Shift work interventions for reduced work-family conflict

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Abstract

Purpose – This research aims to investigate the efficacy of family involvement in shift work training targeting both physiological and social coping strategies.

Design/methodology/approach – The study utilized repeated surveys of work-family conflict (WFC) and family-work conflict (FWC) in a naturally occurring field experiment. Three small process manufacturing sites introduced training for shift workers, with or without family involvement, and with or without training on managing relational aspects of shift-work.

Findings – The inclusion of social coping strategies combined with family involvement significantly reduced work-family conflict. Open response categories on the survey suggest that these reductions were due to the facilitation of a joint problem solving approach by family members. In contrast, employee focused training on physiological coping alone appears to increase family conflicts.

Research limitations/implications – As a field study, this paper cannot control for the particularities of family situations. It should also be noted that the participants were all male, and results may have differed for female shift workers given differing family and work expectations.

Practical implications – For employers and OSH officers, this research suggests that broader spectrum training may assist shift workers in managing the requirements and impact of unsociable hours of work. For the shift worker, the research reinforces the importance of family support and family involvement in moderating shift work's potentially negative effects.

Originality/value – This is the first study to assess the impact of family involvement in training and development-based interventions. This paper provides a unique perspective on shift work interventions by documenting both content and process effects for shift work support.

Keywords Shift work, Family, Training

Paper type Research paper

In discussing work-life balance, the focus is often on the amount of time spent at work, and flexibility of work time and place to accommodate family and other requirements. In both research and the popular literature, however, the focus of this balancing act is on a traditional 9-5 view of employment that spills over – in hours and energy – to a fairly traditional view of non-work life. The issue of balance may become more difficult, however, when the "work" in work-life balance is a series of rotating or shifts

that result in dynamic discontinuities between workers and the rest of their life. For the shift worker, the particular issues of work-life balance, stress and coping, are both more complex and more compelling.

The term "shift work" is used to refer to a way of organising the daily working hours in which different persons or teams work in succession to cover more than the traditional eight hours per day, up to and including the whole 24 hours (Costa, 2003). Consequently, the term "shift work" does not include the typical 8am-5pm Monday to Friday working arrangements (Grosswald, 2002; Presser, 2003). There are literally dozens of ways to structure shifts. In general they can focus on including or excluding night work; they can include or exclude weekend work or parts thereof; they can vary concerning flexibility of working times (e.g. rotating, permanent, split shifts) or the regularity or irregularity of the shift cycle (Costa, 2003).

Increasingly non-standard working hours such as shift work, weekend work and split shifts are becoming the norm in industrialised, Western societies. According to a survey on working conditions carried out in the European Union's 15 member countries (Boisard *et al.*, 2002), only 24 per cent of the working population are now engaged in so-called standard day work, that is between 7:30-8:00 am and 5:00–6:00 pm from Monday to Friday, and 18.8 per cent of the European work force is engaged in shift work that includes night work. As early as 1991, Presser (1995, cited in Grosswald, 2002) reported that approximately 45 per cent of Americans are employed under some kind of shift work conditions.

The reasons for this increased shift work are two-fold and closely linked: there is the increased need for temporal flexibility of the organisation, as well as the economic necessities and choices for the individual. Temporal flexibility is seen as one of the milestones of labour flexibility on which most organisations are currently focused (Costa, 2003). In this context, shift work is a widely used tool enabling the organisation to be active around the clock in response to increasingly flexible market demands. This is progressively more the case not only in necessary social services (like hospitals, the police force, transport and electricity) or in highly technological industries (like chemical and steel industry, power plants or mining), but also to support productive and economic choices (for example bank branches opening late and on weekends, and extended hours for restaurants, news and entertainment industries).

Closely linked to this organisational focus are the needs of the individual. On a rather worried note Presser's (2003) findings suggest that, at least in the SA, a large proportion of shift workers engage in this type of work because they could not get other jobs and their choices were limited. European research (Presser, 1987) has established similar findings, in that the ability to hold multiple jobs is one reason people engage in shift work. According to Finn (1981) 23 per cent of night shift workers and 19 per cent of evening shift workers had a second job, in comparison to 11 per cent of "regular" day workers. Another more positive angle to shift work is suggested by Coleman's (1989) findings that some employees appreciate the possibility for shift work, as it allows them to take time off mid-week and pursue leisure activities without dealing with the large weekend crowds.

In spite of shift work' s advantages and increasingly "normality", temporal flexibility can still result in difficulties for the individual. These difficulties can often be health related (Costa, 1996; Finn, 1981; Owen, 1985), but also extend to individuals' participation in social events. Normal social patterns still tend to operate around the

traditional workday cycle, which effectively excludes shift workers (Henderson and Burt, 1998) and leads to difficulties in structuring family and social interactions (Knutson *et al.*, 1986; Simon, 1987).

Night work causes a mismatch between the light/dark sleep/wake cycles and consequently disturbs the normal circadian rhythms of psycho-physiological functions (Folkard *et al.*, 1985; Minors and Waterhouse, 1986). These efforts tend to result in the so-called shift-lag syndrome (Costa, 2003), which is characterised by feelings of fatigue, sleepiness, disorientation, digestive troubles, irritability, poorer mental agility and reduced performance efficiency. Although shift-lag symptoms affect the individual directly in the first instance, they also have a wider impact on the family and social environment of the individual as well as on the organisation employing shift workers.

People engaged in shift work are frequently "out of sync" with society around them and can experience social marginalisation (Colligan and Rosa, 1990). This is especially true if they live in a family with school-aged children, as the social activities tend to be organised around the day-oriented rhythm of the general and school population. Time pressure can become a constant problem when shift workers attempt to organise family time tables with personal duties (e.g. school and house work) and the availability of community services (e.g. shop hours, transport, office hours). These time pressures can have negative influences on children's education, marital and parental roles, and relationships (Costa, 2003; Loudon and Bohle, 1997). Additionally, constraints on effective participation in social and domestic life can produce a sense of social alienation and represent a major source of role conflict for shift workers (Bohle and Quinlan, 2000).

The main role conflict a shift worker will experience is that between the roles of work and those of the family. While this conflict is not limited to shift workers, it has repeatedly and clearly been linked to time issues – an aspect that characterises shift work like no other work environment (Keith and Schafer, 1980; Pleck *et al.*, 1980). The conflict between work and family roles has been conceptualised as consisting of two distinct but reciprocally linked pathways. On one hand, structural or developmental aspects of the family are increasingly recognised as having an impact on work behaviour. The inter-role conflict in which the demands of the family and the time devoted to it interfere with fulfilment of work-related responsibilities is termed family-work conflict or FWC (Frone *et al.*, 1992; Netemeyer *et al.*, 1996; Zedeck, 1992).

On the other hand, participation in the work role may make full and satisfying participation in the family role more difficult. Demands of and time devoted to work can interfere with family-related responsibilities. This pathway is termed work-family conflict, WFC (Frone *et al.*, 1992; Greenhaus and Beutell, 1985; Netemeyer *et al.*, 1996). Both conflicts are distinct inter-role conflicts with different antecedents (Baltes and Heydens-Gahir, 2003; Greenhaus and Beutell, 1985). Both represent the degree to which roles and responsibilities from work and family domains are incompatible. This incompatibility is becoming an issue of concern as work and family life are no longer seen as separate segments in a person's life, but are conceptualised as closely linked aspects of single personal experience.

Regardless of the direction of the conflict, any conflict between work and family roles can increase stress (Pisarski *et al.*, 1998) and is linked to job dissatisfaction, job burn out, and turnover (Burke, 1988; Frone *et al.*, 1992; Greenhaus, 1988) as well as to life and marital dissatisfaction (Greenhaus and Beutell, 1985; Gutek *et al.*, 1991). The

links between the two conflicts had been demonstrated by Frone *et al.* (1992) and are explained as an example of the role spillover model (Barling, 1990). This model asserts that there is a significant similarity between what happens at work and in the family. It suggests that a person's work experiences influence his or her behaviour at home, influencing basic behaviours towards self and family members (Zedeck, 1992). In its positive expression, this model is the notion of positive relationships between work and family, for example that job satisfaction enhances family life. In its negative expression, the model asserts that negative experiences in family life, possibly as result of role conflict due to shift work, create negative attitudes that can be carried over to work life.

Research into work-life balance and stress has established that conflict between home and family leads to negative job related attitudes, including reduced job satisfaction, increased tardiness, absenteeism, sickness, turnover and reduced performance levels (Cooper and Cartwright, 1994; Friedman and Greenhaus, 2000; Quick *et al.*, 1997). Frone *et al.* (1992) found that the relationship between work – family conflict and job related affect is not a direct one, but that it is mediated by the frequency of family – work conflict. Therefore, the family environment appears to play a central role when investigating the effects of shift work.

Interventions to improve coping by shift workers

Stress research proposes that job stress intervention processes can be divided into three categories: those focusing on the individual (by learning to cope with stress), those focusing on the organisation (by changing the work situation, thus tackling the source of the problem) and those focusing on the individual-organisation interface (by increasing the employee's resistance to specific job stressors).

Within these three focus points, stress management approaches generally concentrate on primary coping strategies (i.e. reduction of stressors such as work-family conflicts), or secondary coping strategies (i.e. altering employee responses to job stressors such as ways of dealing with work-family conflicts once they arise). (Discussion of tertiary coping strategies such as counselling and therapy is beyond the scope of this paper; for more elaborate reviews see Lazarus and Folkman, 1984.)

Based on the accelerating social changes that necessitate shift work, it is safe to assume that the organisation-focused, primary intervention strategy of eliminating shift work is of little practical value. Although it is within the possibility of many organisations to minimise some of the negative aspects of shift work by changing from rotating shifts to permanent shifts (Tepas, 1993), research has shown that many of the negative consequences, especially the family related ones, remain valid for all types of shift work. Therefore, the focus will remain on the individual employees and their families when working with primary and secondary coping strategies.

For the successful design and application of any coping strategies aimed at helping shift workers to effectively deal with the challenges of their working life, family support and help are of vital importance (Bohle and Tilley, 1998; Bostic, 1988). This importance of the family is underscored by Frone *et al.* (1992) who found that the relationship between work – family conflict and job related stress is not a direct one, but that it is mediated by the frequency of family – work conflict. Further, MacEwen and Barling (1998) suggest that employees with a high degree of family support are more protected from the effects of work – family conflicts than employees with low

levels of family support. This protection can be established on the practical level as well as on a psychological and emotional level. For example, families can be supportive by reducing the clash between work and non-work activities (and the frequency of FWC) by restructuring meals and social and familial activities to accommodate the shift worker (Bohle and Tilley, 1998). Additionally, having the understanding and support of the family as well as maintaining contact with other shift worker families can not only ease the practical burdens, but also the aspects of perceived social marginalisation and role conflict (Pisarski *et al.*, 2002). Moreover, proper support from family and friends at home has been found to enhance both adaptability and tolerance to shift work (Loudon and Bohle, 1997; Walker, 1985), two aspects feeding into job satisfaction and perceived work-life balance.

As it is in the interest of the individual as well as the organisation to achieve adaptability to and tolerance of shift work, workplaces increasingly turn to introducing shift work preparation strategies. These strategies aim at directly benefiting the employee, therefore improving his or her job satisfaction and thus benefiting indirectly the organisation as well (Henderson and Burt, 1998). Shift worker education programmes are one such strategy that attempts to change shift worker behaviour within the framework of primary and secondary stress interventions. These programmes may provide both relevant information to employees (communication of news, knowledge and facts), as well as educate staff on how to cope with the demands of shift work. Education here is defined as developing information, facilitating learning, training and implementation (Tepas, 1993). Ideally, these strategy and life style coping education sessions are conducted on an on-going basis to keep shift workers constantly aware of problems associated with the stresses of shift work as well as with relevant coping strategies (Monk, 2000).

Research in the effectiveness of shift worker education programmes has shown mixed results. Some literature reviews report only anecdotal evidence for the effectiveness of shift worker education programmes (Tepas, 1993). Shift workers may reject reparation strategies involving sleeping patterns and/or restrictions on caffeine intake as irrelevant to them (Wedderburn and Scholarios, 1993). In general, it has been argued that the effectiveness of intervention strategies largely depends on two characteristics. One of these is the relevance of the information the individual is given (Tepas, 1993). A clear focus on relevance of shift worker educational programmes to the employee situation has repeatedly been found to have a positive impact on acceptance of its message (Carlson, 1991). In addition, successful shift work education programmes must be relevant, practical as well as socially acceptable to the individual as well as the family members affected (Tepas, 1993). Generally, very few coping strategies have been found to work well without this family or social support (Monk, 2000). Since a large proportion of shift work stressors are related to the difficulties experienced when balancing work and family roles (Pleck *et al.*, 1980), it is reasonable to expect that employee change is more likely to occur if the training programmes are relevant to these aspects as well as to the physical issues of eating and sleeping routines.

The second aspect increasing the effectiveness of shift work education initiatives is how skilled the shift worker is in using the given information (Tepas, 1993). In the case of shift work and family demands, this is probably not only an issue of the employee's skill in applying the information, but also the skill levels of family and friends of the employee who are also required to change behaviours. Therefore, it does appear to

make sense that shift intervention programmes include family members as active participants (Tepas, 1993). Finally, as argued earlier, work and family demands can influence each other in both directions. Therefore, it is suggested that when evaluating shift-worker intervention strategies one needs to look at the effect these interventions have on both family-work conflict and work-family conflict. Due to the reciprocal, mediating effects these role conflicts have on each other, it can be argued that shift work intervention programmes involving family members and addressing both conflicts will have greater beneficial effects than interventions aiming at reducing only one of the conflicts. However, there is a clear lack of field experimental research into this area.

The present study fills this gap by exploring, in a naturally occurring field setting, whether involvement of the family in shift work support training, and enlargement of the scope of training by inclusion of socio-emotional aspects of shift work, improves the work-family outcomes for shift workers.

Method
The data was gathered through initial and six-monthly follow-ups at three industrial sites that adopted different interventions to improve job satisfaction and occupational safety and health for shift-workers. The research design is that of a naturally occurring field experiment, with repeated measures at three sites, each of which adopted a different approach to shift-worker training and development. The researchers were not involved in the interventions at these sites, but were there to collect longitudinal data on shift work patterns and impacts as part of a larger national study of shift workers over two decades of workplace reform.

Participants
Participants in the study were employed as shift-workers in three continuous processing (metallurgy) industrial sites. Each site had between 170 and 210 shift employees, generally in direct production or production-supervision roles. The factory workers were employed on eight-hour rotating shifts, with very little overtime. Each site surveyed all shift-workers by asking for completion at the shift break. Both management and the union at the site supported the research programme, and completion rates were high (over 90 per cent in each administration).

Across the three sites there were 503 participants in total, divided almost equally between sites. A total of 85.9 per cent had partner/spouse and all had families in the area; only participants with partners and families were included in this aspect of the study, consistent with prior research on work-family conflict (Baltes and Heydens-Gahir, 2003), resulting in a final sample of 432. Participants were all male, with an age range of 28-61, and a mean age of 41.33 years. Participants had over eight years of service on average, with a range of two to 18 years of service. There were no statistically significant demographic differences between work sites.

Interventions
While acknowledging that there were significant issues associated with shift-work, management at each plant took different approaches to providing support to shift-workers. At site A, shift workers were seen as requiring health and safety support, as work-family issues were not seen as appropriate for workplace discussion.

Accordingly, this site provided two half-day sessions in maintaining alertness, with a focus on diet and exercise. The on-site industrial nurse provided the training. Extending access to an occupational nurse into the evening shift supported this initiative. This forms our *de facto* control group for family inclusion.

In site B, training and development focused on a broader range of behaviours and specifically dealt with diet, exercise and sleep both at home and at work, and with managing time and priorities between work and family. The training occurred in two half-day sessions, conducted by the industrial nurse and an outside trainer, with the nurse "on call" for further enquiries. This provided a training condition addressing the work-family aspect as well as family-work issues, but without active involvement of the families in the training process.

In Site C, the same training materials and trainers were used, but shift-workers were asked to attend with their partners/spouses. The training sessions were each one hour longer to accommodate more group discussions and questions. Ongoing support was provided with handouts and an ongoing newsletter that was sent to workers' homes. This provided a training condition addressing work-family aspects as well as family-work issues and included active family involvement in the training.

Instrumentation
The data on work-family interaction was gathered as part of a larger survey project on consequences of shift-work. This portion of the research was assessed using the five-item work-family conflict and five-item family-work conflict scales (Netemeyer *et al.*, 1996). The scale items appear below. Participants were asked to respond using a seven-point Likert scale with values ranging from 1 (strongly disagree) to 7 (strongly agree). Coefficient alpha in this study was 0.91 for the WF conflict scale, and 0.93 for the FW conflict scale.

Items in the WF conflict scale were:

(1) The demands of my work interfere with my home and family life

(2) The amount of time my job takes up makes it difficult to fulfil my family responsibilities.

(3) Things I want to do at home do not get done because of the demands my job puts on me.

(4) My job produces strain that makes it difficult to fulfil family duties.

(5) Due to work-related duties, I have to make changes to my plans or family activities.

Items in the FW conflict scale were:

(1) The demands of my family or spouse/partner interfere with work-related activities.

(2) I have to put off doing things at work because of demands on my time at home.

(3) Things I want to do at work do not get done because of the demands of my family or spouse-partner.

(4) My home life interferes with my responsibilities at work such as getting to work on time, accomplishing daily tasks, and working overtime.

(5) Family-related strain interferes with my ability to perform job-related duties.

In addition to the scales, participants were provided with open-response questions regarding both positive and negative aspects of their work and family interaction:

· What are the most positive impacts of work on your family?
· What are the most negative impacts of work on your family?
· What are the most positive impacts of family on your work?
· What are the most negative impacts of family on your work?

Responses to the open ended questions were coded and analysed thematically and then assessed through frequency counts.

Results
This research assessed whether work-life balance training improves shift-workers' experience of work and family, and if this is enhanced by family participation in the training. The dependent variables across all three conditions are composite scores on WFC and FWC. A $3 \times 2 \times 3$ multivariate analysis of variance (MANOVA), with repeated measures was performed to test the impact of the training.

Impact of training on WFC and FWC
The mean scores and standard deviations for WFC before the interventions were similar, with Site B reporting the highest mean score (28.5, std 2.6), compared to Site A (27.1, std 2.1) and site C (26.6, std 2.4). Although the mean WFC scores declined in all three sites, there were noticeable differences in the magnitude of this decline. For Site A the difference in mean WFC score was 2.4 points, for Site B it was 10.9 points and for Site C 13.4 points.

Although all three sites reported a decrease in work-family conflict after the training at Time 2, this decrease was the strongest for Site C, where the family had been involved in the training. The decrease was least at Site A, where training was focused on diet and sleeping pattern advice to shift workers only. These results are graphically summarised in Figure 1. Analysis of variance underscores a significant interaction effect for training type by family involvement on work-family conflict, as outlined in Table I. The data suggests that involving the family in training and development
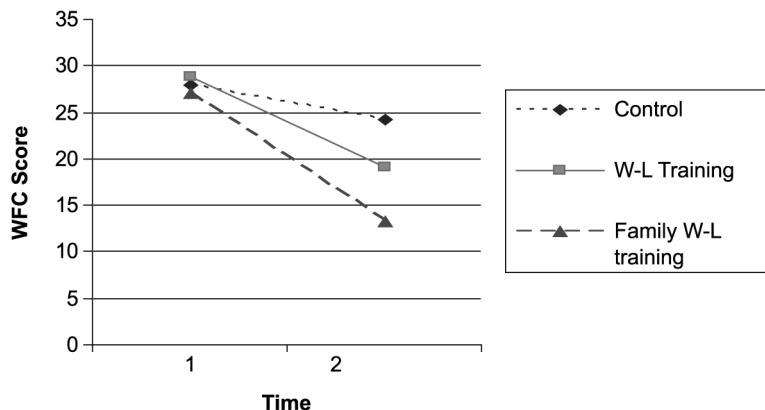

Figure 1.
Impact of training and family involvement on WFC

focused on a broader range of relevant behaviours had the most significant impact on the reduction of WFC.

For the measure of FWC the mean scores were noticeably lower than those reported for WFC. Before the interventions the FWC mean scores and standard deviations were, again, similar across sites, with Site C reporting the highest mean score (15.8, std 1.6) compared with Site A (14.9, std 1.9) and Site B (14.2, std 2.2). After the interventions, the Site C average score was lower than before (10.2, std 1.8) as was the score of site B (13.9, std 2.5). Site A, however, reported a higher mean score than before the health advice treatments were introduced (16.1, std 1.8). (Refer to Figure 2 for visual summary).

The multivariate analysis results are also less pronounced for FWC; only the interaction of family and training is significant at the 0.05 level and there are no signficant main effects for training type or family involvement (Table II).

For FWC, however, significant differences are found between the control and the family training site post-intervention ($t_{(162)} = -5.714$, $p < 0.01$, $n_2 = 0.42$), consistent with the interaction effect of training and family involvement. Taken together, the survey results suggest that involving the family in training and development focused on a broader range of relevant behaviours, rather than physiological aspects alone, improves outcomes in both FWC and WFC for shift workers.

Effects/variables (within subject)	Multivariate F ($n = 432$)	Uni-variate F ($n = 432$)
Training	6.988**	23.112**
	df = 1	df = 1
Family nvolvement	5.820**	18.749**
	df = 1	df = 1
Training × family involvement	16.334**	13.709*
	df = 2	df = 2

Notes: *$p < 0.05$; **$p < 0.01$

Table I.
MANOVA: effect of work-life training and family involvement on WFC

Figure 2.
Impact of training and family involvement on FWC
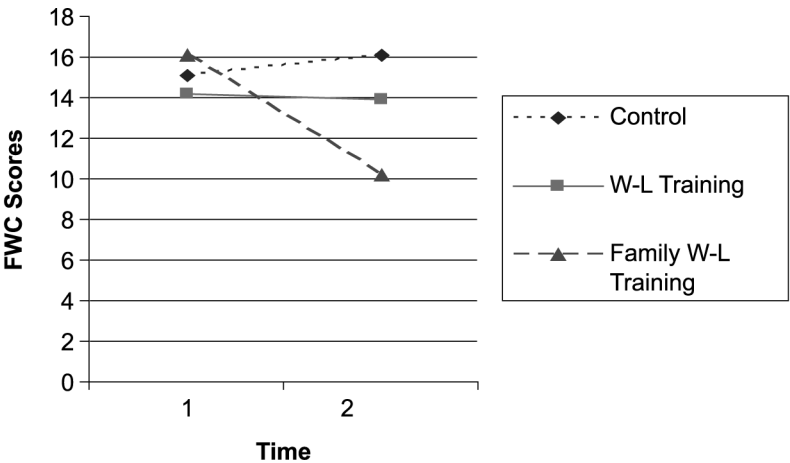
Open text responses
The four open-ended text response questions were content analysed and categorised by
the researchers and an independent evaluator, who had been unaware of the aims and
the content of the study. Inter-rater reliability across all text coding was calculated at
0.89.

WFC was explored through responses to the questions:

- What are the most positive impacts of work on your family?
- What are the most negative impacts of work on your family?

Respondents across all three sites at the beginning of the study expressed that the
rotating shifts and monthly four days in a row off that were part of their shift
structures, provided them with time to get more important things done around the
house or to take a break with their families (217 comments). This was the only response
where the working status of the partner played a role, as coordinating holiday or
respite schedules with a second employer was seen as difficult by workers across all
three sites, particularly as the partner was more likely to use much of their leave
entitlements to address family needs that the shift worker was not able to
accommodate. They also suggested that shift work allows them to provide a good
standard of living for themselves and their families (331 comments). Negative impacts
included (in order of frequency), constant tiredness (272 comments), being
"out-of-sync" with partner and children's schedules (177 comments), not having a
social life (145 comments), and missing major events, such as birthdays, school events,
and sporting events (111 comments).

The number of positive comments made after the intervention remained the same
for Site A, while it decreased for Site B (− 5.4 per cent) and increased at Site C (+12
per cent). Overall, the number of negative impacts listed declined by about 50 per cent
in the two family oriented training conditions (Sites B and C) when measured for the
second time. The overall decrease in negative impacts reported for Site A, with the
health-only training, was only 5.4 per cent. In particular, tiredness decreased across all
three sites. In all conditions, being "out-of-sync" with the family and missing important
family events were also mentioned less than in the time before the interventions. Going
against this trend, at Site B the number of comments related to no or disrupted social
life increased by 13.5 per cent (see Table III).

Effects/variables (within subject)	Multivariate F ($n = 432$)	Uni-variate F ($n = 432$)
Training	1.55, ns	1.42, ns
	df $= 1$	df $= 1$
Family involvement	1.99, ns	1.07, ns
	df $= 1$	df $= 1$
Training × family involvement	2.998[*]	2.10, ns
	df $= 2$	df $= 2$

Notes: [*]$p < 0.05$; [**]$p < 0.01$

Table II.
MANOVA: Effect of
work-life training and
family involvement
on FWC

	Site A before/after no. of comments	Site B before/after no. of comments	Site C before/after no. of comments
WFC – positive:			
Able to have good standard of living	101/98	110/104	120/122
Longer periods of time off with family	68/70	75/71	74/84
Total	169/169	185/175	194/206
Change in %	+/− 0%	− 5.4%	+12%
WFC – negative:			
Feeling tired and grouchy	81/76	90/65	101/62
Out of synch with family; off cycle	65/60	60/55	52/38
No or disrupted social life	42/38	37/41	66/47
Missed family events	36/38	24/20	51/28
Total	224/212	211/181	270/175
Change in %	− 5.4%	− 14.2%	− 35.3%

Table III.
Frequencies and changes in WFC-related comments before and after the interventions

In response to the spillover effects of family on work, the level of expressed conflict on FWC was lower for all groups, and this was reflected in far fewer comments in the open section of the survey to the following two questions:

(1) What are the most positive impacts of family on your work?

(2) What are the most negative impacts of family on your work?

The 244 total responses received at Time 1 for these questions (222 at Time 2) were grouped into one positive (family understands and supports me) and one negative category (there are fights within the family about work schedules).

The number of positive comments made increased across all three conditions from 20 per cent at Site A to 48.4 per cent at Site B and even 108 per cent at Site C.

However, the most striking difference across conditions and time was the reduction in listing of family arguments that carried over into work from the first to second measurement, particularly in the training scenario including the family. While this was reduced in all conditions (−15 per cent at Site A, − 54.6 per cent at Site B), it disappeared entirely from the family training scenario (Site C) across the measurement period. Of the respondents, seven specifically noted that completing the training with their partners meant that they now approached this as a problem to be solved, and they felt that they were working together more effectively with balancing work and family commitments than they ever had before. These results are summarised in Table IV.

	Site A before/after no. of comments	Site B before/after no. of comments	Site C before/after no. of comments
FWC – positive:			
Family supports and understands	25/30	31/46	36/75
Change in %	+5%	+48.4%	+108%
FWC – negative:			
Fights about work schedule	60/51	44/20	48/0
Change in %	− 15%	− 54.6%	− 100%

Table IV.
Frequencies and changes in WFC-related comments before and after the interventions

In summary, the quantitative and qualitative analyses of the collected data indicate that all three interventions can contribute to reductions in WFC as well as FWC, although there are some aspects of the training that tend to heighten awareness rather than resolve the problems directly, as we see in the increase in negative factors noted at Site B. However, the largest positive effect arises from the involvement of the families in training and development focused on a broader range of relevant behaviours and risk factors.

Discussion

Shift work has its positive sides as well as its conflict aspects. The present study illustrated, that the traditional positive aspects of shift work – flexibility and pay – were as much part of life for the employees at all three sites investigated as were the negative sides. These negative aspects had been found to fall into two areas of conflict that can have effects in two unique but related directions: from work into the family of the shift worker, and from the family into the work place. The present research aimed at exploring the differences three types of training can make on reported work-family conflict and family-work conflict for shift workers.

The importance of family involvement in awareness creation, training or behaviour change for shift workers had been clearly demonstrated by the results relating to the two sites introducing more extensive behaviour modification training. As previous research indicated, the family environment appears to play a central role when trying to alleviate the effects of shift work. The highly significant result for the interaction effect for training by family involvement on work-family conflict is in support of previous studies suggesting that, as the family bears the brunt of a shift worker's conflicts, the family is also the deciding factor in effectiveness of shift worker interventions. Even the best-designed and structured shift worker training does indeed need to involve the family. The family is the support network for the shift worker, which can help managing the work-family conflicts by sharing the same skills and an understanding of the issues involved.

The results further indicate that traditional interventions in the form of giving health focused information on how to maintain alertness during shift work as well as introducing a healthy diet and exercise, can reduce the level of WFC and FWC experienced. However, these changes appear to be relatively small and, when considering only the FWC mean scores, the degree of family work conflict may increase. It is possible to suggest that this increase in FWC is due to the shift worker's learning about different eating and sleeping patterns than those currently present in the family. If the shift worker suggests that changes to diet and household routines are implemented, conflict may be heightened by a lack of family awareness of work-related health requirements. It is also possible that the families feel the changes to be not feasible or a priority in their lives. Future studies might clarify this point through interviews and focus group discussions with the effected employees and their families. As this study is limited to male shift workers, we cannot assess the interaction of gender roles on work-family. We are also limited by the scope of the study; as this is a field study, we have no control over other sources of variance at home or in the work place.

The reported increase in conflicts regarding disrupted family life in Site B (training without family involvement) may arise from one of two possible causes. First, it is

conceivable that in the time after the intervention some of the respondents did face actual events such as overtime required or scheduling conflicts. These may or may not have been out of the ordinary, but after talking about these conflicts in the training they might have come more to the attention of the shift workers than before, and thus be reported more often. On the other hand, it is possible that the shift workers spoke at home with their families about shift work in general, and the training in particular, and thus surfaced the topic, and discovered more family distress than they had previously been aware of. These conversations might have brought the issues of limited or interrupted social lives to the forefront of the shift workers' minds and into the open-ended question responses. Again, future studies could explore these possibilities through in-depth interviews and focus groups with shift workers and their family members.

Overall, the most encouraging finding is that a total reduction in fights about work schedules and an increase in family understanding of the shift worker's support requirements is possible if the training focuses on a broad range of behaviours, acknowledges family-work issues, and explicitly involves the family in the learning process. In combination with the clear results in reduction of work-family conflict of this type of intervention, it clearly supports the notion that family, shift worker, and workplace form an interdependent unit. If employers wish to increase performance in one aspect (i.e. at work), they are well advised to explicitly address the other two as well (i.e. work with the employee and the family on managing the complexities involved). From the perspective of the employee, merely understanding shift work's negative effects is not enough; effective support involves family awareness and engagement.

The pressures of work and family are accelerating and families, who have traditionally borne the brunt of the conflicts experienced between home and work, can do little more to sustain balance. Therefore, in addition to acknowledging the necessity and sometimes welcoming the new employment patterns of shift work, employees are increasingly asking for a more balanced approach to work and social life. Consequently, the challenge for society as well as for organisations is to find the best possible way to deal with these, sometimes-conflicting demands made on the time and energy of shift workers. The main difficulty in this challenge is to find ways to enable the employee to cope with the stresses resulting from the increased temporal flexibility of social and work organisations (Costa, 2003). While other research has suggested that employees are better able to balance shift work and home life demands following lifestyle training if it addresses issues of concern to the shift worker and includes socialising strategies (Henderson and Burt, 1998; Johnson, 2004), we have added to this knowledge base by documenting reduced work-life stress when lifestyle training involves family members.

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Further reading

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