

SOCIOECONOMIC GRADIENTS IN PSYCHOLOGICAL DISTRESS: A FOCUS ON WOMEN, SOCIAL ROLES AND WORK-HOME CHARACTERISTICS*

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Abstract

A focus in the literature on determinants of women's health is the cost and benefit of occupying multiple roles as employee, spouse, and mother, yet little attention has been given to the work and home characteristics of different roles for women in paid and unpaid work. The impact of work-home factors on socioeconomic gradients in health has also tended to be overlooked. This paper assesses the contribution of work-home factors on socio-economic differences in psychological distress among women, using data from the 1958 British birth cohort. Outcome measures include psychological distress and social class at age 33. Work-home measures include: (1) roles: employment, marital status, domestic responsibility and parental status; (2) work characteristics: psychosocial job strain, insecurity, unsocial working hours; and (3) home characteristics: youngest child's age, total number of children, childcare responsibilities and having an older adult in the household (over 70). A social gradient in psychological distress exists: the odds ratio (OR) for classes IV and V vs.

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I and II was 3.02, adjusting for prior psychological distress reduces this to 2.36. Whilst, work and home factors were associated separately with distress and social class, the combined effect of work and home factors did not account for the class gradient in distress. This surprising result therefore implicates factors beyond adult social roles examined here in the development of socio-economic gradients.

Keywords: *Job-strain, Domestic responsibility, Women, Socioeconomic position, Psychological distress, British birth cohort.*

Résumé

La littérature sur les déterminants de la santé féminine met l'accent sur les coûts et bénéfices de l'exercice de rôles multiples – employée, épouse et mère –, mais elle fait peu de place aux caractéristiques professionnelles et domestiques des divers rôles des femmes dans leurs activités rémunérées et non rémunérées. L'impact de ces facteurs sur les gradients socioéconomiques de la santé a aussi été largement ignoré. En exploitant des données relatives à la génération britannique 1958, cette communication évalue la contribution des caractéristiques domestiques et professionnelles aux différences socioéconomiques de morbidité psychologique chez les femmes. Les paramètres du phénomène dépendant sont les troubles psychologiques et la classe sociale à l'âge de 33 ans. Les caractéristiques professionnelles et domestiques sont : (1) les rôles : emploi, situation matrimoniale, responsabilités domestiques et situation parentale ; (2) les caractéristiques de l'emploi : pression psychologique au travail, insécurité, horaires de travail anormaux ; et (3) les caractéristiques du foyer : nombre d'enfants, âge du plus jeune, responsabilités maternelles, présence d'un adulte âgé de plus de 70 ans. Il y a bien un gradient social de morbidité psychologique : le rapport des risques des classes IV et V à ceux des classes I et II vaut 3,02 (odds ratio) ; il est ramené à 2,36 quand on contrôle les troubles psychologiques antérieurs. Alors que les facteurs domestiques et professionnels sont séparément associés à la morbidité psychologique et à la classe sociale, leur effet combiné n'explique pas le gradient social de la morbidité psychologique. Ce résultat surprenant montre donc que des facteurs autres que les rôles sociaux des adultes examinés ici sont impliqués dans le développement des gradients socioéconomiques.

Mots-clés : *Pression psychologique au travail, Femmes, Responsabilités domestiques, Situation socioéconomique, Troubles psychologiques, Génération britannique.*

1. Introduction

The existence of socioeconomic inequalities in health has long been established (Fox, 1989; Townsend and Davidson, 1992). Generally, health improves with each increment in the social hierarchy, and this pattern holds for most causes of morbidity and mortality, although for women the trend is less consistent (Macintyre, 1998). An extensive literature exists on the impact of work and home factors for adult health. Differences in these factors may contribute to the development of socio-economic health gradients. Some studies have examined the influence of work and home factors on health (Hibbard and Pope, 1987; Hall, 1992; Hunt and Annandale, 1993). However in the main, there appears to be a gender divide, such that work factors are considered for men and home factors for women; alternatively, the focus is on gender differences rather than on social differences in health. Here, we consider the joint effect of work-home factors in the development of socio-economic health inequalities among women, focusing on psychological health.

Psychosocial work characteristics as a determinant of socio-economic gradients has been mostly neglected in studies on women, though there are exceptions (Marmot *et al.*, 1998; Martikainen *et al.*, 1999). The original 'job strain' model, as outlined by Karasek (1979) postulated that job strain resulted from an interaction between demand and control at the task level. A job with high demands and low control was regarded as producing high strain, whilst a job with high control and low demand was considered to be low strain. The inclusion of women into investigations on psychosocial work characteristics has tended to be restricted to those in paid employment. Indeed Karasek and Theorell (1990) found that women in the paid work force had lower levels of decision latitude or control than men, whilst the psychological demands in the work place did not differ by gender. Determining the role of 'work' demands on women is complex largely due to their varied work patterns. Rosenfield (1989) has shown that home work, associated with the 'housewife' role, tended to be more routine and demanding than for women in paid work, but control at the task level was greater in home work. In the US, Lennon (1994) compared employed women and home workers, and found that home work was more autonomous, prone to interruptions, physically demanding and routine than paid work.

Within women's health research a key focus has been on the positive or negative effects of multiple role occupancy, including the roles of mother, spouse and employee. Two strands predominate – *role accumulation* or *the enhancement hypothesis* (Sieber, 1974), which focuses on the beneficial effects on health of occupying multiple roles (Nathanson, 1980; Aneshensel *et al.*, 1981; Gore and Mangione, 1983; Verbrugge, 1983; Sorensen and Verbrugge, 1987; Hibbard and Pope, 1991; Sogaard *et al.*, 1994). For instance, Thoits (1983) has argued that role identities are important sources of psychological well being as the role requirements attached to each role give purpose, meaning and direction to one's life. By contrast the *role strain* or *overload hypothesis* views multiple roles as a source of strain with detrimental health effects. For instance, women with heavy responsibilities for household tasks and childcare combined with employment demands are subject to stress, therefore any positive effect derived from paid employment for working mothers may be mitigated by role overload (Williams *et al.*, 1991; Ross and Mirowsky, 1992). Several studies have also found an increased risk of developing psychological disorder among women who are married, of low socio-economic position, without paid employment outside the home, and who care for small children (Brown and Harris, 1978; Surtees *et al.*, 1983).

A number of studies have integrated work and home characteristics when examining determinants of women's health (Haynes and Feinleib, 1980; Barnett *et al.*, 1991; Lennon and Rosenfield, 1992; Roxburgh, 1997; Barnett, 1997). Waldron (1980) concluded that the effects of employment on women's health depend on the type of job and family situation of the women. Adverse effects of paid employment appear to be most likely for women in time pressured repetitive jobs, involving exposure to occupational hazards. Additionally, Hibbard and Pope (1987) suggested an interactive effect of home and work characteristics among women, with single mothers and those holding jobs with low quality intrinsic work characteristics having poor mental health. Hall (1992) showed that as well as psychosocial job demands, social support and job hazards, having older and younger children combined with home duties were related to psychosomatic strain. Whereas, Hunt and Annandale (1993) found domestic work alone had some effect on women's psychological health, although this effect was less than that for paid work alone.

The literature on multiple roles has sought to explain the higher incidence of morbidity, especially anxiety and depression among women. With few exceptions (Nathanson, 1980; Arber, 1991) these studies have failed to assess the impact of multiple roles and circumstances on the socio-economic gradient in health, rather, socio-economic position has been treated as a control variable (Surtees *et al.*, 1983; Jenkins, 1985; Romans-Clarkson *et al.*, 1988; Bird and Fremont, 1991; Martikainen, 1995; Weich *et al.*, 1998). Where socio-economic position has been examined directly, findings have been inconsistent. It has been argued that employment is more beneficial to middle class than working class women, because with better education and higher aspirations, the former experience more loss of status as full-time housewives (Howe, 1973). In contrast, Waldron and Jacobs (1988) found that labour force participation had beneficial effects on health (physical and psychosomatic conditions) for manual class married women, but harmful effects for white collar married women. Warr and Parry (1982) argue that a job is more psychologically beneficial for women whose home environment is adverse, where housing conditions are poor, where there is domestic stress or where financial resources are extremely scarce. Such differential associations may play a part in the development of health inequalities.

Examining the combined contribution of multiple roles and home and work characteristics on the socio-economic gradient in health is an under-researched area. In previous studies we have shown several work and home factors having an impact on the socio-economic gradient in self-rated health (Power *et al.*, 1998), and socio-economic trends in psychosocial strain for employed women, but not among women who primarily looked after the home (Matthews *et al.*, 1998). We also found socio-economic gradients in levels of social support, although these trends were weak (Matthews *et al.*, 1999). Our aim here is to extend these analyses, by assessing whether social inequalities in psychological distress can be explained by work and home characteristics and the multiple roles occupied by women. To achieve this we examine two related questions: (1) are work and home factors associated with psychological distress? and (2) are work and home factors associated with socio-economic position?

2. Methods

2.1. Sample

The 1958 National Child Development Study (NCDS) is a birth cohort study which includes all children born in one week in March in 1958 in England, Wales and Scotland. Information was collected on 98 percent of births totaling 17,414. Follow-up of survivors was undertaken at ages 7, 11, 16, 23 and most recently in 1991 at 33 years, when 11,405 subjects (69 percent of the target) were re-interviewed (Ferri, 1993), approximately half were women (5799). Those remaining in the study were generally representative of the original sample (Ferri, 1993). However, sample attrition has resulted in a slight under representation of those in the more disadvantaged social groups. For instance 19.1% of women in our multivariate analysis (which includes all work and home factors) had been born into social classes IV and V in 1958, compared with 21.4% in the original sample. Small biases are also evident for those who were born into a household with no male head, 3.3% in the original 1958 sample compared to 2.1% in our multivariate sample. All information used in the present paper was collected at age 33, except psychological distress for which we used data for both ages 23 and 33.

2.2. Measures

Social class was based on the 1990 British Registrar General's classification of occupations: 72% of women were classified according to their current job, the remainder by their most recent job. Women were classified according to their *own* occupation. Four categories are used: classes I and II (professional and managerial), III_{nm} (other skilled non-manual), III_m (skilled manual), and IV and V (semi and unskilled manual).

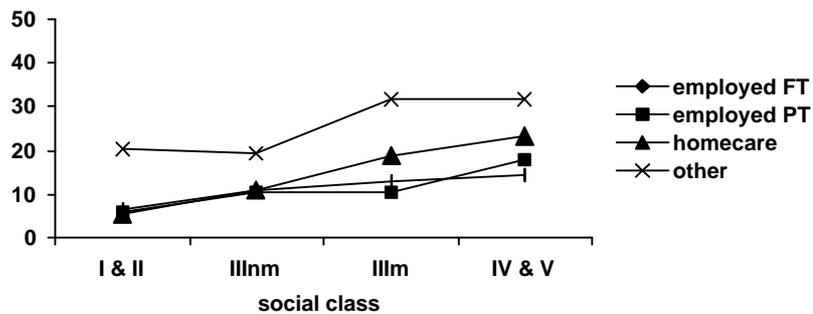
Psychological distress at ages 23 and 33 was indicated by a score of 7 or more on the Malaise Inventory (Power and Hertzman, 1997; Hope *et al.*, 1999). The Inventory comprises a self-completion 24 item checklist of symptoms, including mostly emotional symptoms (depression, anxiety, irritability and fearfulness) and also psychosomatic illness (eg headache, indigestion and back-ache). Although no specific time frame is used, the focus is on recent state. The Inventory has acceptable in-

ternal consistency (Cronbach's alpha = 0.77 at age 23 and 0.80 at age 33) (Rodgers *et al.*, 1999).

2.2.1. Work role

Employment status was based on respondent's reports of their current main economic activity: full-time (30 hours or more per week - 37%) or part time employed (less than 30 hours - 32%), home-workers (those who care for the family or home, that is the traditional housewife role - 27%), and others (2% unemployed, <1% full-time education, and 1% temporarily or permanently sick). Figure 1 shows social class gradients in psychological distress for these four employment groups. Gradients are very similar for those in employment, irrespective of hours worked. Hereafter, the groups were therefore collapsed into currently employed and not employed.

Figure 1
Psychological distress (%) of women
by employment status and social class



2.2.2. Work characteristics

Psychosocial work characteristics: respondents (in and out of the paid labour force) were presented with four statements about work characteristics. (1) 'my work requires me to keep learning new things' (learning); (2) 'my work is monotonous because I always do the same things' (monotony); (3) 'I can only take breaks at certain times' (breaks); and (4) 'I am able to vary the pace at which I work' (pace). Response categories ranged from 'very true' to 'not at all true'. These were dichotomised to reflect negative work characteristics. A sum of these negative work characteristics was calculated across the four variables (psychosocial strain), ranging from 0-4; two or more defined a high level of negative work characteristics (Matthews *et al.*, 1998).

Job insecurity: respondents were presented with the statement 'my present work skills will be useful or valuable in five years time'. Response categories ranged from 'very true' to 'not at all true', these were dichotomised, with 'very true' and 'true' combining to form 'security' and the remaining three groups combining to represent insecurity. Women reported information irrespective of whether they were in paid or unpaid work.

Redundancies: whether the respondent had been made redundant between ages 23 and 33 or not.

Unsocial working hours: of the current or most recent job, involved working nights (between 10 pm and 7 am) and weekends.

2.2.3. Home roles

Marital status: currently married or cohabiting. Single, divorced, widowed and separated formed a second category.

Domestic responsibilities: 6 questions were asked of those with a partner. In your family, who does each of these things most of the time? (a) Preparing and cooking the main meal; (b) Shopping; (c) Cleaning the home; (d) Laundry and ironing; (e) Household repairs, DIY, decorating; (f) Looking after household money and paying bills. Response categories were: 'I do most', 'my partner does most of it', 'we share more or less equally', 'someone else does it', 'does not apply'. The first category ('I do most') (allocated a score of 1) was retained but other categories were combined (allocated a score of 0). (Those without a partner were categorized as 'I do most'.) Domestic responsibilities

were summed across the 6 questions to form a scale, ranging from 0-6 and dichotomized with two as the cut off. Those scoring three or more were defined as having high domestic responsibility.

Parental status: the presence of any children (natural, adopted, step or foster) living in the household versus none.

2.2.4. Home characteristics

Older person in the household: the presence of an older person (over age 70) living in the household or not.

Age of the youngest child in the household was categorized as 0-6 years, above 6 years and 'no children'.

Total number of children: categorized as 0-2 and 3 or more children.

Child care: respondents were asked who was 'generally with and looking after the children'? Response categories were: 'I do most', 'my partner does most', 'we share more or less equally', 'someone else does it', 'does not apply'. The response 'I do most' was retained (coded 1) whilst the other categories were combined (coded 0). Single parents were categorized as 'I do most'.

2.2.5. Miscellaneous

Partner's employment status: categorized as: 'no partner', 'employed' and 'not working'.

Social support: Respondents nominated up to four sources of emotional and practical support (e.g. spouse/partner, parent/in law; other relative, friend or neighbour, and someone you work with). They identified these sources of support for three components of emotional support (personal advice, confiding and distress support) and three components of practical support (domestic help, financial, and household DIY). The number of support sources was summed for each component and summed within the practical and emotional dimensions. A score of 3 or less on either emotional or practical support was defined as low support (Matthews *et al.*, 1999).

2.3. Data analysis

In order for work-home roles and characteristics to contribute to social class differences in women's psychological distress, they must

simultaneously be associated with psychological distress and social class. We therefore used logistic regression to estimate odds ratios (OR) and 95% confidence intervals (CI) for the associations between (i) psychological distress and each work and home role or characteristic separately, and (ii) social class and each role or characteristic. These analyses were conducted with and without adjustment for prior psychological distress (at age 23), which was used as a proxy for the cumulative effects of earlier life experience. To address the final aim, we performed a series of logistic regression analyses to determine the impact of work-home factors on class differences in psychological distress at age 33, adjusting for prior psychological distress (at age 23). Roles were included in the model first, followed by characteristics. As a summary measure we report results for social classes IV and V relative to classes I and II (Manor *et al.*, 1997). The final stage of analysis had been conducted on a reduced sample (i.e. all with relevant data). We therefore repeated analyses for (i) and (ii) above, to check whether the associations were affected by sample attrition. Similar results were obtained for the different samples and so we present associations for all women with relevant data (Tables 1 and 2).

3. Results

By age 23, a significant social class gradient in psychological distress is evident for women, this gradient persists to age 33 (Figure 2). This is the gradient we are seeking to explain.

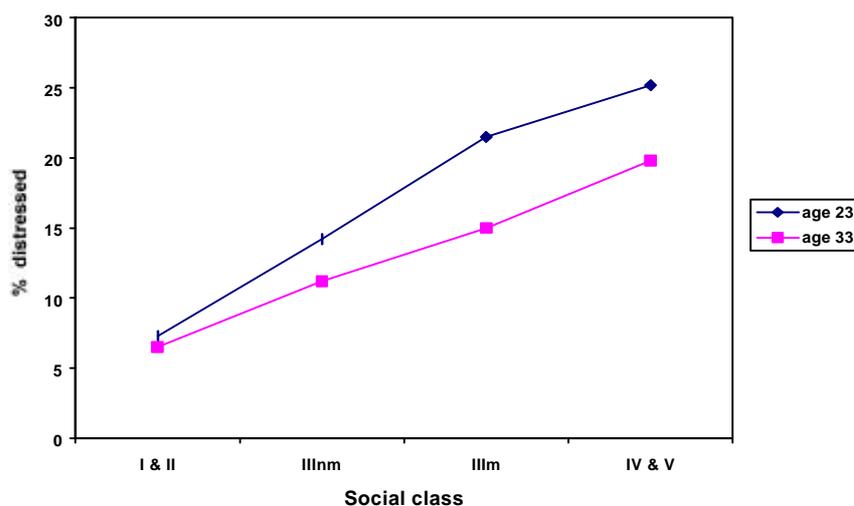
3.1. *Psychological distress and work-home roles and characteristics*

Table 1 shows the associations between work-home roles and characteristics and psychological distress presented as odds ratios (OR), that is the odds of distress in one subgroup (for example, being employed) relative to the other subgroup (the non-employed). With regard to work roles, employed women had a reduced risk (unadjusted OR = 0.62) of psychological distress relative to the non-employed at age 33. For home roles, a lower risk of psychological distress was also associated with marriage (OR = 0.57), whilst mothers were more likely

to report psychological distress (OR = 1.47). No significant association was evident for sole responsibility for domestic chores.

Figure 2

Psychological distress among women by social class at ages 23 and 33



With regard to work characteristics, only two of the four psychosocial strain characteristics (learning and monotony) and the summary measure of psychosocial strain were associated with elevated distress, with monotony showing the strongest association (Table 1). Job insecurity was significantly associated with psychological distress (OR = 1.91), yet job redundancy, another dimension of insecurity, showed no significant association, nor did working unsocial hours. In contrast, most home characteristics were associated with psychological distress, i.e. having a youngest child over six years of age (OR = 2.26), having three or more children (OR = 1.92) and doing most of the childcare (OR = 1.48) were associated with elevated distress. Having an older adult in the household was not associated with elevated distress in women. In addition to the work and home characteristics, we also examined partner's employment status and social support. There was a significantly increased risk of psychological distress for those whose partners were not employed. Those with low support were more likely to report psychological distress.

Table 1
Associations (odds ratios) for women between psychological distress at age 33 and the work and home environment ^a

| | <i>N</i> | Unadjusted OR | 95% CI | Adjusted OR ^b | 95% CI |
|--|----------|---------------|--------------|--------------------------|--------------|
| <i>Work role</i> | | | | | |
| Being in paid employment | (4,985) | 0.62*** | (0.52, 0.74) | 0.69*** | (0.57, 0.83) |
| <i>Work characteristics</i> | | | | | |
| Psycho-social strain | (4,735) | 1.78*** | (1.49, 2.14) | 1.53*** | (1.25, 1.86) |
| Lacks learning opportunities | (4,670) | 1.43*** | (1.18, 1.74) | 1.21 | (0.98, 1.50) |
| Monotonous work | (4,766) | 2.59*** | (2.16, 3.11) | 2.09*** | (1.71, 2.55) |
| Regulated work pace | (4,756) | 1.13 | (0.91, 1.41) | 1.17 | (0.93, 1.49) |
| Set break times | (4,751) | 1.04 | (0.86, 1.25) | 1.04 | (0.85, 1.27) |
| Job insecurity | (4,751) | 1.91*** | (1.54, 2.36) | 1.91*** | (1.25, 2.00) |
| Ever been made redundant | (4,719) | 1.07 | (0.80, 1.45) | 0.98 | (0.71, 1.34) |
| Unsocial working hours | (4,960) | 1.16 | (0.87, 1.54) | 1.20 | (0.88, 1.63) |
| <i>Home roles</i> | | | | | |
| Married or cohabiting | (4,870) | 0.57*** | (0.47, 0.68) | 0.63*** | (0.51, 0.77) |
| Sole responsibility for 3 or more domestic tasks | (3,982) | 0.94 | (0.73, 1.19) | 0.91 | (0.71, 1.19) |
| Children in household | (4,916) | 1.47*** | (1.17, 1.85) | 1.39* | (1.09, 1.76) |
| <i>Home characteristics</i> | | | | | |
| Person over age 70 in the household | (4,951) | 1.32 | (0.71, 2.45) | 1.16 | (0.59, 2.28) |
| Youngest child in household | | | | | |
| 0-6 years of age | (4,916) | 1.18 | (0.93, 1.50) | 1.13 | (0.88, 1.46) |
| age 6 + years | | 2.26*** | (1.75, 2.91) | 2.04*** | (1.55, 2.69) |

| | | | | | |
|--|---------|---------|--------------|---------|--------------|
| Number of children | | | | | |
| 1-2 | (4,686) | 1.29 | (1.00, 1.67) | 1.24 | (0.94, 1.63) |
| 3+ | | 1.92*** | (1.44, 2.56) | 1.55** | (1.14, 2.12) |
| Sole child care responsibility | (4,831) | 1.48*** | (1.24, 1.77) | 1.38** | (1.14, 1.67) |
| Miscellaneous | | | | | |
| Partner not employed | (4,937) | 2.01*** | (1.44, 2.81) | 1.85*** | (1.28, 2.67) |
| Low emotional and practical social support | (4,680) | 1.57*** | (1.22, 2.01) | 1.36* | (1.04, 1.80) |

a. Reference categories for work-home roles and characteristics: *being employed* versus not in employment; high *psychosocial strain* versus low strain; *no learning opportunity* versus any learning opportunity; *monotony* versus none; *regulated work pace* versus flexible work pace; *set break times* versus varied; *job insecurity* versus job security; *ever redundant* versus never; *unsocial working hours (weekends and nights)* versus not; *married/cohabiting* versus not married (all others); *sole responsibility for 3 or more domestic tasks* versus sole responsibility for 0-2 tasks; *children in the household* versus none; *person over age 70 in the household* versus none; *youngest child in the household 0-6 years* versus no child; *over age 6* versus no child; *3 or more children in the household* versus 0-2 children in the household; *sole child care responsibility* versus shared or no responsibility; *partner not employed* versus employed partner; *low emotional and practical social support* versus all others.

b. Adjusted for psychological distress at age 23.

*** $p < 0.0005$, ** $p < 0.005$, * $p < 0.05$.

Table 2
 Association (odds ratio) between social class at age 33 and work-home characteristics ^a
 (women in classes IV and V versus I and II)

| | <i>N</i> ^b | Unadjusted OR | 95% CI | Adjusted OR ^c | 95% CI |
|--|-----------------------|---------------|--------------|--------------------------|--------------|
| Work role | | | | | |
| Being in paid employment | (4,970) | 0.40*** | (0.33, 0.47) | 0.41*** | (0.34, 0.49) |
| Work characteristics | | | | | |
| Psycho-social Strain | (4,725) | 2.66*** | (2.25, 3.15) | 2.54*** | (2.15, 3.01) |
| Lacks learning opportunities | (4,740) | 6.52*** | (5.31, 8.00) | 6.33*** | (5.14, 7.78) |
| Monotonous work | (4,756) | 4.60*** | (3.82, 5.55) | 4.30*** | (3.56, 5.19) |
| Regulated work pace | (4,746) | 0.93 | (0.77, 1.13) | 0.94 | (0.77, 1.14) |
| Set break times | (4,741) | 0.89 | (0.76, 1.04) | 0.88 | (0.75, 1.04) |
| Job insecurity | (4,741) | 6.97*** | (5.40, 9.00) | 6.66*** | (5.15, 8.60) |
| Ever been made redundant | (4,721) | 1.52** | (1.17, 1.98) | 1.50** | (1.15, 1.95) |
| Unsocial working hours | (4,945) | 0.74* | (0.59, 0.94) | 0.74* | (0.59, 0.94) |
| Home roles | | | | | |
| Married or cohabiting | (4,855) | 1.20* | (1.02, 1.43) | 1.28** | (1.08, 1.52) |
| Sole responsibility for 3 or more domestic tasks | (3,971) | 1.62*** | (1.35, 1.94) | 1.63*** | (1.33, 2.00) |
| Children in the household | (4,901) | 5.47*** | (4.41, 6.80) | 5.47*** | (4.39, 6.80) |
| Home characteristics | | | | | |
| Person over age 70 in the household | (4,937) | 0.50** | (0.25, 0.97) | 0.46* | (0.24, 0.91) |
| Youngest child in the household over age 6 | (4,901) | 4.09*** | (3.35, 5.00) | 3.98*** | (3.25, 4.86) |
| 3 or more children | (4,670) | 3.31*** | (2.71, 4.06) | 3.16*** | (2.57, 3.88) |
| Sole child care responsibility | (4,817) | 2.14*** | (1.83, 2.51) | 2.09*** | (1.79, 2.45) |

| Miscellaneous | | | | | |
|--|---------|---------|--------------|---------|--------------|
| Partner not employed | (4,922) | 3.14*** | (2.16, 4.57) | 3.03*** | (2.07, 4.42) |
| Low emotional and practical social support | (4,670) | 2.08*** | (1.66, 2.67) | 1.99*** | (1.55, 2.56) |

a. Reference categories for work home roles and characteristics the same as for Table 1, except for youngest child in the household *over age 6* versus all others (those with a child aged <6 years have a similar risk of distress to those with no children and hence these two categories have been combined).

b. Of this sample 31% were in classes I and II, 38% in III_{nm}, 7% in III_m, and 24% in IV and V.

c. Adjusted for psychological distress at age 23.

*** $p < 0.0005$, ** $p < 0.005$, * $p < 0.05$.

Adjustment for psychological distress at age 23 slightly weakened the associations observed for several factors in Table 1.

These bivariate relationships do not support a simple role strain hypothesis because some roles were associated with decreased risk of psychological distress (employment and being married) yet others appear to increase the risk (being a parent). Furthermore, domestic responsibility showed no association. Summing these 4 roles shows declining psychological distress with increasing number of roles. The trend across the number of roles is significant (OR = 0.81, 95% CI = 0.75-0.87). Notwithstanding the magnitude of associations, the impact of work-home roles and characteristics on the socio-economic gradient in psychological distress also depends on the extent to which these factors are socially patterned.

3.2. Social patterning of work-home roles and characteristics

Next we examine whether work and home roles and characteristics differ according to social class at age 33 (Table 2). Results are expressed as odds ratios, summarized by the odds of each role or characteristic in classes IV and V relative to I and II. For example, the odds of women in classes IV and V being employed at age 33 are estimated relative to women in classes I and II (unadjusted OR = 0.40). For the work role it is evident that having paid employment is strongly associated with social class at age 33: women in lower social classes are 60% less likely to be employed relative to those in classes I and II. For home roles, women in classes IV and V were more likely to be married (OR = 1.20), to be mothers (OR = 5.47), and do most domestic tasks unassisted (OR = 1.62) than those in classes I and II. In contrast, those in classes IV and V were 50% less likely to have an older person in the household.

For work characteristics, we see that among psychosocial work characteristics, lack of learning opportunity (OR = 6.52), monotony (OR = 4.60) and the summary index of psychosocial strain (OR = 2.66) were strongly associated with low social class at age 33. Job insecurity also demonstrated a strong association with social class, with an odds ratio just under seven. Women in classes IV and V had a higher risk of redundancy (OR = 1.52), but a lower risk of working unsocial hours (OR = 0.74), than those in classes I and II.

Significant associations were evident between social class and all home characteristics. Particularly strong associations were evident be-

tween social class and age of the youngest child in the household and total number of children: women in classes IV and V were more likely to have a youngest child aged 6 or more (OR = 4.09), and to have three or more children (OR = 3.31). Social class was also associated with social support: lower class women have less support than those in classes I and II (OR = 2.14). There was also an association between class and partner's employment status: classes IV and V were over three times (OR = 3.14) as likely to have a non-employed partner relative to women in classes I and II. In general, adjustment for psychological distress at age 23 slightly weakened the associations between social class and work-home factors (Table 2).

To summarize the associations with social class, psychosocial work characteristics and job insecurity showed the strongest relationships among work factors, whilst for the home environment, factors relating to children showed the strongest associations. Coupled with the other results, these findings suggest a greater importance of work-home characteristics rather than work-home roles in the development of the socio-economic gradient in psychological distress. By summing the four work-home roles we found that women in classes IV and V were more likely to perform a higher number of roles (i.e. 3 or 4) relative to those in classes I and II (OR = 1.43, 95% CI = 1.23-1.66).

3.3. Social inequalities in psychological distress and work-home roles and characteristics

Table 3 integrates both work and home factors in a final model to explain the social gradient in psychological distress at age 33. Because class differences in distress are not merely a function of current circumstances but are influenced by earlier life factors, we adjust for prior psychological state at age 23. This is a crude but simplified method to allow for earlier life experience. The OR is greater than two after adjustment for prior psychological distress (OR = 2.36), which suggests that early life factors do not entirely account for the social class gradient, and thus current circumstances may influence social inequalities in psychological distress.

Table 3
Odds ratios (social classes IV and V relative to classes I and II)
of psychological distress at age 33 among women,
adjusted for work-home factors ^a ($n = 3,513$ ^b)

| | OR | 95% CI |
|--|---------|--------------|
| Unadjusted | 3.02*** | (2.19, 4.17) |
| and psychological distress age 23 | 2.36*** | (1.67, 3.32) |
| Work role | | |
| and being in paid employed | 2.36*** | (1.67, 3.33) |
| Work characteristics | | |
| and psycho-social strain | 2.17*** | (1.53, 3.07) |
| and job insecurity | 2.07*** | (1.45, 2.96) |
| and ever been made redundant | 2.05*** | (1.44, 2.93) |
| and unsocial working hours | 2.07*** | (1.45, 2.95) |
| Home roles | | |
| and married or cohabiting | 2.09*** | (1.46, 2.98) |
| and children in the household | 2.09*** | (1.45, 3.02) |
| and sole responsibility 3 or more domestic tasks | 2.10*** | (1.46, 3.02) |
| Home characteristics | | |
| and person over 70 in the household | 2.13*** | (1.48, 3.07) |
| and sole child care responsibility | 2.15*** | (1.49, 3.10) |
| and youngest child in household over 6y | 2.00*** | (1.38, 2.90) |
| and 3 or more children in/out the household | 1.96*** | (1.35, 2.85) |
| Additional factors | | |
| and low emotional and practical social support | 1.94** | (1.34, 2.82) |
| and partner not employed | 1.99*** | (1.37, 2.90) |

a. also adjusted for psychological distress at age 23.

b. of this sample 31% were in classes I and II, 39% in III_{nm}, 7% in III_m, and 23% in IV and V.

*** $p < 0.0005$, ** $p < 0.005$.

Following the inclusion of prior psychological distress, work factors were included in the model, then the addition of home factors (roles followed by characteristics). From Tables 1 and 2, we anticipated that adjustment for work characteristics would have a greater impact on the socio-economic gradient than the work role. The adjustment in Table 3 shows that, being employed had no effect, whereas adjustment for work characteristics, especially psychosocial strain and job insecurity, resulted in a weak to moderate reduction in the OR (from OR 2.36 to OR 2.07) even after the inclusion of these prior variables. The

OR was virtually unaffected by the further adjustments for home roles, and only one home characteristic, age of the youngest child in the household had an impact on the OR. There was no additional effect of partner's employment status or level of social support. In further analysis (data not presented) we examined the effect of home roles/ characteristics before the inclusion of work factors and this did not affect our main findings. Adjustment for all work-home factors reduced the OR from 2.36 to 1.99, thus a significant substantial class difference in psychological distress remained after taking account of these social roles and characteristics.

4. Discussion

A social class gradient is evident in psychological distress in this cohort of women at age 33. This paper assesses the effect that work and home factors have on this social gradient among women. We have attempted to bring together the literature on social roles and psychosocial work characteristics, firstly by extending the number and types of roles, secondly by including those not in paid employment, and thirdly, by examining psychosocial work characteristics and a wider selection of work characteristics. Combining work and home factors is not new, but our study provides a unique focus on the impact of work and home factors on socio-economic gradients in psychological distress. However several methodological considerations need to be addressed before discussing the results.

4.1. Methodological considerations

The socio-economic gradient was demonstrated using social class based on the woman's own (current or most recent) occupation as the measure of social position. As this cohort is relatively young, the most recent occupation will not be that distant. The Registrar General's classification has been criticized as inappropriate for women (Rose, 1995), largely because women occupy different jobs than men, and because they are less likely to be employed. However, this criticism applies to other occupation based measures of socio-economic positions (Rose, 1995).

A second methodological issue concerns the classification of the work role as paid versus all other employment statuses combined.

Given that women have varied work patterns, it may be that this categorization conceals relationships with a particular employment status. However as was shown in Figure 1, the social gradient in psychological distress is similar for those in full-time and part-time paid work, and although rates of psychological distress were higher in the 'other' category, there were too few women in this group to allow separate analysis.

The third methodological issue involves the use of prior psychological distress at age 23 as a proxy for earlier life influences. This has the advantage of simplifying the numerous earlier life events and influences that needed to be included in our analysis. Although this is a crude method in respect of early life factors, nonetheless, it results in a social class differential of similar magnitude to that derived from a more detailed examination of specific early life factors (Power *et al.*, 2002). Factors that are emerging as important for women include ability at age 7, age at first child, and level of qualifications achieved by the end of school. The age at which women start their child-bearing is clearly relevant to the present analysis, since it influences the number and ages of children born to the women by age 33. Indeed, the age of the youngest child and number of children are both confounded with age of the woman's first child-bearing within this particular study sample. This inherent problem may account, for example, for the higher risk of distress observed among women with a youngest child of more than 6 years. Nonetheless, in the current paper we have examined several work and home characteristics, which are potentially concealed in the more macro analysis presented elsewhere (Power *et al.*, 2002). The final methodological issue concerns our assessment of multiple roles. Summing the total number of roles is a crude method to assess multiple roles, since it assumes an equal weight to each social role. Nonetheless, others have used this method quite recently (Weich *et al.*, 1998) as it offers the opportunity to summarize substantial information.

4.2. Impact of work-home factors

Our study suggests that the social class gradient in psychological distress for 33-year-old women is due in part to differential work characteristics, but not to home roles and characteristics. Role accumulation did not appear to provide an important explanation for this social class gradient. Underlying these main findings are patterns of association with psychological distress, and with social class which determine

the impact of different work-home factors on the socio-economic gradient. Significant bivariate associations were demonstrated between psychological distress and most work and home factors, although the associations were not always strong. Similarly, significant bivariate associations were shown between social class and most work and home factors. However, the impact of work factors on social class differences in psychological distress was weak even when all work factors were considered simultaneously. It was particularly notable that employment status had no impact, whereas work characteristics, such as psychosocial strain and job insecurity did contribute, albeit modestly, to the socio-economic gradient in psychological distress.

What are the possible reasons why these factors are having very little impact? That women in paid employment have a lower risk of psychological distress is in agreement with previous studies (Aneshensel *et al.*, 1981; Gore and Mangione, 1983; Weich *et al.*, 1998). However, as yet the impact of employment on social differences in distress does not appear to have been examined explicitly. Our results suggest that it is not work per se that has an impact on social inequalities in distress for 33-year-old women, and it may be that the lack of paid work is important only in association with other factors, such as financial hardship, lone parenthood or psychosocial conditions of work. In respect of psychosocial job strain, it is important to note that job strain was originally conceptualized as a risk factor for employed men and it may be less relevant or fails to capture women's work experience. Just over 27% of women in our cohort at age 33 identified themselves as predominately caring for the home. Women also have a more intermittent work pattern and a large proportion work part time. Previously we compared the social class distribution of psychosocial job strain for employment status groups among women and found similar gradients among full and part-time employed women, yet no gradient for women who looked after the home (Matthews *et al.*, 1998). For psychosocial strain to be a key influence on the gradient we would expect no gradient for women who looked after the home but this is not the case as Figure 1 showed. Therefore, alternative concepts may be needed to capture women's experience. Alternative models of psychosocial work characteristics have been developed (Siegrist, 1996), yet these focus on paid employment and it is not yet clear how it applies to unpaid work.

The negligible impact that home factors had on the social class gradient in psychological distress among women was surprising. Moreover, the evidence shown here appears to be somewhat contra-

dictory in that relationships were demonstrated between work and home factors and distress (Table 1), and also between these factors and social class (Table 2), yet their impact on the social gradient was negligible. As mentioned in the methods, this was not due to differences in the samples available for analysis. Rather, the contradiction appears to arise because relationships between home factors, psychological distress and social class are not simultaneously of sufficient strength to exert a major effect on the gradient in distress (in many cases the relationships are very modest). There are a number of possibilities for this result. Firstly, it may be that the weak relationships are a function of the life stage examined. However, age 33 is a time when the stresses of juggling home and work commitments would be most: the majority of women are married (cohabiting), have children and are employed. Alternatively, multiple roles may influence the gradient in psychological distress when other resources are scarce, for example among lone parents or those on low incomes (Walters *et al.*, this volume; Khlal *et al.*, 2000). Further work on the 1958 cohort suggests that adult financial circumstances have an impact on the socio-economic gradient in distress among women (Power *et al.*, 2002). Finally, our study does not address the issue of quality of home factors in detail. Focusing on the number of roles rather than the nature and quality of each has been a major criticism of the multiple role theories (Baruch and Barnett, 1987; Menaghan, 1989; Hong and Mailick Seltzer, 1995; Walters *et al.*, this volume). Baruch and Barnett (1987) found for women in midlife that the number of roles did not predict well-being, rather the nature of the experience within a role was important. However, they did not examine the impact of these quality dimensions on the gradient. This is an area still needing development.

Our analysis did not support the role strain hypothesis (Brown and Harris, 1978; Surtees *et al.*, 1983; Williams *et al.*, 1991; Ross and Mirowsky, 1992). Some roles were associated with an increased risk of psychological distress, whilst others appeared to decrease the risk. This was further illustrated with a total score based on the number of work and home roles, which showed declining psychological distress with increasing number of roles. Most previous studies have limited their investigations to three roles, that of spouse, parent and employee, although there are exceptions in which more than three roles have been examined (Hibbard and Pope, 1987; Hall, 1992; Hunt and Annandale, 1993). Whilst these studies reveal important relationships between psychological distress and for example social support, psychosocial characteristics, having children (young and older), domestic work and

occupational status, they do not examine the socio-economic gradient. The only paper that we identified that explicitly examines the contribution of social roles to the socio-economic gradient was a recent paper by Bartley *et al.* (1999), which examines self rated health. Nevertheless, they showed (as we did) following the inclusion of all their social roles (marital, parent, employee) a significant socio-economic gradient remaining (odds ratios exceeding two in the lower social groups). Given that neither work nor home factors had a substantial impact on the gradient in distress in the 1958 cohort, suggests that other factors are involved in the development of socio-economic gradients in psychological distress.

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References

- ANESHENSEL, C. S., FRERICHS, R. R., and CLARK, V. A. (1981), "Family roles and sex differences in depression", *Journal of Health and Social Behavior*, vol. 22, no. 4, p. 379-393.
- ARBER, S. (1991), "Class, paid employment and family roles: Making sense of structural disadvantage, gender and health status", *Social Science and Medicine*, vol. 32, p. 425-436.
- BARNETT, R. C. (1997), "How paradigms shape the stories we tell: Paradigm shifts in gender and health", *Journal of Social Issues*, vol. 53, no. 2, p. 351-368.
- BARNETT, R. C., DAVIDSON, H., and MARSHALL, N. (1991), "Physical symptoms and the interplay of work and family roles", *Health Psychology*, vol. 10, no. 2, p. 95-101.
- BARTLEY, M., SACKER, A., FIRTH, D., and FITZPATRICK, R. (1999), "Social position, social roles and women's health in England: Changing relationships 1984-1993", *Social Science and Medicine*, vol. 48, no. 1, p. 99-115.
- BARUCH, G. K., and BARNETT, R. C. (1987), "Role quality and psychological well-being", in: F. J. Crosby, ed., *Spouse, Parent, Worker*, New Haven, Yale University Press, p. 63-73.
- BIRD, C. E., and FREMONT, A. M. (1991), "Gender, time use, and health", *Journal of Health and Social Behavior*, vol. 32, p. 114-129.

- BROWN, G. W., and HARRIS, T. O. (1978), *Social Origins of Depression: A Study of Psychiatric Disorder in Women*, London, Tavistock.
- CENTRE FOR LONGITUDINAL STUDIES INSTITUTE OF EDUCATION. Colchester, Essex. The Data Archive Distributor (1994), National Child Development Study Composite File including selected perinatal data and sweeps one to five [computer file], National Birthday Trust Fund, National Children's Bureau, City University Social Statistics Research Unit [original data producers], SN: 3148.
- FERRI, E., ed. (1993), *Life at 33: The Fifth Follow-up of the National Child Development Study*, London, National Children's Bureau.
- FOX, J. (1989), *Health Inequalities in European Countries*, Aldershot, Gower.
- GORE, S., and MANGIONE, T. W. (1983), "Social roles, sex roles and psychological distress: Additive and interactive models of sex differences", *Journal of Health and Social Behavior*, vol. 24, p. 300-312.
- HALL, E. M. (1992), "Double exposure: The combined impact of the home and work environments on psychosomatic strain in Swedish women and men", *International Journal of Health Services*, vol. 22, no. 2, p. 239-260.
- HAYNES, S. G., and FEINLEIB, M. (1980), "Women, work and coronary heart disease: Prospective findings from the Framingham heart study", *American Journal of Public Health*, vol. 70, no. 2, p. 133-141.
- HIBBARD, J. H., and POPE, C. R. (1987), "Employment characteristics and health status among men and women", *Women and Health*, vol. 12, no. 2, p. 85-102.
- HIBBARD, J. H., and POPE, C. R. (1991), "Effects of domestic and occupational roles on morbidity and mortality", *Social Science and Medicine*, vol. 32, no. 7, p. 805-811.
- HONG, J., and MAILICK SELTZER, M. (1995), "The psychological consequences of multiple roles: The non normative case", *Journal of Health and Social Behavior*, vol. 36, p. 386-398.
- HOPE, S., POWER, C., and RODGERS, B. (1999), "Does financial hardship account for elevated psychological distress in lone mothers?", *Social Science and Medicine*, vol. 49, p. 1637-1649.
- HOWE, L. K. (1973), "Women in the workplace", *Humanist*, September/October, 21-25.
- HUNT, K., and ANNANDALE, E. (1993), "Just the job? Is the relationship between health and domestic and paid work gender specific?", *Sociology of Health and Illness*, vol. 15, no. 5, p. 632-664.
- JENKINS, R. (1985), "Sex differences in minor psychiatric morbidity", *Psychological Medicine*, Monograph Supplement 7, p. 1-53.
- KARASEK, R. A. (1979), "Job demands, job decision latitude and mental strain: Implications for job redesign", *Administration Science Quarterly*, vol. 24, p. 285-308.
- KARASEK, R., and THEORELL, T. (1990), *Healthy Work*, New York, Basic Books.
- KHLAT, M., SERMET, C., and LEPAPE, A. (2000), "Women's health in relation with their family and work roles: France in the early 1990s", *Social Science and Medicine*, vol. 50, p. 1807-1825.
- LENNON, M. (1994), "Women, work, and well being: The importance of work conditions", *Journal of Health and Social Behavior*, vol. 35, no. 3, p. 235-247.
- LENNON, M. C., and ROSENFELD, S. (1992), "Women and mental health: The interaction of job and family conditions", *Journal of Health and Social Behavior*, vol. 33, p. 316-327.

- MACINTYRE, S. (1998), "Social inequalities and health in the contemporary world: A comparative overview", in: S. Strickland and P. Shetty, eds., *Human Biology and Social Inequality*, Cambridge, Cambridge University Press.
- MANOR, O., MATTHEWS, S., and POWER, C. (1997), "Comparing measures of health inequality", *Social Science and Medicine*, vol. 45, no. 5, p. 761-771.
- MARMOT, M. G., FUHRER, R., ETTNER, S. L., MARKS, N. F., BUMPASS, L. L., and RYFF, C. D. (1998), "Contribution of psychosocial factors to socioeconomic differences in health", *Milbank Quarterly*, vol. 76, no. 3, p. 403-448.
- MARTIKAINEN, P. (1995), "Women's employment, marriage, motherhood and mortality: A test of the multiple role and role accumulation hypotheses", *Social Science and Medicine*, vol. 40, no. 2, p. 199-212.
- MARTIKAINEN, P., STANSFELD, S., HEMINGWAY, H., and MARMOT, M. (1999), "Determinants of socioeconomic differences in change in physical and mental functioning", *Social Science and Medicine*, vol. 49, p. 499-507.
- MATTHEWS, S., HERTZMAN, C., OSTRY, A., and POWER, C. (1998), "Gender, work roles and psychosocial work characteristics as determinants of health", *Social Science and Medicine*, vol. 46, no. 11, p. 1417-1424.
- MATTHEWS, S., STANSFELD, S., and POWER, C. (1999), "Social support at age 33: The influence of gender, employment status and social class", *Social Science and Medicine*, vol. 49, no. 1, p. 133-142.
- MENAGHAN, E. G. (1989), "Role changes and psychological well-being: Variations in effects by gender and role repertoire", *Social Forces*, vol. 67, no. 3, p. 693-714.
- NATHANSON, C. A. (1980), "Social roles and health status among women: The significance of employment", *Social Science and Medicine*, vol. 14A, p. 463-471.
- POWER, C., and HERTZMAN, C. (1997), "Social and biological pathways linking early life and adult disease", *British Medical Bulletin*, vol. 53, no. 1, p. 210-221.
- POWER, C., MATTHEWS, S., and MANOR, O. (1998), "Inequalities in self-rated health: Explanations from different stages of life", *Lancet*, no. 351, p. 1009-1014.
- POWER, C., STANSFELD, S. A., MATTHEWS, S., HOPE, S., and MANOR, O. (2002), "Childhood and adulthood risk factors for socio-economic differentials in psychological distress: Evidence from the 1958 birth cohort", *Social Science and Medicine*, vol. 55, p. 1989-2004.
- RODGERS, B., PICKLES, A., POWER, C., COLLISHAW, S., and MAUGHAN, B. (1999), "Evaluating the Malaise Inventory in a national population sample", *Social Psychiatry and Psychiatric Epidemiology*, vol. 34, no. 6, p. 333-341.
- ROMANS-CLARKSON, S. E., WALTON, V. A., HERBISON, G. P., and MULLEN, P. E. (1988), "Marriage, motherhood and psychiatric morbidity in New Zealand", *Psychological Medicine*, vol. 18, p. 983-990.
- ROSE, D. (1995), *A Report on Phase I of the ESRC Review of OPCS Social Classifications*, London, OPCS.
- ROSENFELD, S. (1989), "The effects of women's employment: Personal control and sex differences in mental health", *Journal of Health and Social Behavior*, vol. 30, p. 77-91.
- ROSS, C. E., and MIROWSKY, J. (1992), "Households, employment and the sense of control", *Social Psychology Quarterly*, vol. 55, no. 3, p. 217-235.
- ROXBURGH, S. (1997), "The effect of children on the mental health of women in the paid labor force", *Journal of Family Issues*, vol. 18, no. 3, p. 270-289.

- SIEBER, S. D. (1974), "Toward a theory of role accumulation", *American Sociological Review*, vol. 39, p. 567-578.
- SIEGRIST, J. (1996), "Adverse health effects of high-effort/low-reward conditions", *Journal of Occupational Health Psychology*, vol. 1, no. 1, p. 27-41.
- SOGAARD, A. J., KRITZ-SILVERSTEIN, D., and WINGARD, D. L. (1994), "Finmark Heart Study: Employment status and parenthood as predictors of psychological health in women, 20-49 years", *International Journal of Epidemiology*, vol. 23, no. 1, p. 82-90.
- SORENSEN, G., and VERBRUGGE, L. M. (1987), "Women, work and health", *Annual Review of Public Health*, vol. 8, p. 235-251.
- SURTEES, P. G., DEAN, C., INGHAM, J. G., KREITMAN, N. B., MCMILLER, P. C., and SASHIDHARAN, S. P. (1983), "Psychiatric disorder in women from an Edinburgh community: Associations with demographic factors", *British Journal of Psychiatry*, vol. 142, p. 238-246.
- THOITS, P. A. (1983), "Multiple identities and psychological well-being: A reformulation and test of the social isolation hypothesis", *American Sociological Review*, vol. 48, p. 174-187.
- TOWNSEND, P., and DAVIDSON, N. (1992), *Inequalities in Health: The Black Report and the Health Divide*, Harmondworth, Penguin.
- VERBRUGGE, L. M. (1983), "Multiple roles and physical health of women and men", *Journal of Health and Social Behavior*, vol. 24, p. 16-30.
- WALDRON, I. (1980), "Employment and women's health: An analysis of causal relationships", *International Journal of Health Services*, vol. 10, no. 3, p. 435-454.
- WALDRON, I., and JACOBS, J. A. (1988), "Effects of labor force participation on women's health: New evidence from a longitudinal study", *Journal of Occupational Medicine*, vol. 30, no. 12, p. 977-983.
- WARR, P., and PARRY, G. (1982), "Paid employment and women's psychological well-being", *Psychological Bulletin*, vol. 91, no. 3, p. 498-516.
- WEICH, S., SLOGGETT, A., and LEWIS, G. (1998), "Social roles and gender difference in the prevalence of common mental disorders", *British Journal of Psychiatry*, vol. 173, p. 489-493.
- WILLIAMS, K. J., SULLS, J., ALLIGER, G. M., LEARNER, S. M., and WAN, C. K. (1991), "Multiple role juggling and daily mood states in working mothers: An experience sampling study", *Journal of Applied Psychology*, vol. 76, no. 5, p. 664-674.