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**Social support as protective factor of the effects of part-time work on psychological health: A moderated mediation model**

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## Abstract

**Purpose** –The purpose of this study is to examine the protective effect of social support on psychological health and how it differs by gender in the context of part-time employment.

**Design/methodology/approach** - The sample consisted of 22,786 employees from four service sector organisations. Structural equation modelling was used to test a moderated mediation model assessing the relationship between employment status (part time vs. full time) and psychological health mediated by social support (from management and colleagues) and moderated by gender.

**Findings** – Social support from management and colleagues was associated with fewer symptoms of stress, anxiety and depression. Notably, management support had a stronger association than that of colleagues on each of the three health-related variables. Social support was also found to be a mediator of part-time working on health such that lower social support led to increased health symptoms. Moreover, we found moderating gender effects between social support and psychological health such that colleague support had a stronger effect on reduced depression and stress among men than women whilst management support had a stronger effect on reduced anxiety for women. Lastly, significant moderated mediating paths were found but further research is needed to identify other potential moderators of the mediating effects.

**Originality/Value** – The findings suggest complex relationships between part-time employment, social support, psychological health and gender not examined in previous studies. It highlights the value of diverse sources of support and the necessity of addressing specific gender's needs for enhancing psychological health of part-time employees.

## Introduction

Part-time employment (PTE) has seen a significant increase compared to forty years earlier with a PTE rate of nearly 20 percent in the European Union and 18.5 per cent in the United States (Cho, 2018). The proportion of women in PTE is three times that of men in Europe (Eurofound, 2017). Work is generally good for health and well-being (Burton & Waddell, 2006) but can also be harmful for psychological health depending on the quality of working conditions (Harnois & Gabriel, 2000). Despite the Part-Time Work Directive 97/81/EC (Council Directive, 1997) stating that part-time workers shall not be treated in a less favorable manner than comparable full-time workers, PTE has been associated with poorer working conditions than full-time employment (FTE) across Europe leading to elevated levels of psychological ill-health. This was dependent upon adverse job conditions (non-permanent contract, lower control and support, etc); national welfare regime and gender differences (Bartoll, Cortès & Artazcoz, 2014). Other research has reported no negative effects (e.g., Bardasi & Francesconi, 2004) and even positive effects of PTE on self-rated health (e.g., Cho, 2018).

In addition to mixed findings, research has overlooked the role of social support in explaining the link between PTE and psychological health problems despite social support notoriously lacking in PTE (Sandor, 2011). Social support enhances individuals' psychological health directly or indirectly by buffering the negative effects of stressors on health (Lepore, 2012). However, research has failed to agree on the systematic buffering effect of social support, highlighting the need to look for individual differences such as gender as a potential moderator of the relationship between support and health outcomes as this relationship might be stronger for some people and weaker or nonexistent for others (Bheer, Farmer, Glazer et al., 2003).

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3 The objective of the present study is therefore to investigate i) the association of  
4 employment status (PTE/FTE) and psychological health (stress, anxiety and depression), ii)  
5 the simultaneous role of a salient working condition such as social support (received from  
6 colleagues and managers) and gender differences in this association. This study makes an  
7 important contribution to PTE research as it considers a complex moderated mediated model  
8 that has not been tested in previous research. Further, it proposes to test simultaneously the  
9 effect of two sources of social support (management and colleagues) on three distinct  
10 psychological health variables (stress, anxiety or depression) using comprehensive and  
11 validated scales rather than a single self-rated health measure as often found in PTE research.  
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### 23 ***Theoretical framework and hypotheses development***

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26 In our theoretical model (Figure 1), we predict that employment status will exert its influence  
27 on health outcomes through the mediating role of social support and this influence would  
28 differ by gender (moderating effect). This prediction is grounded in the Job Demands-  
29 Resources (JD-R) model (Demerouti, Bakker, Nachreiner, & Schaufeli, 2001) which has  
30 shown through numerous studies that employee's psychological health is at least partly  
31 attributed to the characteristics of work environments. According to the JD-R model, job  
32 demands are the main predictors of health impairment, whilst job resources enable  
33 individuals to achieve their goals thereby reducing the effects of stressful job demands and  
34 leading to employee engagement. In our study, employment status is a proxy measure for job  
35 demands and tested as a dichotomous variable (part-time vs full-time employment). Social  
36 support is tested as one of the salient job resources that has been found to reduce stress and  
37 the health toll of stress (Lepore, 2012). Next, we present the evidence for the hypotheses that  
38 underpin our theoretical model.  
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58 **Insert Figure 1 about here**  
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### ***The link between employment status (FTE/PTE) and social support***

Central to our model is the observation that employment status influences the extent to which individuals can benefit from social support. PTE workers report more frequently that they never or rarely get social support from their colleagues (Eurofound, 2017). Part-timers may be subject to stereotypes from supervisors and co-workers and be considered as less engaged, and as having lower career expectations, all of which may result in them being treated less favorably (Conway & Briner, 2002). Further, as social support focuses on collaborative problem solving and sharing information, part-timers may have less opportunities to do so due to today's high pace of work and resources optimisation, combined with spending less time in the workplace. However, the PTE disadvantage may be reduced in the banking sector or related work context where this study is carried out because working conditions are more equalized due to the high coverage of collective agreements and part-timers occupying higher occupational grades than those in other sectors (Nicolaisen, 2011). Therefore, we predict lower social support for PTE than FTE workers but to a relatively small extent. Our first hypothesis is as follows:

*H1. Employment status (PTE, FTE) is associated with social support from colleagues and management such that PTE workers perceive slightly less social support at work than FTE workers.*

### ***Social support and psychological health***

When examining psychological health, we looked at common mental health issues in the workplace, which include perceived stress, anxiety and depression (BOHRF, 2010; Kendall, Burton, Lunt et al., 2015). Stress is defined as a particular transaction between the person and the situation which is appraised by the person as exceeding their coping resources (Lazarus & Folkman, 1984). Anxiety refers to disorders such as excess worry, physiological

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3 hyperarousal, and fear that is counterproductive and debilitating (Simpson, Neria, &  
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5 Lewis-Fernandez et al., 2010). Depression is described by symptoms such as negative moods,  
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7 diminished pleasure, insomnia or hypersomnia, loss of energy, reduced ability to think and  
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9 recurrent suicidal ideations (American Psychiatric Association, 2013). Numerous studies  
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11 clearly indicate a link between high job demands, low levels of autonomy, lack of social  
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13 support and ill-health symptoms including stress, anxiety and depression (Karasek &  
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15 Theorell, 1990; Godin & Kittel, 2004). Derived from the JD-R model, the provision of social  
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17 support can have a positive influence on employee psychological health because it enables  
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19 employees to deal with the challenging job demands (Bakker, Demerouti, & Euwema, 2005).  
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21 Conversely, lower levels of support are more likely to lead to the development of depression,  
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23 general anxiety disorders, social phobia, and stress (Moack & Agrawal, 2009).  
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29 Further, the relationship between social support and health may differ according to the  
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31 *source* (e.g., manager or colleagues) or *type* of support (e.g., emotional, instrumental,  
32  
33 informational, evaluative (House, 1981). In the workplace, management and colleague  
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35 support are key because work-related stress and strain are affected primarily by work-related  
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37 sources of support (LaRocco, House & French, 1980). Both sources are beneficial to  
38  
39 individuals' health. Nieuwenhuijsen, Bruinvels & Frings-Dresen (2010) found that both low  
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41 co-worker support and low supervisor support predicted the incidence of stress-related  
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43 disorders. Yet, research on PTE and health outcomes have often used one single source.  
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48 Social support from the manager is the extent to which employees perceive that the  
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50 supervisor values their contribution, cares about their well-being, helps them on work-related  
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52 issues, and facilitates their skill development (Shanock & Eisenberger, 2006). Missing or  
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54 lacking support from a direct supervisor, or line manager for work-related or non-work  
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56 related issues is the strongest risk factor and a substantially increased risk of poor health and  
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58 well-being (Hämmig, 2017). Lack of management support is also associated with increased  
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3 risk of depressive or anxiety disorders (Sinokki, Hinkka, Ahola et al., 2009). Support from  
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5 colleagues refers to the provision of caring, tangible aid, and information (Parris, 2003). Co-  
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7 workers provide more buffering than supervisors support or home/family support, especially  
8  
9 for depression and somatic complaints (LaRocco et al., 1980). Colleague support is  
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11 negatively related to general health or strain (Beehr et al., 2003).  
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15 As for the types of social support, little is known about which components are more  
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17 effective in alleviating the impact of job stressors (Brough & Pears, 2004). *Emotional support*  
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19 involves the provision of care, empathy, and trust. It is key for effective functioning especially  
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21 in the face of the need deprivation people are experiencing when they are preoccupied and their  
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23 emotional needs are not met (Quick, Quick, & Nelson, 1997). A longitudinal study has shown  
24  
25 that more emotional support is associated with lower risks of depressive and anxiety disorders  
26  
27 (Plaisier, de Bruijn, de Graaf et al., 2007). *Instrumental support* includes tangible goods, aid  
28  
29 or service has a buffering effect when the supportive behaviour is congruent with or specific  
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31 to the stressor (Frese, 1999). *Informational support* includes advice, information or suggestions  
32  
33 whilst *evaluative support or appraisal* involves more specifically the provision of timely  
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35 feedback on progress and on performance to employees. Without these, the stress response  
36  
37 may be more intense and sustained than otherwise and positive feedback from the manager  
38  
39 provides evaluation and feelings of esteem (Quick, Quick & Nelson, 1997). Based on the  
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41 existing literature, we posit the following hypothesis:  
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47 *H2. Management and colleague support are negatively associated with psychological*  
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49 *health symptoms (stress, anxiety and, depression), such that higher social support is*  
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51 *linked to fewer psychological health symptoms.*  
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### 54 55 ***The mediating role of social support***

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57 According to Cohen and Wills, (1985), the positive association between social support and  
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59 health is attributable either to an overall beneficial effect of support (main- or direct-effect  
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3 model) regardless of the intensity of the stressors experienced or to a process of support  
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5 protecting individuals from potentially adverse effects of stressful events (buffering model).  
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7 As a result, social support has been tested statistically as either a main effect on health or as a  
8  
9 moderator of the stress and health relationship. A mediating process can also be at play  
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11 particularly when social support deteriorates. As discussed, PTE is more likely than FTE to  
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13 reduce the chance of perceiving satisfactory social support and in turn, the lack of support  
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15 may lead to negative health outcomes. We thus hypothesize that social support would have an  
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17 indirect mediating effect in the link between employment status (PTE/FTE) and  
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19 psychological health (stress, anxiety and depressive symptoms). On the other hand, if social  
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21 support is perceived as being satisfactory, then it will serve as a protective factor against  
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23 negative psychological health outcomes.  
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29 *H3: Management and colleague support mediates the relationship between*  
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31 *employment status (PTE/FTE) and psychological health (stress, anxiety and*  
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33 *depression) such that PTE is linked to worsened psychological health symptoms*  
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35 *through lower social support.*  
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### 37 ***The moderating role of gender in the relationship between social support and health***

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39 Gender is one of the critical determinants of mental health and women are twice as likely to  
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41 experience anxiety and depressive disorders as men (Alonso et al., 2004). The prevalence of  
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43 psychological symptoms among women could be partly explained by social circumstances  
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45 (Plaisier et al., 2007) such as unfavourable working conditions (Blidt & Michelsen, 2002),  
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47 and lower occupational grades than men (Rugulies et al., 2013), leading to heightened risk of  
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49 psychological disorders. However, it is not always evidenced that women's health is more  
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51 affected than men (e.g., Theorell, Hammarström, Gustafsson et al., 2014). Therefore, gender  
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53 differences in health outcomes could be explained by differences in the way social support is  
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perceived and by specific gender role factors leading one gender benefitting more from social support than the other.

Women are more likely to use social support than their male colleagues (Savery, 2007) whilst men are more reluctant than women to seek social support (Leavy, 1983). Men may consider help from sources of social support within the organisation as a disadvantage when promotion opportunities arose (Savery, 2007). Using more social support does not necessarily mean that women profit from it. Outside the workplace, working women tend to have greater domestic and caring responsibilities than men (HSE, 2020) which can lead to a spillover effect. Spillover theory suggests that experiences in one domain can carry over into the other domain (Staines, 1980). A depleting process can occur when demands in one role drain personal resources that become limited for optimal functioning in the other role (Du, Derks & Bakker, 2018). For example, worries about family issues whilst at work uses cognitive resources and can reduce the ability to deal with complex demands even perhaps despite social support provision. Furthermore, men tend to profit more from emotional support than women, resulting in a lower risk for depression (Plaisier et al., 2007). On this basis, we expect both genders to benefit from social support but the beneficial effect on health outcomes will be more pronounced for men than women.

*H4. Gender moderates the link between social support and psychological health such that the relationship between social support and psychological health is stronger for men than for women.*

#### **Moderated mediation**

To the extent that social support mediates the relationship between employment status and psychological health (H3), we expect this mediating effect to be moderated by gender. If PTE working conditions are more favorable for men than women then the effect of PTE on

health outcomes may be more pronounced among men than women. Therefore, we propose a moderated mediated hypothesis as follows:

*H5. Gender moderates the mediating path from employment status to psychological health outcomes via social support, such that the indirect effect via social support is stronger for men than women.*

## **Method**

### ***Sample***

The sample included 22,786 employees from four organisations in the services sector (Bank/Insurance and Pharmaceuticals) in France. Part-time employees represented 8.7 per cent (n = 1,982) of the overall sample. Most part-time respondents were aged between 35 and 55 years of age (66 per cent) and between 25 and 34 years of age (21 per cent) with 90 per cent of them being female (n = 1,784). The representation of part-time women in our sample was 90 per cent (n=1,784) which is close to the national average of 80 per cent (Briand & Calavrezo, 2016). Data was collected over a two-year period in 2015 and 2016 during which time employees completed an on-line questionnaire only once therefore the data is not longitudinal.

### ***Procedure***

This research was part of a “stress observatory” implemented in several organisations in France by a team of researchers, psychiatrists and occupational physicians. The study sample is built on data obtained during the periodic health check-up offered to employees and conducted by an in-house occupational physician. During the check-up visits, the occupational physician invited people to complete the online questionnaire with no obligation to do so. They were informed of the context and the voluntary nature of the research and assured of the confidentiality of their data in line with the CNIL, the National data protection

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3 authority in France. Each employee completed the questionnaire on their own and received  
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5 feedback of their results from the occupational physician.  
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### 7 8 **Measures**

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10 *Psychological health* included measures of stress, anxiety and depression. *Stress* was  
11  
12 assessed by the Perceived Stress Scale (PSS) originally developed by Cohen, Kamarck &  
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14 Mermelstein, (1983) and validated in French by Bellinghausen, Collange, Botella, Emery &  
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16 Albert (2009). The PSS assesses the degree to which an individual has perceived life as  
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18 unpredictable, uncontrollable and overbearing during the previous month. It consists of 10  
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20 items rated on a 5-point Likert scale (from 1 = never to 5 = often). Example items include:  
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22 “Have you been upset because of something that happened unexpectedly?”; “Have you felt  
23  
24 that you were unable to control the important things in your life?”. Cronbach’s  $\alpha$  reliability  
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26 coefficient was 0.88.  
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31 *Anxiety and Depression* were measured by the Hospital Anxiety and Depression Scale  
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33 (HADS) which assesses possible and probable cases of anxiety and depressive disorders in  
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35 non-clinical patients (Zigmond & Snaith, 1983). HADS has been validated in French by  
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37 Bocéréan and Dupret (2014). The HADS anxiety (A) and depression (D) subscales include 7  
38  
39 items each, assessed on a 4-point Likert scale (from 0 = not at all to 3 = most of the time)  
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41 Example items include “I feel tense or ‘wound up’” (A); I still enjoy the things I used to  
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43 enjoy” (D). Cronbach’s  $\alpha$  was .81 and .72 for anxiety and depression, respectively.  
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48 *Social support* was measured using the Perceived Social Support Questionnaire  
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50 (Professional) (PSSQ-P) developed by Collange, Bellinghausen, Emery, Albert & Zenasni  
51  
52 (2015). PSSQ-P assesses support from colleagues and management with four items for each  
53  
54 that reflect emotional, instrumental, informational and evaluative support. Respondents were  
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56 asked to indicate their level of satisfaction on a 4-point scale (from 1 = not at all satisfactory,  
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58 to 4 = very satisfactory). Example items include: “They show me they understand my  
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3 problems and support me”; “They help me to think things through or solve problems”. “They  
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5 provide me with the means, resources that I need to meet my objectives”. Cronbach’s  $\alpha$  was  
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7 .90 and .92 for social support from colleagues and social support from management,  
8  
9 respectively.  
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12 *Employment status* was measured as an independent variable with part-time employment  
13  
14 coded as 1 and full-time employment coded as 2. Part-time respondents (n=1963) worked  
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16 either 4/5 days or 3/5 days or less and were regrouped in one part-time category. Most of  
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18 part-time respondents (83 per cent) worked 4 days a week (n=1634).  
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21 *Co-variates:* Our hypotheses were tested after controlling for individual and contextual  
22  
23 factors known to be associated with psychosocial work characteristics, mental health or both  
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25 (Rugulies et al., 2013). Co-variates included: year of data collection, age, gender,  
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27 participating organisations, occupational role, and number of children. Gender was treated as  
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29 a co-variate except in hypothesis 4 and 5 where it was tested as a moderator variable.  
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### 34 **Analytical approach**

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36 Our moderated mediation model was tested with structural equation modelling which  
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38 specified the effect of employment status (part-time vs full-time) on the three psychological  
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40 health variables (stress, anxiety and depression) as well as two mediation paths via colleague  
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42 and management support. To test the mediation effects, we measured the main effects of  
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44 employment status on social support (H1); the main effects of social support on health (H2)  
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46 and the indirect mediated effects of employment status on health variables (H3). For the  
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48 fourth hypothesis, we conducted moderation analysis (i.e., testing for gender as a factor that  
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50 could amplify or attenuate the direct effect of social support on psychological health (H4).  
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52 Lastly, we tested the mediated moderated effect of employment status on health (H5). To  
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54 avoid potential issues with multicollinearity we standardized colleague and management  
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56 support variables. We estimated the index of moderated mediation as well as the conditional  
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3 indirect effects (Hayes, 2017). We assessed the significance of these coefficients using the  
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5 bootstrapped confidence intervals that were obtained from 10,000 iterations. All analyses  
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7 were performed using R 3.6.0 (R Core Team, 2019) and the Lavaan 6.5 package (Rosseel,  
8  
9 2012). The model fit was assessed using the Chi-square, comparative fit index (CFI), the  
10  
11 Tucker-Lewis Index, the root mean squared error of approximation (RMSEA) and the  
12  
13 Standardized Root Mean Square Residual (SRMR). Values above 0.90 on the CFI and TLI,  
14  
15 and values less than 0.08 for RMSEA and SRMR signify good fit (Hu & Bentler, 1999).  
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## 21 **Results**

### 22 *Descriptive statistics*

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24 Table I presents descriptive statistics, reliabilities and inter-correlations for the five  
25  
26 continuous variables used in the analysis. Consistent with our predictions, both sources of  
27  
28 social support (colleague and management support) were negatively related to the three  
29  
30 health-related symptoms (stress, anxiety and depression) indicating that the higher the social  
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32 support, the fewer health-related symptoms.  
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40 **Insert Table I about here**  
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### 44 *Mediation effects*

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46 Overall, the SEM model had a very good fit with  $\chi^2 = 547.49$ , CFI = 0.99, TLI = 0.97,  
47  
48 RMSEA = 0.03, and SRMR = 0.01. For hypothesis 1 (Table II), employment status had  
49  
50 statistically significant and positive effect on colleague support (B = 0.04, SE = 0.01, p  
51  
52 <.001) and on management support (B = 0.05, SE = 0.02, p <.001) suggesting that people  
53  
54 who work full-time perceived slightly higher colleague and management support than those  
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56 who work part-time and conversely, confirming hypothesis 1.  
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3       Regarding hypothesis 2, the results indicate that the two sources of social support had  
4  
5 direct effects on the three types of psychological health symptoms. As shown in Table II, the  
6  
7 regression coefficients regarding the effect of colleague support range from  $B = -0.76$ ,  $SE =$   
8  
9  $0.02$ ,  $p < .001$ ;  $B = -0.67$ ,  $SE = 0.03$ ,  $p < .001$ ;  $B = -1.30$ ,  $SE = 0.05$ ,  $p < .001$  on depression,  
10  
11 anxiety and stress respectively. Management support effects range from  $B = -1.05$ ,  $SE = 0.02$ ,  
12  
13  $p < .001$ ;  $B = -1.11$ ,  $SE = 0.03$ ,  $p < .001$ ;  $B = -2.34$ ,  $SE = 0.05$ ,  $p < .001$  on depression,  
14  
15 anxiety and stress respectively. These results indicated that higher colleague or management  
16  
17 support was associated with reduced psychological symptoms confirming hypothesis 2. It is  
18  
19 noteworthy that social support from management had stronger main effect than that of  
20  
21 colleague support on each of the three health-related variables.  
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29 **Insert Table II about here**  
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34 We then examined the last condition for mediation effects i.e. whether employment status  
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36 exerted its influence on psychological health indirectly through colleagues and management  
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38 support (H3). Colleague support mediated the effect of employment status on depression ( $B =$   
39  
40  $-0.03$ ,  $SE = -0.01$ ,  $p < .001$ ), anxiety ( $B = -0.03$ ,  $SE = -0.01$ ,  $p < .001$ ), and stress ( $B = -0.05$ ,  
41  
42  $SE = -0.01$ ,  $p < .001$ ). Similarly management support had a mediation effect for depression  
43  
44 ( $B = -0.05$ ,  $SE = -0.01$ ,  $p < .001$ ), anxiety ( $B = -0.06$ ,  $SE = -0.01$ ,  $p < .001$ ), and stress ( $B = -$   
45  
46  $0.12$ ,  $SE = -0.01$ ,  $p < .001$ ). Full-time work was indirectly linked to reduced depression,  
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48 anxiety, and stress through higher support from colleagues and management. Conversely,  
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50 part-time work was related to increased depression, anxiety and stress through lower support  
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52 from colleagues and management. Thus, hypothesis 3 was supported.  
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57 ***Moderation effects***  
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3 We further hypothesized that gender moderates the relationship between colleague and  
4 management support on each psychological health outcome (H4). As shown in Table II, three  
5 of the six possible interaction effects were significant. Specifically, the interaction between  
6 gender and colleague support was significant for depression ( $B = -0.05$ ,  $SE = 0.02$ ,  $p < .01$ )  
7 and stress ( $B = -0.18$ ,  $SE = 0.05$ ,  $p < .001$ ) but not for anxiety. The interaction between  
8 gender and management support was significant for anxiety ( $B = 0.07$ ,  $SE = 0.03$ ,  $p < .01$ )  
9 but not for depression or stress. Figures 2 and 3 show the simple slope effects of colleague  
10 and management support on psychological health for men and women. Colleague support has  
11 a stronger effect on depression and stress for men than for women. Management support has  
12 a stronger effect on anxiety for women. Since not all the possible interaction effects were  
13 significant, the moderating effect of gender (H4) was partially supported.  
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31 **Insert Figures 2 & 3 about here**  
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### 35 *Moderated mediation results*

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37 Lastly the moderated mediation hypothesis H5 involved testing whether the interaction  
38 effects translated into a moderation of the mediating paths. This was assessed by estimating  
39 the index of moderated mediation (IMM) and the conditional indirect effects. The results  
40 suggest that three mediation paths are moderated: mediation by colleague support on  
41 depression ( $IMM = 0.00$ ,  $SE = -0.00$ ,  $p < .01$ ) and stress ( $IMM = -0.01$ ,  $SE = -0.00$ ,  $p < .01$ )  
42 and mediation by management support on anxiety ( $IMM = 0.00$ ,  $SE = -0.00$ ,  $p < .01$ ). For  
43 the mediation paths through colleague support, the indirect effects were stronger for men than  
44 women, whilst for mediation via management support the indirect effect was stronger for  
45 women. All other mediation paths were significant but not significantly different from each  
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3 other. Taken together the results provide partial support for H5. (Full results for mediation  
4 and moderated mediation analyses are available on request from the first author).  
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## 10 **Discussion**

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12 In this study, we examined the mediating role of social support in the relationship between  
13 employment status (PTE/FTE) and psychological health, and the moderating role of gender in  
14 this relationship. Overall, the findings partially support our hypotheses. Our study extends  
15 previous research on the role of social support in PTE context by showing that social support  
16 promotes better psychological health, and this differs by sources of support (management or  
17 colleagues). Our key findings are four-fold.  
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26 First, we found that working part-time was related to employees perceiving lower levels  
27 of social support than those working full-time. This is in line with previous research (Sandor,  
28 2011). The difference was not too pronounced between PTE and FTE. A plausible  
29 explanation is that part-timers in the banking and related sectors may experience  
30 psychosocial working conditions (amount of autonomy and social support) on a par with  
31 those of full-timers. In our sample, most part-timers were working 4 days a week and were  
32 mostly of higher occupational grades thus they may have taken advantage of social support as  
33 much as full-time counterparts.  
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44 Second, we found that social support from colleagues and management was related to  
45 psychological health indicating that social support protected against the incidence of stress,  
46 anxiety and depression. Interestingly, management support had a stronger effect than  
47 colleague support on the three psychological health variables and corroborated previous  
48 research (e.g. Hämmig, 2017 ; Brough & Pears, 2004). Of importance was that both  
49 colleague and management support had the strongest effect on stress among the three  
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3 psychological variables, suggesting the crucial need of social support whether emotional or  
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5 instrumental during stressful situations.  
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8 Third, PTE was linked to increased psychological health symptoms (stress, anxiety and  
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10 depression). Previous research also found that PTE was related to higher levels of depression  
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12 (e.g., Burr et al.,) and stress (e.g., Bartoll et al., 2014). We found a mediation effect of social  
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14 support statistically significant but small suggesting that other factors may trigger PTE to  
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16 exert its adverse influence on mental health. For example, Burr and colleagues found a  
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18 mediation effect of quality of leadership and job insecurity on depression.  
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22 Fourth, to explain the protective mechanism of social support further, we looked at the  
23  
24 moderating effects of gender. We found statistically significant although modest moderating  
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26 gender effects between social support and psychological health. It appears that the colleague  
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28 support effect was stronger for men compared to women in protecting them against the onset  
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30 of stress and depression. The management support effect on reduced anxiety was stronger for  
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32 women compared to men. This latter finding corroborates previous research (e.g. Burr et al.,  
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34 2015; Rugulies et al., 2008) showing that management support helped part-time women in  
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36 decreasing health symptoms. Savery (2007) suggested that women tend to use the support of  
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38 their managers more often than men because women regard their immediate manager as a  
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40 source of reliable information, a means of support and a means of encouragement and  
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42 understanding. Men tend to ask less for help from their immediate manager out of fear that  
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44 this could show a lack of confidence and ability which might affect promotional  
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46 opportunities. If men seek less support from management it might explain why in our study,  
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48 colleague support effect was stronger for men, compared to women, for stress and  
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50 depression. Therefore, social support from management and colleagues need to be  
51  
52 strengthened as an effective way of reducing ill-health symptoms, whilst considering gender  
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54 preferences. Lastly, when the model was tested for the effects of moderation and mediation  
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3 together, we find some significant moderated mediating paths. However, further research is  
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5 needed to understand other potential moderators of the mediating effects given the relatively  
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7 small size of the regression coefficients.  
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### 10 ***Implications for practice***

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12 From a practitioner perspective, understanding how social support explains gender  
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14 differences in the incidence of stress, anxiety and depression can help human resource  
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16 managers and other organisational practitioners to tailor interventions for part-time workers.  
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18 Given the salient role of social support from management and colleagues found in this study,  
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20 awareness and training interventions should be offered to both managers and employees.  
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22 Training for line managers needs to emphasize the importance of social support in their role  
23  
24 and how they can provide it more effectively to team members to gain optimal performance,  
25  
26 but also reduce ill-health symptoms. The stronger associations between management support  
27  
28 and psychological health compared with colleague support highlight the key role of managers  
29  
30 in reducing and preventing the onset of mental health problems. Of importance is that  
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32 managers are made aware of the potential stigma attached to men being perceived as weaker  
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34 if they seek support, especially from management. To remove this stigma, managers need to  
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36 communicate to their team members the normalcy of asking for support from managers.  
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38 Regular coaching and giving feedback in sensible ways are opportunities for managers to  
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40 provide social support to employees.  
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47 As for colleague support, increasing awareness of the importance of cooperation, and  
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49 support between team members, would help reducing ill-health symptoms. In any  
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51 psychosocial interventions in the workplace, whether educational, behavioural training, or  
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53 culture change, employees and especially men, need to be encouraged to actively seek social  
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55 support and to make use of the diverse sources of support available to them. Since managers  
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57 control resources and set examples, they need to pave the way for a more open, cooperative  
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3 and supportive workplace climate.  
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5 The differences between PTE and FTE on their effects on health suggest that more can  
6 be done to equalize PTE with FTE with equal working conditions (Messenger, 2011). The  
7 banking and related sector service sector from which this sample is drawn provides relatively  
8 good working conditions (Nicolaisen, 2011). However, the application of regulations is left to  
9 the interpretation of individual managers, potentially resulting in the provision of social  
10 support varying between PTE and FTE and gender. Therefore, best practices in terms of  
11 management and social support provision for all workers should be disseminated and their  
12 effects measured to ensure consistent application.  
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### 23 ***Study limitations and future research***

24 Our study is not without limitations. As in any cross-sectional study, it is not possible to  
25 conclude that the link between part-time work and psychological health effects is directional.  
26 Reverse causation can also be an explanation, as workers may present health issues before  
27 taking on employment. Only longitudinal research could determine causal links between part-  
28 time and health outcomes or whether the employee's prior health determines the negative  
29 perception of part-time work. Although we used a large sample, it is not representative of the  
30 French working population, thus the findings may not be generalizable to the country but to  
31 similar type of service sector organisations. Our sample profile may have prevented us from  
32 detecting more pronounced differences between PTE and FTE as it mainly consisted of  
33 professionals working four days a week who might not have been too dissimilar to FTE  
34 workers in terms of receiving social support. Therefore, future research needs to consider a  
35 more diverse PTE population. It may also include additional sources of social support such as  
36 organisational, spouse, friends and community support to understand who provides the most  
37 effective type of support (emotional, instrumental, etc.) to enhance part-time workers' health.  
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58 Perceived organisational support (POS) could be used as managers who feel supported by  
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3 their organisation reciprocate with more supportive treatment for people (Shanock &  
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5 Eisenberger, 2006).

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8 Despite its limitations, this study suggests a link between part-time employment,  
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10 social support and psychological health. The strongest results shown were the association  
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12 between social support and psychological health and in particular, the effects of management  
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14 support on psychological health. The strength of this study is also based on the use of a large  
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16 sample and comprehensive and validated measures of psychological health, as well as co-  
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18 variates that helped reduce confounding bias.  
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### 23 24 **Conclusions**

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26 Our study attempted to explain the link between part-time employment and psychological  
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28 health accounting for the provision of social support and gender differences. Overall, our  
29  
30 findings indicate that both sources of social support (management and colleagues) were  
31  
32 beneficial for reducing psychological health symptoms although management support had  
33  
34 more pronounced impact than colleague support. This suggests that strengthening the role of  
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36 managers in providing social support at work is important for example through training,  
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38 coaching and regular feedback to employees. Despite its limitations our study contributes to  
39  
40 the literature on part-time in that it is the first to suggest a moderated mediation model to  
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42 explain PTE effects on psychological health. Future research is needed to explain the  
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44 increased health symptoms in part-time working.  
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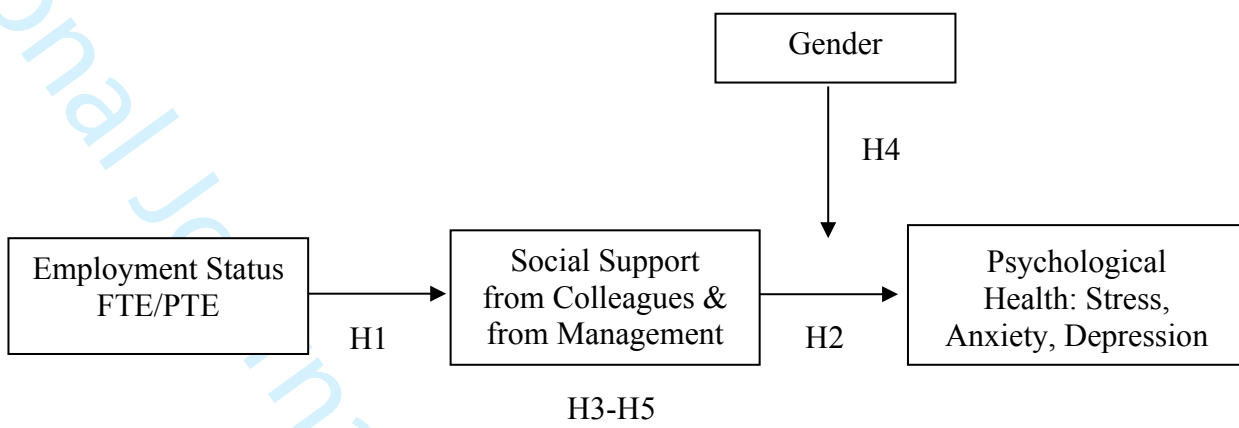
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22 *Psychiatrica Scandinavica*, 67(6), 361–70. DOI: 10.1111/j.1600-0447.1983.tb09716.x  
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**Figure 1.**

Hypothesized model

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**Table I.**

Descriptive statistics and correlations

	M	SD	1	2	3	4	5
1 Colleague support	3.08	0.61	<i>0.90</i>				
2 Management support	2.82	0.74	0.56	<i>0.92</i>			
3 Anxiety	6.42	3.71	-0.35	-0.41	<i>0.81</i>		
4 Depression	3.58	3.3	-0.42	-0.46	0.64	<i>0.72</i>	
5 Stress	24.26	6.87	-0.38	-0.45	0.75	0.66	<i>0.88</i>

Notes: N = 22786; Values **in italics** on the diagonal denote the Cronbach's alpha coefficients; All correlations are significant at  $p < .001$

**Table II.**

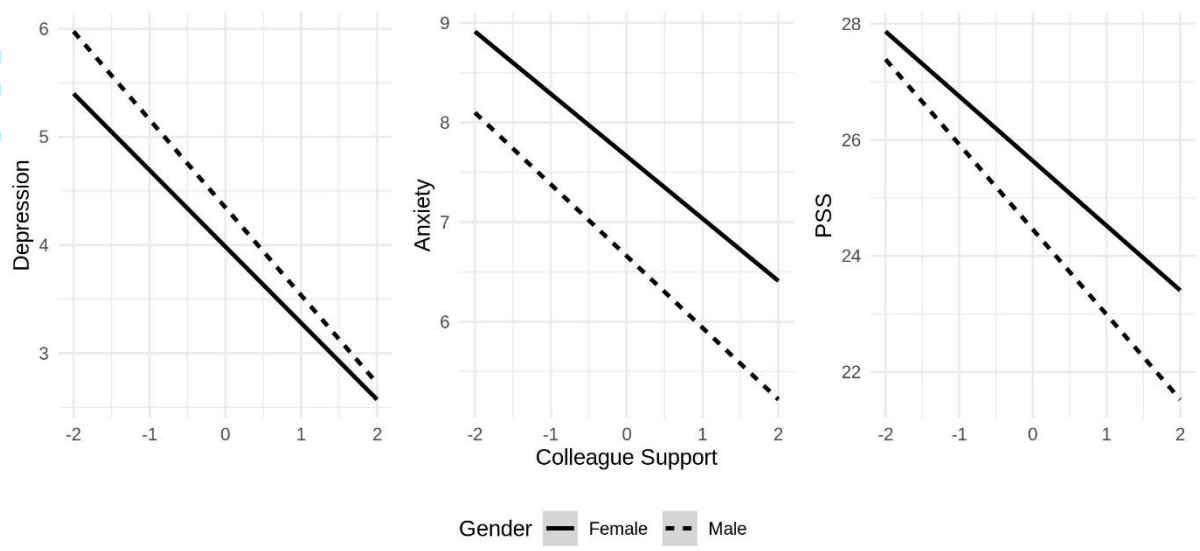
## Regression coefficients for the Structural Equation Model

	B		SE	2.5% CI	97.5% CI
<b>Colleague support</b>					
Employment status (FTE)	0.04	***	0.01	0.03	0.06
<b>Management support</b>					
Employment status (FTE)	0.05	***	0.02	0.04	0.07
<b>Depression</b>					
Year	-0.02		0.04	-0.10	0.05
Age	0.14	***	0.02	0.10	0.18
Organization (dummy 1)	-0.08		0.10	-0.28	0.12
Organization (dummy 2)	0.16		0.09	0.00	0.33
Organization (dummy 3)	0.25	**	0.08	0.08	0.41
Gender (Male)	-0.01		0.02	-0.05	0.03
Manager	-0.58	***	0.04	-0.67	-0.50
Employment status (FTE)	-0.23	***	0.03	-0.29	-0.16
Number of children	-0.03		0.02	-0.06	0.00
Colleague support	-0.76	***	0.02	-0.81	-0.72
Management support	-1.05	***	0.02	-1.10	-1.01
Colleague support * Gender	-0.05	**	0.02	-0.10	-0.01
Management support * Gender	-0.04		0.02	-0.08	0.01
Employment status * Gender	-0.13	***	0.03	-0.19	-0.07
<b>Anxiety</b>					
Year	-0.08		0.04	-0.16	0.01
Age	-0.04		0.02	-0.09	0.00
Organization (dummy 1)	0.13		0.12	-0.10	0.36
Organization (dummy 2)	0.38	***	0.10	0.19	0.57
Organization (dummy 3)	0.41	***	0.10	0.22	0.60
Gender (Male)	-0.58	***	0.02	-0.62	-0.53

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4		Manager	-0.28	***	0.05	-0.38	-0.19
5		Employment status (FTE)	-0.25	***	0.04	-0.32	-0.18
6		Number of children	0.05	**	0.02	0.01	0.08
7		Colleague support	-0.67	***	0.03	-0.73	-0.62
8		Management support	-1.11	***	0.03	-1.16	-1.06
9		Colleague support * Gender	-0.05		0.03	-0.10	0.00
10		Management support * Gender	0.07	**	0.03	0.02	0.13
11		Employment status * Gender	-0.05		0.04	-0.12	0.02
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18	Stress						
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20		Year	-0.22	**	0.08	-0.37	-0.06
21		Age	0.04		0.04	-0.04	0.12
22		Organization (dummy 1)	0.47	*	0.21	0.05	0.88
23		Organization (dummy 2)	0.75	***	0.18	0.40	1.09
24		Organization (dummy 3)	0.54	**	0.18	0.20	0.89
25		Gender (Male)	-0.88	***	0.04	-0.96	-0.80
26		Manager	-0.06		0.09	-0.24	0.12
27		Employment status (FTE)	-0.47	***	0.07	-0.59	-0.34
28		Number of children	0.06		0.03	0.00	0.12
29		Colleague support	-1.30	***	0.05	-1.39	-1.20
30		Management support	-2.34	***	0.05	-2.44	-2.25
31		Colleague support * Gender	-0.18	***	0.05	-0.27	-0.08
32		Management support * Gender	0.09		0.05	0.00	0.18
33		Employment status * Gender	-0.20	**	0.06	-0.32	-0.07
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Note: N = 22786, FTE = full-time employment; \* p <.05, \*\* p <.01, \*\*\* p <.001

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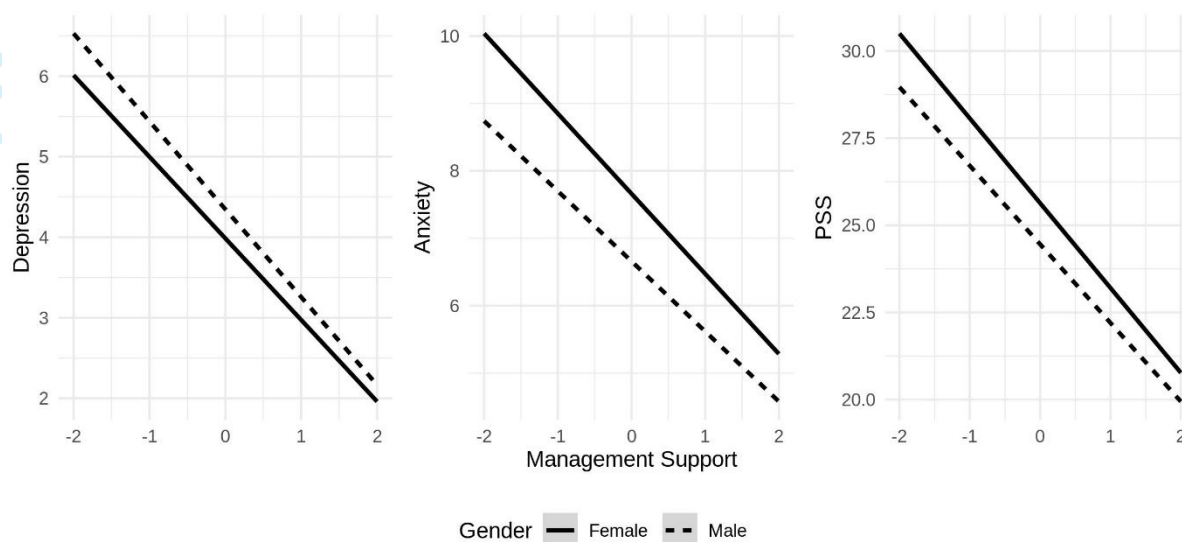


**Figure 2.**

The moderating effect of gender on the relationship between colleague support and psychological health

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**Figure 3.**

The moderating effect of gender on the relationship between management support and psychological health