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Workhours and worklife balance

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Objectives The purpose of the present review was to summarize the scientific literature about the consequences of long and nonstandard workhours and employee influence over workhours on different measures of worklife balance.

Methods Literature with a focus on the social consequences of the organization of workhours on worklife balance was searched in large databases such as PSYC-info and PubMed; the result was supplemented with other relevant literature.

Results An association between larger numbers of workhours and lower levels of worklife balance was strongly supported among women. For men, the results were less conclusive, while, for gender-mixed groups, an association between overtime work and lower levels of worklife balance was strongly supported. There was strong evidence that nonstandard workhours had a negative influence on worklife balance and some evidence that it had a negative influence on children's well-being and on marital satisfaction. Employee influence over work schedule was associated with a better worklife balance in several studies. However, clear conclusions were difficult to draw due to methodological problems in the studies. Interventions that included reduced hours with wage compensation, rapidly rotating shifts, and increased influence on work schedules all showed positive effects on social life indicators.

Conclusions The social consequences of worktime arrangements are relatively well documented in the scientific literature. There is a need for intervention studies, longitudinal studies, and studies focusing on the influence on schedule, consequences regarding children's development and well-being, and marital satisfaction.

Key terms children's well-being; influence on workhours; literature review; long hours; marital quality; overtime work; shift work; worktime arrangements.

The organization of worklife has undergone radical changes within the last few years (1). The global 24-hour economy has significantly influenced the way worklife is organized, and new forms of organization are demanding more-flexible and more-variable worktime arrangements (2, 3). The organization of workhours influences both biological and social rhythms; sleep, hormones, recovery, and circadian rhythms are highly influenced by the organization of workhours (4–6). It influences lifestyle (eg, the possibilities of physical activities and a regular diet) (7, 8). Some of the consequences, particularly concerning health, are well-known and well-documented in research (4, 9–14). No detailed description of the social consequences has been found in research literature (15, 16). In many ways, worktime arrangements influence both the amount of time and the psychological energy to share with relatives and friends, leisure time, and voluntary activities. Within the last 10 years, focus on these issues has increased in the research literature. Long workhours (17), overtime work (18), and shift work (19) have been found to be associated with lower worklife balance, while part-time work (20) and influence on one's own schedule have been found to be associated with better balance (21). To our knowledge, there has been no previous attempt to summarize current knowledge about worktime arrangements and

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worklife balance, knowledge gaps, and methodological considerations in a review.

The purpose of our review was to summarize the scientific literature about the consequences of long and nonstandard workhours and employee influence over workhours on different measures of worklife balance. The specific aims were to examine the scientific evidence that (i) long workhours are negatively associated with worklife balance, (ii) part-time work is positively associated with worklife balance, (iii) work at nonstandard hours is negatively associated with worklife balance, and (iv) influence over work schedule is positively associated with worklife balance. Furthermore, controlled intervention studies of worktime arrangements were reviewed.

Materials and methods

Our review was based on some of the results from a Nordic collaboration project, running from 2005 to 2007 and financed by the Nordic Council of Ministries (22).

Literature focusing on the social consequences of the organization of workhours on psychological well-being, stress, and worklife balance was found in large databases such as PSYC-info and PubMed, and the result was supplemented with other relevant literature. The following key words were primarily used in the search: work*hours, work*time, work*schedule, flex*time, part-time, shift-work, work-life balance, work-family conflict, work-family interference, and child and well-being. About 800 references were identified from the searches and from reference lists. On the basis of the description in the abstracts, 214 articles were identified that were supposed to cover original, empirical studies published in English and in any of the Nordic languages from 1990 to 2006. [Supplementarily, a few recent studies from 2007 were included.] These studies were ordered or downloaded in full text. Studies without primary empirical findings, without measures of worktime and in combination with measures of worklife balance or stress or well-being were excluded. Altogether 88 studies were selected for inclusion in a document [report about the social consequences of worktime arrangements (22)]. The report covers, in addition to social consequences of worktime arrangements, descriptions of the labormarket context in the different Nordic countries and studies of new organizations of worklife. A total of 66 of the 88 studies included measures of worktime and worklife balance, and these studies were included in our present review.

The study designs, samples, methods, and main results are described for all of the studies in the report (22).

Results

Long workhours

Results from 26 of the 30 reviewed studies showed that a higher, rather than a lower, number of workhours was associated with less balance between work and private life. The pattern was more consistent for women and gender-mixed groups than for men. A total of 9 of 9 studies with women showed a negative association between long workhours and different measures of worklife balance (17, 20, 23–30), and 15 studies with gender-mixed groups showed less balance in association with longer hours (18, 25, 31–40) [the paper by Hill et al (20) includes studies of five groups from different countries in the European Union], while one study did not find any association (41). For the men, only two (23, 29) of six studies supported a negative association between long workhours and worklife balance, while four did not find any association (17, 24, 25, 27).

In addition, there was strong evidence in seven studies that overtime work, defined as such in the studies, was associated with less balance (17, 18, 24, 40, 42–44). However, only two studies with partly shared study populations differentiated between the genders. In one of the studies, overtime work was not predictive of work–family conflicts among men prospectively, but it was among women (24). In the other study, overtime work was associated with work–home interference among both men and women (17).

Overtime work was not only found to be associated with imbalance for full-time employees, but also for employees working reduced hours (17).

There was a lack of studies exploring the effect of parents' workhours on children's well-being. However, two studies from North America (45, 46) suggested that long workhours among mothers may have a negative effect on children's behavior and verbal facility, but long-term effects have not been documented.

Results from two cross-national studies (39, 47) suggested that workhours have an impact on worklife balance in a range of different countries and that the size of the effect depends on factors at the social level (eg, the division of domestic work, gender role attitudes, child care facilities, family support, income, and attitude towards long hours).

Part-time work

In all of the studies among women, part-time, as compared with full-time, work was associated with (different measures of) better worklife balance (17, 23, 26–29, 31). However, in one study, women with high part-time work (26–35 hours/week) did not experience lower levels of work interference with home, while women in low part-time jobs (<26 hours/week) experienced

lower interference when working reduced hours (17). In another group, both career women and wage-earning mothers in part-time employment experienced lower levels of work–family interference than the full-time employed persons did (26).

Among men, three studies did not find any association between part-time work and better worklife balance (17, 27, 29).

In a study involving both genders, part-time work was more associated with poorer worklife balance than full-time work was. A high number of workhours was associated with lower worklife balance, and, when the number of hours worked were controlled, part-time workers and women perceived more imbalance (33). This finding is in accordance with previous findings (17, 48) suggesting that choosing part-time work as a strategy to reduce an imbalance between work and family, when it is already high, may reduce the imbalance, but it is not a guarantee that the imbalance will disappear.

In a study in which a part-time arrangement was targeted towards professional women and aimed at enhancing the low job prestige, job satisfaction, and career opportunities associated with reduced-hours employment, the employees reported still less career optimism and less work success than their full-time working colleagues. They did not, however, experience less job performance, job satisfaction, or commitment than their full-time working colleagues (20).

Fit between hours and compensation

Some studies have found that the effect of workhours on well-being is a question of the fit of workhours, rather than the number of hours. Needs and preferences differ, and optimal workhours vary accordingly (49, 50). Furthermore, the difficulty of trade-offs associated with reduced hours has been found to be a stronger predictor of psychological distress than the number of hours worked (51).

In other studies, the circumstances surrounding overwork (time pressure, schedule flexibility, rewards, and pressure to work overtime) have been shown to be important for the effects of overtime work on well-being (42) and work–home and home–work interference (43). In one study (43), overtime under high reward conditions was not associated with adverse outcomes, while overtime work in combination with low rewards and high pressure was strongly associated with work–home interference.

Total workload

Although it seems obvious that the effect of workhours on family life depends on the total workload of the parents, and not only on the workload of each of the parents as individuals, most studies are conducted at the level of the individual employee and do not take into consideration the total workload of the whole family. Only three of the studies examined the effect of the combined workhours of couples on worklife balance.

In a study from the United States, dual-career couples were compared with single-career couples, and it was found that dual-career couples experienced higher levels of stress, overload, role conflicts, role ambiguity, and family conflicts, but not significantly higher levels of work–family conflicts than single-career couples (52).

In a study from the Netherlands, it was found that work–home interference was increased when one of the spouses worked overtime (44).

Another study from the United States compared different combinations of workhours among spouses. When either one or both spouses worked long hours (more than 45 hours/week), both the men and the women reported high levels of worklife conflict, stress, and overload. When both spouses worked regular hours (39–45 hours/week) or one of them worked reduced hours (less than 39 hours/week), both the men and the women reported lower levels of worklife conflict, stress, and overload. Reduced hours for one of the spouses were, however, not associated with less worklife conflict, stress, or overload when compared with the situation in which both spouses worked regular hours (53).

A Swedish study found less work–family conflicts among part-time working women living with a full-time working male partner (compared with women in couples in which both partners worked full-time). For men, no association was found (36).

A study from the United States found that long workhours among female physicians were associated with better marital quality. The relationship was mediated by the proportion of household tasks with low-schedule control that they performed relative to their husbands (54).

Nonstandard workhours

All of the reviewed studies supported a negative association between different kinds of nonstandard workhours (work outside ordinary daytime work 0800 to 1800) and worklife balance (17, 21, 24, 37, 41, 55–58).

Furthermore, three studies reported that the type of shift system and the subjective evaluation of it was important (44, 55, 59). In one study, shift work was found to be prospectively related to higher work–home interference (24). Backward-rotating shifts were found to be worse than forward-rotating shifts in one study, also in relation to worklife balance (59). Some studies also suggested that night and evening work are more detrimental to worklife balance than rotating shifts (21).

A single study found that afternoon shifts were the most detrimental to voluntary social activities (60).

Very few studies have explored the effects of parents' shift work on children's well-being and marital stability. In one study, shift work among parents was associated with poorer cognitive stimulation among their children (61), and in another it was associated with higher odds of young children having behavioral and emotional difficulties (62). Two studies found shift work to be associated with marital instability (63) and prospectively associated with marital problems and divorce (64). In a third study, it was found that evening shifts were associated with marital problems for married men and with difficulties finding a partner for single men. Such associations were not found for women (65).

Influence over workhours

Results from 13 of 17 studies indicated that employee control over workhours is associated with better worklife balance. A positive effect of control over workhours was supported in population-based, representative samples (3, 21, 42), in samples of knowledge workers (employees working in information technology, engineers, managers) (31, 35) and among shift workers (57, 58, 66). Furthermore, combinations of schedule control and other family-friendly policies had positive effects in representative national (18) and mixed (38) samples and among female health professionals (67). In one study, negative effects of lack of schedule control for the wife were shown to increase her husbands' feelings of role strain. No effects of husbands' lack of control were found with respect to the wife's role strain (68).

Some studies had both positive and negative results, showing positive effects of familiarity with the roster and the ability to take a day off (17), but not of flexible workhours (33).

Some large studies with adequate control over other work environment factors did not find any associations between employee schedule flexibility and worklife balance either in large population-based samples (24, 36) or among professionals and managers (25) or in a small mixed sample (69). Other studies that found associations did not adequately control for other work-environment factors (eg, autonomy and support from colleagues or management) (31, 35, 38, 57, 66, 68).

Intervention studies

Relatively few intervention studies with adequate control groups were found.

Positive results on social life outcomes were found in two Swedish intervention studies that implemented reduced hours with full compensation (70, 71). The general experiences with a large-scale reduction of hours in France were more mixed (3, 72). It has been argued that reduced workhours may lead to an intensification of work, more variable workhours, and no clear improvement in well-being at work (73).

An early intervention study from Sweden (74) evaluated a change from a counter-clockwise to a clockwise rotation schedule and found significant improvements in a range of measures. Intervention studies from Finland, Germany, and Australia (75–77) have recently explored the effects of changing shift schedules towards (among others) faster rotation. All of them found positive effects on social-life indicators.

Intervention studies from Denmark (78) and Germany (79) have explored the effect of increased influence on work schedule among health care workers and in a service company and found positive effects on different social-life and well-being indicators.

Discussion

The results from the literature review indicated that a higher number of workhours and overtime work were associated with a lower level of worklife balance in female and gender-mixed groups. However, for men, the results were less conclusive. There was clear evidence that different kinds of nonstandard workhours had a negative influence on worklife balance and some evidence that it had a negative influence on children's well-being and marital satisfaction. There was no clear evidence of whether it was associated with a better balance for the couple when one of the partners works part-time and the other full-time when compared with a situation in which both partners work full-time.

Employee influence over work schedule was associated with a better worklife balance in a range of studies. However, clear conclusions are difficult to draw due to the methodological problems of the studies. [For a discussion of the methodological problems in the field, see, for example, the papers by Boggild et al (80) and Forssell & Jonsson (81).] There is still insufficient scientific documentation for the effects of schedule control in different groups of employees and under different work environment circumstances.

The few controlled intervention studies that included reduced hours with wage compensation (71, 70), rapidly rotating shifts (75–77), and increased influence on work schedules (78, 79) all showed positive effects on social-life indicators.

Considerations and recommendations for practice

The strong evidence that long workhours, overtime work, and work outside regular daytime are associated

with an impaired balance between work and private life makes it obvious that long hours, overwork, and nonstandard hours should, as much as possible, be minimized to improve worklife balance. It can also be suggested that opportunities for part-time work should be improved.

The results of this review show that part-time work is associated with better worklife balance particularly among women. There was no evidence for such an association among men, but this lack of a finding may have been due to the fact that fewer men work part-time and part-time can be chosen for other reasons for men than for women (82). Improved opportunities for part-time work for groups with special needs (eg, parents with small children, single parents, elderly people, and disabled people) may result in more satisfactory worklife, family life, and private life.

Improving part-time opportunities should, however, oppose the danger that women will be caught in a female trap with increased intensity at work, fewer career opportunities, and the risk of a double burden (15, 20, 54). In most countries, women still take the main responsibility for children and housework, and, accordingly, worklife balance is more often disturbed by long workhours among women than among men. A more-equal share of household work, as well as an equal share of paid work between men and women is another important and necessary step towards a better balance between work and private life (39).

Increased influence over work schedules may be another way to improve worklife balance (78). Despite insufficient documentation, it is likely that increased influence will improve worklife balance, particularly in groups who currently suffer from a limited influence (30, 37).

Methodological considerations and recommendations for research

The review included studies conducted in a range of countries, but primarily in the United States, Canada, and western and northern Europe. Therefore, it is difficult to draw conclusions across different cultures and countries. Many of the conclusions seem, nevertheless, to be consistent across countries, but more precise recommendations for practice and prevention must be adjusted according to the national context.

Measuring weekly hours is not simple, and many studies are not very precise in their description of the specific questions used and of the validity of the measures. Depending both on the question formulations and individual factors, some respondents may answer according to the actual weekly hours worked, while others may refer to the negotiated general level of workhours. It is not always obvious whether extra jobs are included or not. Particularly in jobs without fixed weekly maximum hours, it may be difficult to ask people to recall the average number of hours worked. In some jobs, particularly those associated with new organizations of worklife, it may even be difficult to determine what should be regarded as part of work and what should not.

Worktime arrangements, long hours, and shift work, as well as schedule control, are closely associated with other job characteristics. Long hours are often associated with high job demands, good possibilities for development, and high influence at work (6). Shift work is often associated with other work environment factors with detrimental effects on health and well-being (81). Furthermore, there is a selection into jobs with long hours and high schedule flexibility for healthy and highly educated people (30) and out of shift work for people with difficulties in accommodating to shift work (80). Multivariate analyses with control for other possible influential work and family factors are, in most cases, a necessary requirement. Multivariate analyses are also applied in most studies, but, unfortunately, not in all. Particularly in the field of influence over schedule, there is a need for more carefully controlled studies that can differentiate between effects in different occupational groups.

When overtime work and part-time work is studied, it is important to consider the following questions: To what degree is both overtime and part-time work voluntarily chosen (44, 82)? How do workhours fit the needs of the employee and his or her family (50)? Is part-time work chosen because of poor health, poor psychological well-being, or worklife conflicts? Is overtime compensated or rewarded (42)? Is it conducted under time pressure (43)? How flexible is the schedule? How is the support from supervisors (83)? Does part-time work have trade-offs such as costs in the form of giving up professional responsibilities, career opportunities, and the like (15)?

More longitudinal studies may add valuable knowledge. Particularly studies of changes into and out of, for example, shift work may be valuable to help enlighten the direction of causality where possible. [For a good example see the paper by White & Keith (64)]. Worktime arrangements may, however, also have immediate effects on social life, without a time lag between exposure and effect; therefore, in this field, longitudinal studies are not always preferable to cross-sectional ones.

Fields with lack of research

There is a clear need for more well-conducted intervention studies that explore the effect of different kinds of change in worktime arrangements and for studies that compare the effects of different kinds of nonstandard work arrangements (eg, different kinds of shift arrangements and compressed workhours).

Intervention research is not easy to conduct in a methodological sensible manner (84). A sound design should be used, at least quasi-experimental designs including control groups. Studies should also be supplemented by process evaluations with systematic documentation of the change process and the implementation of the intervention (85, 86).

It is important to include a wide range of outcome measures, such as effects on worklife balance and other social outcomes, well-being, health, absence, work environment, and, if possible, also productivity, injuries, errors and quality of service or product (87). Effects on some outcomes may be positive, while effects on others may simultaneously be negative (87).

There is also a need for more well-designed and well-conducted studies of the consequences of long hours, overtime work, and nonstandard hours for children's development, performance, and well-being and for marital-quality satisfaction.

It seems important to differentiate between men and women (88). There is a particular lack of gender-stratified studies of the effect of overtime work. Furthermore, there is a lack of studies that focus on the total workload of individual people and couples, and also of studies that analyze worklife balance from a family perspective rather than from the perspective of the employee (89).

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References

1. Allvin M, Aronsson G, Hagström T, Johansson G, Lundberg U. Gränslöst arbete—socialpsykologiska perspektiv på det nya arbetslivet [Work unbound—a socialpsychologic perspective to the new work life]. Malmö (Sweden): Liber; 2006.
2. Fagan C. Working-time preferences and work-life balance in EU—some policy considerations for enhancing the quality of life. Dublin: European Foundation for the Improvement of Living and Working Conditions; 2003.
3. Costa G, Åkerstedt T, Nachreiner F, Frings-Dresen M, Folkard S, Gadbois C, et al. As time goes by—flexible work hours, health and well-being. Stockholm: The National Institute for Working Life, The Swedish Trade Unions in Co-operation; 2003. Working Life Research in Europe, report no 8.
4. van der Hulst M. Long work hours and health [review]. Scand J Work Environ Health. 2003;29(3):171–88.
5. Geurts SAE, Sonnentag S. Recovery as an explanatory mechanism in the relation between acute stress reactions and chronic health impairment. Scand J Work Environ Health. 2006;32(6, special issue):482–92.
6. Härmä M. Workhours in relation to work stress, recovery and health [review]. Scand J Work Environ Health. 2006;32(6, special issue):502–14.
7. Ezoe S, Morimoto K. Behavioral lifestyle and mental health status of Japanese factory workers. Prev Med. 1994;23:98–105.
8. Yamada Y, Kameda M, Noborisaka Y, Suzuki H, Honda M, Yamada S. Excessive fatigue and weight gain among cleanroom workers after changing from 8-hour to a 12-hour shift. Scand J Work Environ Health. 2001;27(5):318–26.
9. Caruso CC, Hitckhock EM, Dick RB, Russo JM, Schmit JM. Overtime and extended work shifts: recent findings on illnesses, injuries and health behaviors. Cincinnati (OH): US Department of Health and Human Services, Center for Disease Control and Prevention, National Institute for Safety and Health (NIOSH); 2004. DHHS (NIOSH) Publication, number 143.
10. Mozurkewich EL, Luke B, Avni M, Wolf FM. Working conditions and adverse pregnancy outcome: a meta-analysis. Obstet Gynecol. 2000;95:623–35.
11. Knutsson A. Health disorders of shift workers. Occup Med. 2003;53:103–8.
12. Bøggild H, Knutsson A.. Shift work, risk factors and cardiovascular disease. Scand J Work Environ Health. 1999;25(2):85–99.
13. Åkerstedt T. Shift work and disturbed sleep/wakefulness. Occup Med. 2003;53:89–94.
14. Tucker P. Compressed working weeks. Geneva: International Labour Office (ILO); 2006. Conditions of Work and Employment programme, number 12.
15. Barnett RC. Toward a review and reconceptualization of the work/family literature. Genet Soc Gen Psychol Monogr. 1998;124:125–82.
16. Geurts S, Demerouti E. Work/non-work interface: a review of theories and findings. In: Schabracq MJ, Winnubst JA, Cooper CL, editors. The handbook of work and health psychology. Chichester: John Wiley & Sons Ltd; 2003. p 279–312.
17. Jansen NWH, Kant IJ, Nijhuis FJN, Swaen GMH, Kristensen TS. Impact of worktime arrangements on work-home interference among Dutch employees. Scand J Work Environ Health. 2004;30(2):139–48.
18. Voydanoff P. The effect of work demands and resources on work-to-family conflict and facilitation. J Marriage Fam. 2004;66:398–412.
19. Fenwick R, Tausig M. Scheduling stress—family end health outcomes of shift work and schedule control. Am Behav Sci. 2001;44:1179–98.
20. Hill EJ, Märtinson V, Ferris M. New-concept part-time employment as a work-family adaptive strategy for women professionals with small children. Fam Relat. 2004;53:282–92.
21. Costa G, Sartori S, Akerstedt T. Influence of flexibility and variability of working hours on health and well-being. Chronobiol Int. 2006;23:1125–37.
22. Albertsen K, Kauppinen K, Grimsmo A, Sørensen BA, Rafnsdóttir GL, Tómasson K. Working time arrangements and social consequences—what do we know?. Copenhagen: Nordic Council of Ministries; 2007. TemaNord 607.

23. Grzywacz JG, Marks NF. Reconceptualizing the work-family interface: an ecological perspective on the correlates of positive and negative spillover between work and family. J Occup Health Psychol. 2000;5:111–26.
24. Jansen NWH, Kant I, Kristensen TS, Nijhuis FJ. Antecedents and consequences of work-family conflict: a prospective cohort study. J Occup Environ Med. 2003;45:479–91.
25. Batt R, Valcour PM. Human resources practices as predictors of work-family outcomes and employee turnover. Ind Relat. 2003;42:189–220.
26. Higgins C, Duxbury L, Johnson KL. Part-time work for women: does it really help balance work and family? Hum Resour Manage. 2000;39:17–32.
27. Kinnunen U, Mauno S. Antecedents and outcomes of work-family conflict among employed women and men in Finland. Hum Relat. 1998;51:157–77.
28. van Rijswijk K, Bekker MH, Rutte CG, Croon MA. The relationships among part-time work, work-family interference, and well-being. J Occup Health Psychol. 2004;9:286–95.
29. Grönlund A. More control, less conflict?: job demand-control, gender and work-family conflict. Gender Work Organ. 2007;14:476–97.
30. Grönlund A. Employee control in the era of flexibility—a stress buffer or a stress amplifier? Eur Soc. 2007;9:409–28.
31. Hill EJ, Hawkins AJ, Ferris M, Weitzman M. Finding an extra day a week: the positive influence of perceived job flexibility on work and family life balance. Fam Relat. 2001;50:49–58.
32. Baltes BB, Heydens-Gahir HA. Reduction of work-family conflict through the use of selection, optimization, and compensation behaviors. J Appl Psychol. 2003;88:1005–18.
33. Tausig M, Fenwick R. Unbinding time: alternate work schedules and work-life balance. J Fam Econ Issues. 2001;22:101–19.
34. Fu CK, Shaffer MA. The tug of work and family—direct and indirect domain-specific determinants of work-family conflict. Pers Rev. 2001;30:502–22.
35. Major VS, Klein KJ, Ehrhart MG. Work time, work interference with family, and psychological distress. J Appl Psychol. 2002;87:427–36.
36. Grönlund A. Flexibilitet eller friktion?: om inflytande över arbetstiden och konflikten mellan arbete och familj [Flexibility or friction?: on the influence of work hours and conflicts between work and family]. Sociologisk Forskning. 2004;1:35–54.
37. Albertsen K, Kristensen TS, Pejtersen JH. Lange og skæve arbejdstider—kan øget indflydelse på arbejdstidens placering forbedre arbejde-privatlivsbalancen? [Long and non-standard working hours—can influence improve the work-life balance?]. Tidsskr Arbejdsliv. 2007;9:61–80.
38. Brough P, O'Driscoll MP, Kalliath TJ. The ability of 'family friendly' organizational resources to predict work-family conflict and job and family satisfaction. Stress Health. 2005;21:223–34.
39. Crompton R, Lyonette C. Work-life 'balance' in Europe. Acta Sociolog. 2006;49:379–93.
40. Berg P, Kalleberg AL, Appelbaum E. Balancing work and family: the role of high-commitment environments. Ind Relat. 2003;42:168–188.
41. Grosswald B. The effect of shift work on family satisfaction. Fam Soc. 2004;85:413–23.
42. Kandolin I, Härmä M, Toivanen M. Flexible working hours and well-being in Finland. J Hum Ergol. 2001;30:35–40.
43. van der Hulst M, Geurts S. Associations between overtime and psychological health in high and low reward jobs. Work Stress. 2001;15:227–40.
44. Geurts S, Rutte C, Peeters M. Antecedents and consequences of work-home interference among medical residents. Soc Sci Med. 1999;48:1135–48.
45. Parcel TL, Menaghan EG. Family social capital and children's behavior problems. Soc Psychol Q. 1993;56:120–35.
46. Parcel TL, Menaghan EG. Maternal working conditions and children's verbal facility: studying the intergenerational transmission of inequality from mothers to young children. Soc Psychol Q. 1990;53:132–47.
47. Spector PE, Cooper CL, Poelmans S, Allen TD, O´Driscoll M, Sanches JI, et al. A cross-national comparative study of work-family stressors, working hours, and well-being: China and Latin America versus the Anglo world. Pers Psychol. 2004;57:119–42.
48. Artazcoz L, Artieda L, Borrell C, Cortés I, Benach J, Garcia V. Combining job and family demands and being healthy: what are the differences between men and women?. Eur J Public Health. 2004;14:43–8.
49. Kecklund G, Dahlgren A, Åkerstedt T. Undersökning av förtroendearbetstid: vad betyder inflytande över arbetstiden för stress, hälse och välmående [A study on self-determined work hours: how does influence of work hours affect stress, health and well-being?].Stockholm: Institutet för Psykosocial Medicin (IPM), Avdelingen for Stressforskning, Karolinska Institutet; 2002. Stressforskningsraporter 305.
50. Barnett RC, Gareis KC, Brennan R. Fit as a mediator of the relationship between work hours and burnout. J Occup Health Psychol. 1999;4:307–17.
51. Barnett RC, Gareis KC. Reduced-hours employment—the relationship between difficulty of trade-offs and quality of life. Work Occup. 2000;27:168–87.
52. Elloy DF, Smith CR. Patterns of stress, work-family conflict, role conflict, role ambiguity and overload among dual-career and single career couples: an Austrian study. Cross Cult Manage. 2003;10:55–66.
53. Moen P, Yu Y. Effective work/life strategies: working couples, work conditions, gender, and life quality. Soc Probl. 2000;47:291–326.
54. Barnett RC, Gareis KC. Full-time and reduced-hours work schedules and marital quality—a study of female physicians with young children. Work Occup. 2002;29:364–79.
55. Jaffe MP, Smolensky MH, Wun CC. Sleep quality and physical and social well-being in North American petrochemical shift workers. South Med J. 1996;89:305–12.
56. Portela LF, Rotenberg L, Waissmann W. Self-reported health and sleep complaints among nursing personnel working under 12 h night and day shifts. Chronobiol Int. 2004;21:859–70.
57. Eiriksdóttir Ó, Rafnsdóttir GL, Sveinsdóttir H, Gunnarsdóttir HK. Á vaktinni: viðhorf fólks og væntingar [On the shift: people's attitudes and expectations]. Reykjavik: Ritröð Rannsóknastofu í vinnuvernd [Research Centre for Occupational Health and Working Life]; 2007. no. 1.
58. Antonsdóttir HF, Rafnsdóttir GL, Sveinsdóttir H, Gunnarsdóttir HK. Á vaktinni með sveigjanlegum stöðugleika: rannsóknastofa í vinnuvernd [On the shif—with flexible stability]. Reykjavik: Ritröð Rannsóknastofu í vinnuvernd [Research Center for Occupational Health and Working Life]; 2006. Research Center for Occupational Health and Working ´Life Series no 1.
59. van Amelsvoort LGPM, Jansen NWH, Swaen GMH, van den Brandt PA, Kant I. Direction of rotation among three-shift workers in relation to psychological health and work–family conflict. Scand J Work Environ Health. 2004;30(2):149–56.
60. Skipper JK Jr, Jung FD, Coffey LC. Nurses and shiftwork:

effects on physical health and mental depression. J Adv Nurs. 1990;15:835–42.
61. Heymann SJ, Earle A. The impact of parental working conditions on school-age children: the case of evening work. Community Work Fam. 2001;4(3):305–25.
62. Strazdins L, Korda RJ, Lim LL, Broom DH, D'Souza RM. Around-the-clock: parent work schedules and children's well-being in a 24-h economy. Soc Sci Med. 2004;59:1517–27.
63. Presser HB. Nonstandard work schedules and marital instability. J Marriage Fam. 2000;62:93–110.
64. White L, Keith B. The effect of shift work on the quality and stability of marital relations. J Marriage Fam. 1990;52:453–62.
65. Shields M. Shift work and health. Health Rep. 2002;13:11–33.
66. Folkard S, Lombardi DA, Tucker PT. Shiftwork: safety, sleepiness and sleep. Ind Health. 2005;43:20–3.
67. Thomas LT, Ganster DC. Impact of family-supportive work variables on work-family conflict and strain: a control perspective. J Appl Psychol. 1995;80:6–15.
68. Galambos NL, Walters JB. Work hours, schedule inflexibility, and stress in dual earner spouses. Can J Behav Sci. 1992;24:290–302.
69. Clark SC. Work cultures and work/family balance. J Vocat Behav. 2001;58:348–65.
70. Olsson B, Åkerstedt T, Ingre M, Holmgren M, Kecklund G. Kortare arbetsdag, hälsa och välbefinnande. Stockholm: Statens Institut för Psykosocial Miljömedicin; 1999. Stressforskningsrapporter 281.
71. Åkerstedt T, Olsson B, Ingre M, Holmgren M, Kecklund G. A 6-hour working day-effects on health and well-being. J Hum Ergol. 2001;30:197–202.
72. Prunier-Poulmarie S, Gatbois C. The French 35-hour workweek: a wide-ranging social change. J Hum Ergol. 2001;30:41–6.
73. Askenazy P. Shorter work time, hours flexibility and labour force intensification. East Econ J. 2004;30:603–14.
74. Orth-Gomer K. Intervention on coronary risk factors by adapting a shift work schedule to biologic rhythmicity. Psychosom Med. 1983;45:407–15.
75. Härmä M, Hakala T, Kandolin I, Sallinen M, Virkkala J, Bonnefond A, et al. A controlled intervention study on the effects of a vary rapidly forward rotating shift system on sleep-wakefulness and well-being among young and elderly shift workers. Int J Psychophysiol. 2006;59:70–9.
76. Hornberger S, Knauth P. Effects of various types of change in shift schedules: a controlled longitudinal study. Work Stress. 1995;9:124–33.
77. Smith PA, Wright BM, Mackey RW, Milsop HW, Yates SC. Change from slowly rotating 8-hour shifts to rapidly rotating 8-hour and 12-hour shifts using participative shift roster design. Scand J Work Environ Health. 1998;24 suppl 3:55–61.
78. Pryce J, Albertsen K, Nielsen KM. Evaluation of an open-rota system in a Danish psychiatric hospital: a mechanism for improving job satisfaction and work-life balance. J Nurs Manage. 2006;14:282–2.
79. Kauffeld S, Jonas E, Frey D. Effects of a flexible work-time design on employee-and company-related aims. Eur J Work Organ Psychol. 2004;13:79–100.
80. Knutsson A. Methodological aspects of shift-work research. Chronobiol Int. 2004;21:1037–47.
81. Bøggild H, Burr H, Tüchsen F, Jeppesen HJ. Work environment of Danish shift and day workers. Scand J Work Environ Health. 2001;27(2):97–105.
82. Forssell J, Jonsson L. Deltidsarbetslöshet ock deltidsarbete i Europa—förklaringsmodeller och statistik [Part-time unemployment and part-time work in Europe—explanation models and statistics]. Stockholm: Arbetslivsinstitutet; 2005. Arbetslivsrapport 30.
83. Fox ML, Dwyer DJ. An investigation of the effects of time and involvement in the relationship between stressors and work-family conflict. J Occup Health Psychol. 1999;4:164–74.
84. Kompier M, Kristensen TS. Organizational work stress interventions in a theoretical, methodological and practical context. In: Dunham J, editor. London, Philadelphia: Whurr Publishers; 2001. p 164–90.
85. Semmer NK. Job stress interventions and the organization of work. Scand J Work Environ Health. 2006;32(6, special issue):515–27.
86. Nielsen K, Fredslund H, Christensen K, Albertsen K. Success or failure?: interpreting and understanding the impact of interventions in four similar worksites. Work Stress. 2006;20:272–87.
87. Colligan MJ, Rosa RR. Shiftwork effects on social and family life. Occup Med. 1990;5:315–22.
88. Kauppinen K, Kumpulainen R, Houtman I. Gender issues in safety and health at work. Luxembourg: European Agency for Safety and Health at Work; 2003.
89. Jacobs JA, Gerson K. Overworked individuals or overworked families. Work Occup. 2001;28:40–63.