-1.24	1.07	0.91-1.27	1.11	0.80-1.54
Supervisor, line manager (18.9%[2])	Yes	1		1		1		1	
	No	**1.50**	1.20-1.86	**1.45**	1.16-1.80	**1.83**	1.55-2.17	**2.59**	1.93-3.46
Closest colleague at work (17.0%[b])	Yes	1		1		1		1	
	No	1.21	0.95-1.54	1.02	0.79-1.31	**1.47**	1.22-1.76	**1.56**	1.12-2.17
Other co-workers (40.6%[b])	Yes	1		1		1		1	
	No	0.98	0.80-1.21	1.03	0.84-1.26	1.07	0.92-1.25	**1.38**	1.01-1.88
Control variables									
Sex (female)		1.08	0.90-1.28	**1.81**	1.52-2.16	**1.24**	1.08-1.42	**1.45**	1.12-1.89
Age (in 5-year intervals)		1.02	0.98-1.07	1.01	0.97-1.05	**0.91**	0.88-0.94	**0.93**	0.88-0.99
Education		**0.94**	0.91-0.97	**0.93**	0.90-0.97	1.00	0.97-1.02	0.97	0.92-1.01
Number of cases in model		5,120		5,093		5,154		5,031	

[a] Multiple adjusted odds ratios (all variables simultaneously included in the analysis).
[b] Proportion of lack of support from these persons in the entire study population.

individual sources is more widespread. Results further revealed that support from multiple sources is protective and beneficial for health and well-being at work. By contrast, perceived support from only individual compared to multiple sources turned out to be a strong health and work-related risk factor. These findings are largely in line with an earlier study by Fuhrer and Stansfeld (2002) who found that women had a wider range of sources of social or rather emotional support and that multiple sources of support provide more or better support and stronger health effects and benefits than a single source. Following this study support from a smaller social network or number of sources of support seems to be unable to compensate for the missing support from additional sources or to "substitute in quality what was lost in quantity" (Fuhrer and Stansfeld, 2002). This seems to be in contrast to the study results of Van Woerden et al. (2011) which indicated that missing social support from one source, particularly from the family, can be compensated by support from other sources.

However, the findings of the present study also suggest that one particular source of support plays a key role in protecting people from, or preventing, health-related problems and work-related stressors. Missing or lacking support from the professional network and especially from one's direct supervisor, particularly in case of problems and outcomes related to work, was either the only remaining and/or the strongest risk factor found with regard to health and well-being at work and among all the considered sources of support. Within the personal network, only missing support from family in case of problems at home or in personal life was found to be an independent and significant health risk factor. In sum and other words, the study found the perceived lack of supervisor support to be positively, most consistently and most strongly associated with poor work and health outcomes compared to other sources of support – except for home-related problems and health-related outcomes for which perceived family support was found to be most predictive or decisive.

Although no other previous study has investigated the associations of social support from both life domains and six different sources each and in relation to diverse health and work-related outcomes, parts of the study findings have been reported previously in earlier studies. Thus Sinokki and colleagues found in a population-based Finnish cross-sectional study a lack of social support, especially at work and from one's supervisor, to be associated with mental health problems, i.e. with depressive or anxiety disorders (Sinokki et al., 2009) or with sleeping problems, i.e. tiredness and insomnia or sleep disorders (Sinokki et al., 2010). Van Woerden et al. (2011) in their cross-sectional study based on a postal and web-based survey in a district of south-west London observed that social support at work was negatively, significantly and

Table 8
Perceived lack of domain-specific social support in association with work-related outcomes.

		Feeling overwhelmed at work (3–5) 17.2%		Major difficulties to switch off after work (8–10) 12.4%		Low job satisfaction (0–4) 10.1%		Intention to turnover ('inner resignation') 13.1%	
		aOR[a]	95% CI	aOR[a]	95% CI	aOR[a]	95% CI	aOR[a]	95% CI
Support in case of problems at home from									
Spouse, partner (19.0%[b])	Yes	1		1		1		1	
	No	1.27	0.95–1.71	1.10	0.78–1.55	1.38	0.95–2.00	0.83	0.60–1.16
Friends, colleagues (8.3%[b])	Yes	1		1		1		1	
	No	1.12	0.85–1.47	**1.48**	1.10–1.98	1.14	0.81–1.61	1.04	0.76–1.42
Family members, relatives (13.8%[b])	Yes	1		1		1		1	
	No	**1.27**	1.02–1.60	1.20	0.93–1.54	1.14	0.85–1.51	1.26	0.97–1.64
Supervisor, line manager (53.3%[b])	Yes	1		1		1		1	
	No	1.10	0.91–1.32	**1.25**	1.01–1.55	**1.51**	1.17–1.95	**1.87**	1.49–2.34
Closest colleague at work (42.4%[b])	Yes	1		1		1		1	
	No	0.98	0.81–1.18	0.93	0.75–1.16	**1.30**	1.03–1.65	0.90	0.73–1.12
Other co-workers (62.1%[b])	Yes	1		1		1		1	
	No	0.89	0.73–1.08	0.94	0.75–1.17	1.14	0.89–1.47	0.93	0.74–1.17
Support in case of problems at work from									
Spouse, partner (26.1%[b])	Yes	1		1		1		1	
	No	0.93	0.71–1.22	0.80	0.58–1.09	0.88	0.62–1.25	1.25	0.92–1.70
Friends, colleagues (22.2%[b])	Yes	1		1		1		1	
	No	1.16	0.95–1.42	0.98	0.77–1.24	0.89	0.69–1.16	0.86	0.68–1.10
Family members, relatives (36.7%[b])	Yes	1		1		1		1	
	No	1.12	0.92–1.35	1.17	0.94–1.46	1.22	0.96–1.56	1.00	0.80–1.26
Supervisor, line manager (18.9%[b])	Yes	1		1		1		1	
	No	**1.53**	1.26–1.86	**1.79**	1.45–2.21	**3.58**	2,86-4.48	**3.75**	3.07–4.58
Closest colleague at work (17.0%[b])	Yes	1		1		1		1	
	No	**1.27**	1.02–1.57	**1.61**	1.27–2.04	1.19	0.92–1.53	1.14	0.90–1.44
Other co-workers (40.6%[b])	Yes	1		1		1		1	
	No	1.13	0.94–1.36	0.95	0.77–1.17	0.90	0.72–1.13	1.18	0.96–1.45
Control variables									
Sex (female)		0.99	0.85–1.16	1.04	0.87–1.25	1.19	0.98–1.45	1.07	0.89–1.28
Age (in 5-year intervals)		1.02	0.99–1.06	1.02	0.97–1.06	**0.87**	0.83–0.91	**0.93**	0.89–0.98
Education		0.98	0.95–1.01	**1.10**	1.06–1.13	1.01	0.97–1.04	**1.07**	1.04–1.11
Number of cases in model		5,127		5,142		5,135		5,085	

[a] Multiple adjusted odds ratios (all variables simultaneously included in the analysis).
[b] Proportion of lack of support from these persons in the entire study population.

strongly related to poor self-rated health. The associations or effects found were strongest for social support at work (from superiors and colleagues) compared to social support from other networks or sources like family, friends and neighbors (Van Woerden et al., 2011). Moreover, Gok and colleagues just recently reported from a cross-sectional study in a hospital setting in Istanbul that perceived supervisor support was positively associated with job satisfaction (Gok et al., 2015).

This finding of a crucial role and contribution of supervisor support with respect to health and work-related well-being, particularly in case of problems at work, is also in line with other previous studies and findings in psychology and health research but at the same time in contrast to an early meta-analysis of 55 studies on social support and health carried out by Schwarzer and Leppin (1989), which found boss or co-worker support to have a significant but somewhat lower association with poor health than support from family and friends. This inconsistency might be explained by the lack of a distinction between situation-specific aspects of support. Unlike the present study, surveys and studies do not usually differentiate between social support in case of problems at work and at home. However, it can be assumed that in case of problems at home, a lack of support from family and/or friends has a stronger negative health effect whereas in case of problems at work missing support from colleagues and particularly from supervisors is more strongly associated with poor health outcomes. But at least in relation to stress and dissatisfaction at work, a lack of supervisor support was found to be the strongest predictor or risk factor of all sources of support and namely in both cases, i.e. when it comes to problems at work or at home.

One important strength of the present study besides the heterogeneity and impressive size of the study sample is its consideration of perceived social support from six different sources and in case of problems of different kinds, i.e. from two major life domains (work and private life). Since the effects of social support from personal, professional and community networks on health and well-being have rarely been compared directly (Van Woerden et al., 2011), this study at least simultaneously examined the effects of support from two of the three major networks. In addition, the effects of social support were studied

with regard to eight different outcomes in relation to health and well-being at work. Finally, the study has investigated both the individual and independent as well as cumulative effects of different sources of social support on health and well-being at work.

An important weakness of this study, besides the use of cross-sectional and non-representative secondary data, is the crude dichotomous assessment of social support (yes/no) instead of a more differentiated measurement with self-reports on the strength, amount and/or frequency of such support. Furthermore, only perceived social support was considered and assessed and not, alternatively or additionally, received support. The same applies to support from neighbors or the community network, which has also been neglected in the survey and the study. However, the use or collection of less limited or more differentiated data would presumably not have changed the main findings of the study fundamentally or even significantly, since a measurement error due to such a dichotomization implies a non-differential misclassification and therefore leads at the most to an underestimation of the true associations. The consideration of additional sources of support (e.g. neighbors) or received and not just perceived support is not expected to change the overall pattern of the study results either.

The non-random sampling of the companies participating in the survey and the rather low return or response rate in at least one of the four workforces implies a potential selection bias – for example towards a self-exclusion of the dissatisfied, more stressed, less healthy or less supported workers or towards a non-participation of companies with poorer working conditions. In addition, the study sample is not fully representative of the employed population in Switzerland or the service sector in general. The over-representation of Swiss nationals and white-collar workers, i.e. highly educated employees of large enterprises in full-time jobs and higher occupational positions refers to a commonly observed middle-class bias.

This double self-selection of companies and employees may lead to an over-estimation of the health status or well-being in the workforce or study population or an under-estimation or miscalculation of the 'true' proportions of blue-collar workers or specific working conditions in the working population or service sector. However, and as regards the external validity and generalizability of the findings, the study results and particularly the associations between exposures (social support) and outcomes (health, well-being at work) examined and found in this study are not expected to be systematically biased by the overrepresentation of middle-class and white-collar workers already noted or the low response rate in some participating companies. Furthermore, the study sample – although not randomly selected – is fairly heterogeneous. Numerous professions and all occupational positions and educational levels are represented. And although heterogeneity does not necessarily mean representativeness, it is an important criterion and a precondition for generalising the findings.

Conclusion

The study findings showed that supervisor support is of major importance with regard to health and well-being at work, at least in case of absence of such support and in case of problems at work. The results further revealed and additionally suggest that effects of social support partly substitute for one another and partly supplement each other, since only few other sources of support besides that from one's supervisor have an additional and independent effect on health and well-being at work while most others do not have a significant or even substantial effect. At the same time, however, an increasing number of sources was found to increase the total amount of support perceived or at least the health benefit of such multiple support. This indicates that supervisory support plays a particularly important role but its positive effect or impact on health and well-being at work can nevertheless be intensified, presumably by support from other sources. Since this would have practical implications for the prevention of work-related health problems and workplace health promotion, further research is needed to better address the question of a possible substitution and compensation of non-existing supervisor support by support from other and/or additional sources or social networks.

Conflict of interest

I declare that there is no conflict of interest.

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