

The emotional impact of shift work on the children of shift workers

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Objectives This study compared the emotional state of children of shift and day working fathers.

Methods One hundred and ninety children (8 to 11 years of age) took part in the study. Ninety-one came from "shift working" homes, and 99 came from "day working" homes. Each child completed 2 questionnaires, The Harter Self-Perception Questionnaire and the Children's Depression Inventory.

Results The daughters of shift working fathers reported a significantly poorer perception of their ability in school-related activities and significantly greater discrepancies between their perceived overall level of competence and their ideal level of competence. In addition, more depressive symptomatology and a lower level of self-esteem were also found for the daughters of shift working fathers in comparison with the daughters of day working fathers. No such effects were found for the sons of shift working fathers.

Conclusions Parental shift working may be experienced as stressful within the family, and this stress may affect the emotional state of the child. However, the nature of expression of these emotional difficulties may vary according to the gender of the child. Further research is needed.

Key terms children's psychological health, paternal depression, work patterns, working parents.

Despite the growing interest in the work-family interface, little research has paid equal attention to both the work and the home settings. This lack may stem in part from differences in scientific disciplines in the social world, since developmental researchers are trained to conduct research in laboratories, schools, and families, but rarely in factories and offices, and organizational behavior experts rarely follow their subjects past the boundaries of the workplace (1). However, one attempt to span both environments has been to focus on the emotional state of the worker or family member as he or she moves back and forth across the settings of work and home, the emphasis being on the short-term psychological processes operating within the worker. For example, air traffic controllers returning home after a demanding shift were found to be more socially withdrawn and to exhibit less anger in marital interactions (2). Relatedly, in an examination of father-child interactions for 4- to 10-year-old children, difficult work conditions were found to be associated with lower levels of emotional involvement with the child, both positive and negative (3).

The biological and social disruption associated with work shifts is widely recognized as being problematic

for many shift workers and as causing tremendous strain within the family system (4). The sorts of problems that shift workers experience fall broadly into the following 3 categories: difficulties associated with the quality and quantity of sleep (5, 6), impairment of physical and psychological health (7, 8), and social and domestic disruption (9, 10). Thus it is perhaps not surprising that elevated levels of chronic fatigue, irritability and lethargy (11), psychological ill-health (12), neuroticism (13), and depression (14) have been found among shift working populations. Despite this recognition, few attempts have been made to examine the shift working-home interface, in particular, the psychological state of the worker at the end of the day and the possible carry-over effects of mood from work to home.

In a different, but relevant body of research, the effects of parental (mainly maternal) depression on child development have been much in focus, the general conclusion being that parental depression can place the child at risk of developing some form of pathology, such as anxiety, anger, dysphoria or social withdrawal (15), a reduced sense of self-efficacy (16), and possibly even depression (17). According to Cummings & Davies (18)

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parental depression may affect children as a result of how the depression affects the behavior, cognitions, and emotions of the parent. Thus parental depression may directly affect children through, first, the emotional unavailability and thinking processes of depression, since negative ways of thinking and low self-esteem are typical of the depressed person's way of thinking and, second, indirectly by altering patterns of parent-child interaction, such as the quality and security of the attachment bond and, third, by increasing marital discord which, independently, has been shown to have potentially negative effects on child development.

When these 2 disparate bodies of research are considered together, it is perhaps surprising that little attention has been paid to familial processes within shift working families, and, in particular, to the emotional and affective state of the children. Some early research showed however that children of shift workers did less well at school than children of day workers (19) and that the children of shift workers entered into work with fewer qualifications than children of day workers (20). In trying to make sense of these findings, attention has focused on the lack of time shift workers often have to spend with their children in school and other related activities. However, in a further study, Volger et al (21) found, in a group of shift working and day working policemen, that the amount of common free time available between father and child was not necessarily related to the quality of father-child relations. Thus the quality rather than the quantity of the time spent together was suggested to be more important for good father-child relations.

The present research therefore attempts to cross scientific disciplines and draw together the following 2 disparate bodies of psychological research: first, from an organizational perspective, the impact of shift work on the emotional and affective state of the shift worker and, second, from a clinical perspective, the impact of parental depression on children. The proposed model suggests that working shifts can and does have a detrimental effect on the emotional and affective well-being of the individual shift worker, and this detrimental effect may negatively affect the behavior and cognition of the shift worker, as he or she interacts within the family, and possibly result in negative implications for the emotional and affective state of the children. The specific hypotheses to be tested were "children of shift working fathers will report more negative self-perceptions and lower levels of perceived competence than children of day working fathers" and "levels of self-reported depression will be higher among children of shift working fathers than among children of day working fathers". In addition, given that boys and girls are known to react differently to stressful events, differences in self-reported emotional state according to gender, both between and within the research groups, should be investigated.

The current research compared the emotional and affective state of children of shift working fathers with that of children of day working fathers, and it is unique in that no previous work has explored the emotional impact of shift work within the family, at the level of the child.

Subjects and methods

One hundred and ninety children, aged 8–11 years, from 2 primary schools within a predominantly shift working geographic region participated in the study. Ninety-one of the children had shift working fathers, and 99 had day working fathers. The children from day working homes were significantly older than the children from shift working homes, by approximately 6 months ($t=5.82$; $df=1,188$; $P<0.001$; 10.27 and 9.59 years, respectively). Age was subsequently controlled in the analyses. There were roughly equal numbers of boys and girls, these being distributed evenly between the 2 groups ($X^2=0.34$; $df=1$; $P>0.05$) (day working: 49 boys, 50 girls; shift working: 55 boys, 36 girls). Family variables such as parental occupation and socioeconomic class were not measured. However, all the children were drawn from 2 local primary schools, within a relatively homogeneous and contained geographic environment with a dominance of manual and semi-skilled labor force.

All the children completed 2 questionnaires. First, the Self-Perception Profile for Children (SPPC) (22), which gives a measure of children's perceptions of their global self-worth, as well as their perceived competencies in 5 separate domains (scholastic competence, athletic competence, behavioral conduct, social acceptance, and physical appearance). Higher scores are associated with greater perceived competence. In addition, discrepancies between perceived and ideal levels of competence within each domain are computed, the larger discrepancies being associated with poorer evaluations of self-worth. Second was the Children's Depression Inventory (CDI) (23), which gives an overall measure of depression, as well as scores on 5 separate subscales (negative mood, interpersonal problems, ineffectiveness, anhedonia, and negative self-esteem). Higher scores are associated with more depressive symptomatology.

Results

Children of shift workers compared with children of day workers

Multivariate analyses of variance were performed to investigate the relationships between paternal shift working, gender, and child emotional state. No significant

interactions were found between whether the father worked shifts or days, and the gender of the child, and the self-reported emotional and affective state of the child. However significant main effects of gender were found for overall depression ($F=4.28$; $df=1,157$; $P<0.05$) and interpersonal problems ($F=11.64$; $df=1,157$; $P<0.001$), girls reporting higher levels than boys, and a significant main effect of paternal working on perceived academic competence was also found ($F=4.81$; $df=1,180$; $P<0.05$), children of day working fathers reporting higher perceived levels of competence than children of shift working fathers.

Relationship between paternal workhours and child affective state according to gender

Perceived competence. Given that gender-related differences in perceived self-competence in association with certain domains are known to exist (22), the analyses were repeated for the girls and boys separately. The daughters of the shift working fathers were therefore compared with the daughters of the day working fathers, as were the sons of the shift working fathers with the sons of the day working fathers, with respect to perceived levels of competence. The daughters of the shift working fathers reported significantly poorer perceptions of their academic competence than did the daughters of the day working fathers ($F=4.40$; $df=1,80$; $P<0.05$). However, no significant differences were found between the sons of the shift working fathers and the sons of the day working fathers.

Discrepancy scores (believed to be the greatest indicator of perceived self-worth) were computed and compared for the perceived and ideal levels of competence in the domains rated as important. When the girls were compared, again, only 1 significant difference was found. The daughters of the shift working fathers perceived a greater total discrepancy between their perceived and ideal levels of competence than did the daughters of the day working fathers ($F=4.99$; $df=1,76$; $P<0.05$). Again,

no significant differences were found between the sons of the shift working fathers and the sons of the day working fathers.

The discrepancy scores between the perceived and ideal levels of competence, for the domains rated as important, were also compared for the boys and girls within each of the 2 research groups in order to assess perceptions of self-worth. Within the shift working group, there were 2 significant differences. Although the boys reported a greater discrepancy in relation to their athletic competence than did the girls ($F=6.17$; $df=1,51$; $P<0.05$), it was the girls who reported a total greater discrepancy in overall perceived and ideal levels of competence ($F=4.44$; $df=1,83$; $P<0.05$). However, within the day working group, no significant differences were found for the discrepancy ratings of the boys and girls.

Depression. The daughters of the shift working fathers were compared with the daughters of the day working fathers, as were the sons of the shift working fathers with the sons of the day working fathers, with respect to self-reported levels of depression. Although the differences were not statistically significant, the daughters of the shift working fathers reported more depressive symptomatology overall, and more negative self-esteem than did the daughters of the day working fathers ($P<0.10$). It is also interesting to note that the daughters of the shift working fathers scored more highly on all the subscales than the daughters of the day working fathers. Figure 1 shows a comparison of the scores. No significant differences in levels of depression were reported between the sons of the shift working fathers and the sons of the day working fathers.

The daughters of the shift working fathers were compared with the sons of the shift working fathers, as were the daughters of the day working fathers with the sons of the day working fathers. Within the shift working group, the girls reported a significantly higher overall level of depression ($F=4.93$; $df=1,76$; $P<0.05$), a significantly more negative mood ($F=4.42$; $df=1,87$; $P<0.05$), significantly more interpersonal problems ($F=8.33$; $df=1,87$;

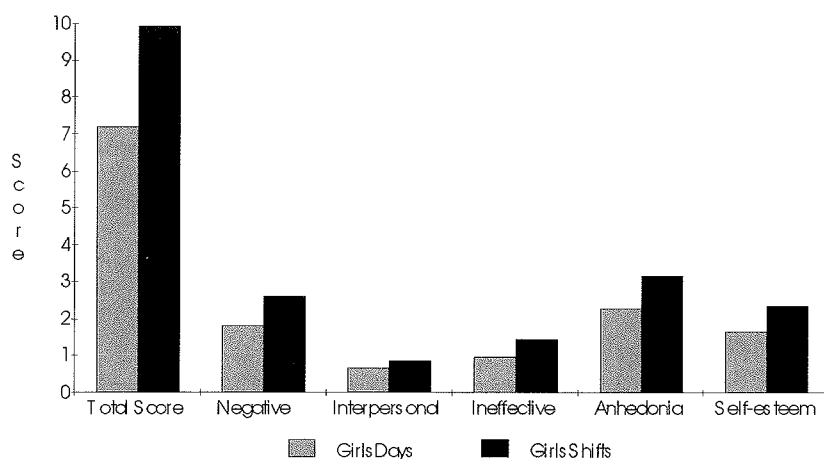


Figure 1. Total depression and subscale scores for the daughters of day working fathers and the daughters of shift working fathers.

$P < 0.01$), and significantly more anhedonia ($F = 4.30$; $df = 1, 87$; $P < 0.05$) than did the boys. However, within the day working group only 1 significant difference was found. The girls reported significantly more interpersonal problems than did the boys ($F = 6.77$; $df = 1, 96$; $P < 0.01$).

Discussion

A relationship was found between paternal shift working and child affective state among the daughters but not the sons of the shift working fathers, and also among the daughters of the shift working fathers when compared with the daughters of the day working fathers. In particular, the daughters of the shift working fathers appeared to be the most emotionally and affectively disturbed. They reported poorer perceptions of their academic competence, their competencies overall, and their perceptions of self-worth than did the daughters of the day working fathers. There was also an indication (though not statistically significant) that they were more depressed, and held more negative views of themselves, than did the daughters of the day working fathers, and they were significantly more depressed than the sons of the shift working fathers.

Given that we did not measure the affective state of the father it was not possible to determine the extent to which the fathers' affective state may, or may not, have directly contributed to the findings. However, given the enormous biological and social disruption associated with working shifts, it has been argued that shift working families can and do experience a significantly greater number of familial stressors than do day working families (10, 24, 25), for example, the general conflicts and tensions experienced within shift working families (24, 25), the physical absence of the father from the home, and the higher rates of negative affect and psychological ill-health reported by shift workers (7, 17, 26). Stressful life circumstances and events have, for many years, been shown to be associated with the development of child behavioral and psychological disorders (27, 28), although more recently such adverse conditions have been seen as risk factors rather than as directly causal factors (29). Specific risk factors have included parental emotional disturbance (18, 30), lack of parental and social support (31, 32), and family conflict (33, 34). Thus it is perhaps not surprising that greater emotional disturbances were reported by some of the children of the shift workers than by the children of the day workers in our study.

However, as already highlighted, this effect was found only for the daughters, and not for the sons of the shift working fathers. It is important therefore to try to understand why this gender effect may occur, given the potential for increased conflict and stress across all shift working

families. One possible explanation may be related to the actual nature of the variables under study. For example, it may be possible that the sons of shift working fathers may in fact also be experiencing greater degrees of emotional difficulties than the children of day working fathers, yet the expression of these difficulties may take on a different form than that of the girls, and that of the variables currently under study. For example, externalizing disorders of children (eg, conduct disorders), which have been shown to be associated with parental emotional disturbances and marital conflict (35, 36), have been found to be more common among boys than girls (37), whereas, in contrast, internalizing disorders (eg, depression) have been shown to be more common among girls than boys (27, 38). Thus the nature of the variables studied may in fact account for the gender effect produced.

This study has however numerous limitations, and therefore caution should be exercised when the results are interpreted. First, parental emotional state was not assessed. Thus it is not possible to say whether or not elevated levels of paternal distress were associated with work shifts and, in turn, were influential in the development of child emotional difficulties. Second, the focus only on internalizing as opposed to externalizing measures of emotional state may account in part for the gender effect produced. A further point to consider, since the population was drawn from a relatively small and homogeneous community, is the role of parental socioeconomic class and the development of children's competencies and problems, including academic achievement, in the interpretation of the results. Thus the lower educational achievement of some of the children of the shift working fathers may reflect a confounding effect of social class and work pattern.

In conclusion, the daughters, but not the sons, of the shift working fathers reported more negative self-perceptions, poorer academic self-competence, and more depressive symptomatology than the children of the day workers. However, the specific nature of the variables studied, that is, internalizing as opposed to externalizing expressions of emotional disturbance, may indeed account for the gender difference observed. More research is therefore needed to explore these associations further.

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