An examination of gender differences in the impact of individual and organisational factors on work hours, work-life conflict, and psychological strain in academics.

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Abstract

The current study used multi-group structural equation modeling (SEM) to test a fully- and partially-mediated Extended Rational Model of Work-Life Conflict and examined the impact of job involvement, workaholism, work intensity, organisational expectations and support, and having children on work hours, work-life conflict and psychological strain in male and female academics. In total, 410 academics from three Irish universities completed an electronic questionnaire survey. Results indicated both commonalities and differences in the factors that influence work hours, work-life conflict and levels of psychological strain in men and women. Lower organisation expectations predicted longer working hours in both men and women; additional unique predictors of longer working hours in men were higher work intensity and having children; conversely, higher work enjoyment predicted longer working hours in women, but not men. Higher work intensity predicted higher work-life conflict in men and women. In the final best fitting model, longer work hours predicted higher levels of work-life conflict in women only. Findings are discussed in light of research and theory on work-life balance and the challenge of facilitating productivity and well-being in academia.

Key words: work hours; work-life conflict; gender; academia

Introduction

Research indicates that academics engage in long working hours (O' Laughlin & Bischoff, 2005; Misra et al., 2012). For example, on average American academics report working 55 hours per week (O'Laughlin & Bischoff, 2005), while Australian academics report working 50 hours per week (Winefield et al., 2008). Furthermore, recent research found that Irish academics reported the longest working hours across 12 European countries (i.e., 47 hours per week; Kwiek & Antonowicz, 2013). Anderson, Morgan & Wilson (2002) have noted that the nature of academic work is unbounded, in that, academic work is open-ended. The unbounded nature of academic work may be one reason why academics may get drawn into a pattern of working long hours, potentially resulting in work-life conflict and increased psychological strain. Such long working hours may result in a lack of time to dedicate to the home role. Indeed, academics consistently rank long working hours as a major source of dissatisfaction (Winefield et al., 2008), and evidence suggests that long working hours are associated health problems and fatigue (Härmä, 2006).

O'Laughlin and Bischoff (2005) noted that relatively few studies have examined theoretical models of work-life conflict and stress in relation to academia. The current study tests an extended version of the Rational Model of Work-Life Conflict, which proposes that number of working hours are the best predictor of work-life conflict (Gutek, Searle & Klepa, 1991). This study builds upon the work of Major, Klein, and Erhart (2002), who expanded the Rational Model of Work-Life Conflict by examining the relationship between a number of predictors and consequences of long working hours in American corporate workers. The current study extends this line of research by examining the moderating role of gender in relation to predictors and consequences of work-life conflict in an academic working context.

Extending the Rational Model of Work-Life Conflict

The Rational Model of Work-Life Conflict posits that the greater the number of hours spent in the work domain, the greater the potential for work-life conflict (Korabik, McElwain & Chappell, 2008) and stress to occur (O'Laughlin & Bischoff, 2005). Within academia it has been found that long working hours predict higher levels of work-life conflict (O'Laughlin & Bischoff, 2005) and that higher work-life conflict predicts higher levels of psychological strain (Winefield, Boyd, Saebel, & Pignata, 2008). In a study of 264 American academics, O'Laughlin & Bischoff (2005) compared the Rational Model of Work-Life Conflict with Karasek's (1979) Job Strain Model in an effort to predict work and family stress and found evidence in favor of the Rational Model, with work hours accounting for a significant amount of the variance in levels of work stress.

In this study, we extend the work of O'Laughlin and Bischoff by examining a number of hypothesised predictors of working hours, work-life conflict and psychological strain amongst academics. Notably, Major and colleagues (2002) found that long work hours were predicted by high job involvement, work overload, high organisational expectations in relation to work hours, high levels of non-job responsibilities and perceived financial need. Long working hours in turn predicted higher levels of work-life conflict. However, work over-load and organisational expectations also directly influenced levels of work-life conflict. Finally, higher work-life conflict predicted higher levels of psychological distress and mediated the relationship between work hours and psychological distress.

We considered the role of gender in our model, as the evidence to date on gender differences in work-life conflict in academia has produced inconsistent findings. For example, Cantano et al. (2010) found that female academics had higher

levels of work-life conflict than male academics, whereas, Winefield et al. (2008) found that male academics reported higher levels of work-life conflict than female academics. Byron (2005) suggested that different factors may influence levels of work-life conflict in men and women, however, no study to date has examined these differences.

In addition, female academics experience significantly higher levels of psychological distress in comparision with male academics (Cantano et al., 2010; Winefield et al., 2008). Doherty & Manfredi (2006b) have suggested that these higher levels of distress are linked to female academics holding more junior academic positions (Mayer & Tikka, 2008). Problems may arise due to the fact that while junior academics often have the highest teaching loads, research activity is important for promotion and thus junior academics who wish to gain promotion may need to work very long hours to succeed (Soliman & Soliman, 1997). If a female academic cannot dedicate long hours to work due to family or home commitments, then stress may arise. Although research to date indicates that long working hours are associated with work-life conflict which in turn is associated with stress in academics, less is known about gender differences in the predictors of long working hours in academia, or if gender moderates the effects of working hours on levels of work-life conflict in academia.

Building upon the work of Major et al. (2002), the current study tests a new Extended Rational Model which includes key predictors of work hours and work-life conflict that have been identifed as important for academics. Specifically, multi-group structural equation modeling is used to examine the direct and indirect effects of individual factors (i.e. workaholism; job involvement, work intensity), organisational factors (e.g. organisation work time norms, organisational support), and life

circumstances (e.g. the presence of dependents) on work hours, work-life conflict, and psychological strain in female and male academics. From the perspective of the Rational Model it might be hypothesised that individual and organisational factors have an effect on work-life conflict only to the extent to which they result in longer working hours. However, based on the available evidence, we propose that the Rational Model be extended. In addition to stating a series of hypotheses in relation the impact of individual and organisational factors on work hours (H1a – H6a), we extend the Rational Model by proposing a series of additional hypotheses (H1b – H6b) in relation to the direct effect of individual and organisational factors on work-life conflict. Central to our hypotheses is the proposition that a partially mediated model will provide a better fit to the data than a fully mediated model. Two nested models are compared and a series of specific hypotheses are tested in the current study. The first model evaluates a series of six hypotheses (H1a – H6a; see figure 1, solid lines) which propose direct effects of individual, organisational and life circumstance factors on work hours, with the theoretical constraint that the effects of these factors on work-life conflict and psychological strain are fully mediated by work hours. As detailed below, higher scores on all exogenous variables were hypothesised to predict longer working hours, excluding organisational support, higher scores on which were hypothesised to predict shorter working hours. The second model includes a series of additional hypotheses (H1b – H6b; see figure 1, dashed lines) which propose that the effects of individual, organisational and life circumstance factors on work-life conflict are not fully mediated by work hours, and thus the second model estimates the direct effects of these factors on work-life conflict in a partially mediated model. Figure 1 illustrates the basic structure of our model. The

next section provides a rationale for the inclusion of key variables and the specification of key hyptheses in the current study.

Insert Figure 1 around here

Rationale and Hypotheses

Dependents

In relation to gender differences in the predictors of long working hours, the working hours of women are constrained due to their tendency to take greater responsibility for household duties and childcare (Lee, McCann, & Messenger, 2007). In academia, research has found that female academics with children reduce their work hours to a greater extent than male academics with children (Probert, 2005). Evidence also shows that having children predicts higher work-family conflict (Tausig & Fenwick, 2001) It is unlcear if these effects are mediated by longer working hours. We tested the hypotheses:

H1a: Having dependents will predict shorter working hours, and this effect will be stronger for women compared with men.

H1b: Even after controlling for the effect of work hours, having dependents will predict higher levels of work-life conflict, and this effect will be stronger for women when compared with men.

Specifically, we assumed that the impact of children on levels of work-life conflict arise as a result of a potentially broad source of demands and responsibilites associated with parenting, not all of which can be accounted for by the reduction in work time.

Organisational Expectations

Major et al. (2002) reported that work hours are strongly influenced by the organisational work hour expectations communicated to employees. Furthermore, research suggested that women are more negatively affected by long working hour expectations than are men (Posig & Kickul, 2004). Therefore, we predicted that:

H2a: Higher organisational expectations in relation to long working hours will predict longer working hours.

Also, given that women are more negatively affected by long working hour expectations than are men, we tested a further hypothesis:

H2b: Even after controlling for the effects of work hours, the direct effect of organisational expectations on work-life conflict will be stronger for women when compared with men.

Organisational support

Supportive organisational cultures help to reduce levels of work-life conflict experienced by employees (Eby et al., 2005). Burke, Koyuncu and Fiskenbaum, (2008) have reported that academics who regarded their organisations as not supportive of work-life balance worked longer hours than academics who regarded their organisations as supportive. Women are often the primary users of family-friendly organisational support programmes (Gerkovich, 2006) and may therefore be more influenced by the level of support they recieve in relation to the use of these programmes. Therefore, we tested the hypothesis that:

H3a – Supportive organizations predict shorter working hours and this effect is stronger in women when compared with men

H3b: Even after controlling for work hours, higher perceived organisational support predicts lower levels of work-life conflict, and this effect is stronger in women when compared with men.

Job Involvement

Kanungo (1982) reported that academics have high job involvement and that their work forms part of their core identity. Research indicates that highly job involved employees work longer hours (Eby et al., 2005; Major et al., 2002). Previous work in the Australian university sector has found that men report higher levels of job involvement than women (Winefield et al., 2008), however, this research included both academic and non-academic university employees and must therefore be interpreted with caution. However, in light of the available evidence we hypothesised that:

H4a: High levels of job involvement predict longer working hours and this effect is stronger for male academics when compared with female academics.

Highly job involved workers also experience higher levels of work-life conflict (Byron, 2005; Eby et al., 2005). While long working hours may mediate this effect, no research to date has tested this hypothesis directly. Therefore, as part of our nested model comparison, we tested the hypothesis:

H4b: Even after controlling for working hours, high job involvement will have a direct effect on work-life conflict.

Work Intensity

Kinman and Jones (2003) report that many British academics regard their workloads as unmanageable and Ylijoki (2013) notes that academic work is becoming increasingly intensive. Employees who report having too much to do in too little time tend to work longer hours (Major et al., 2002). We predicted that these effects would be similarly observed in an Irish academic context.

H5a: Higher work intensity will predict longer work hours, and this effect will be similar for both male and female academics.

Higher work intensity has also been found to predict higher levels of work-life conflict (Skinner & Pocock, 2008). However, it is unclear if this effect is mediated by work hours. Therefore, we tested the hypothesis:

Hypothesis 5b: High work intensity will have a significant direct effect on work-life conflict, even after controlling for the effect of work intensity on working hours.

Workaholism

Workaholism can be defined as a personal reluctance to disengage from work evidenced by the tendency to work (or to think about work) anytime and anywhere (McMillan et al., 2001). Long working hours are positively related to workaholism as are working during weekends and taking work home (Schaufeli, et al., 2008). It has been proposed that women working in competitive environments (such as academia) may have a greater tendency toward workaholism (Aziz & Cunningham, 2008; Spence & Robbins, 1992). Based on the available research, it was hypothesised:

H6a: Higher workaholism (i.e., both work enjoyment and work drive factors) predict longer work hours and these effects will be stronger for female academics compared with male academics

Workaholism has also been linked to higher reported levels of work-life conflict (Russo & Waters, 2006) however, it is unclear if this effect is mediated by long working hours. Therefore, we tested the hypothesis:

H6b: Even after controlling for the effects of long working hours, workaholism will have a significant direct effect on work-life conflict.

Based on the literature reviewed above, both versions of the Extended Rational Model evaluated in the current study also tested the hypotheses:

H7: Long working hours predict higher levels of work-life conflict in both men and women; and

H8: Higher levels of work-life conflict predict higher levels of psychological strain in both men and women

Methodology

Sample and procedure

The study participants were academics employed in three universities in Ireland. An electronic survey questionnaire was sent via email to 1889 academics for which contact information was available, which constitutes a total population survey of the three universities. A reminder email was sent after three weeks. Of the 1889 surveys distributed, 477 responses were received, giving a response rate of 25.25%. This response rate, although low, was comparable to other surveys of academic stress, for example, Catano et al. (2010), 27%. A total of 67 responses were deemed incomplete, thus a total of 410 surveys were usable. Men (N=206, 50.2%) and women (N=204, 49.8%) were evenly distributed in the sample. The majority of the sample (N=283, 69%) were between the ages of 30 and 49. The majority of the sample (N=316, 77%) were married or co-habiting and 53% (N=217) had children. The sample was largely composed of full-time employees (N=394, 96%) on permanent contracts (N=365, 89%). The sample fell into four job categories; professors (N=55, 14%), senior lecturers (N=60, 16%), lecturers above the bar (N=182, 47%), and lecturers below the bar (N=95, 23%). The sample distribution of occupational grades in the study sample reasonably matched the occupational grade distribution of the full population (i.e., the distribution of the four occupational grade

levels across the three universities). See Table 1 for details on the occupational profile of the study sample compared with the general population.

Measures

The measures included in this analysis represent a subset of the full set of measures used in the survey.[1] Table 2 provides a summary of how the questionnaire measures employed map onto the model variables. Internal consistency (Cronbach's alpha) statistics for all multi-item measures are reported below, and measurement model fit statistics are reported in the results section. To reduce response burden a number of existing scales were shortened. Scale items were selected based on the results of previous factor analyses and from studies which had previously used shortened scales. Six of the measures employed five point Likert scales indicating level of agreement, with response options ranging from "strongly disagree" to "strongly agree". Two of the measures employed five point Likert scales indicating level of frequency, with response options ranging from "never" to "all the time." Item parcels were created for scales with more than 5 indicators. Item parcels were created in each case after analysis of the measurement properties of each scale.

To indicate the presence of *dependents*, respondents were asked "Are there any children in your household?" to which they responded "yes" or "no".

To measure *organisational expectations* in relation to work hours, a three item scale adapted from Major et al. (2002) was used. An example item is "My supervisor often expects me to work at home in the evenings and on the weekends". Internal consistency for the scale was $\alpha = .81$.

Organisational support was measured using two questions taken from the 'Perceived Organisational Family Support' subscale (Jahn, Thompson, & Kopelman,

[1] Questionnaire items are available upon request from the first author.

2003), which has been shown to be psychometrically sound. For information on the content and construct validity of this measure, see Jahn et al. (2003). A sample item is “It is easy to find out about family support programmes within my organisation”. Internal consistency for the scale in the current study was α = .84.

Job Involvement was measured using a five item version of the Job Involvement Scale (Kanungo, 1982). A sample scale item is “My job is a very important part of my life”. The Job Involvement Scale has satisfactory psychometric properties; see Kanungo (1982) for details on the construct and criterion-related concurrent validity of the measure. Internal consistency for the scale was α = .79.

Work intensity was measured using the five item extrinsic effort subscale of the Effort-Reward Imbalance Scale (Siegrist, 2006). A sample item is “I am often pressured to work overtime”. Internal consistency for the scale was α = .78. For information on the discriminant validity and factor structure of the measure see Siegrist et al. (2004).

Workaholism was measured using the 14-item WorkBat-R measure (McMillan, Brady, O’Driscoll, & Marsh, 2002). The WorkBat-R examines two factors, work enjoyment and work drive. Seven items are used to measure each factor, for example,”My job is more like fun than work” is an example of a work enjoyment item. Internal consistency for the two factors was α = .83 and .75 for work enjoyment and work drive, respectively. Detailed information on the validity of the WorkBat-R measure was published by McMillan et al., (2002). In the current study, four items with low factor loadings were removed from the work drive scale and a shorter scale with three work drive items (“I seem to have an inner compulsion to work hard”, “It's important to me to work hard, even when I don't enjoy what I'm doing”, and “I often feel there is something inside me that drives me to work hard”) and seven enjoyment

items was tested. This model provided a good fit to the data, χ^2 (54) = 50.10, p < .001, CFI = .98. TLI = .97, IFI = .98, RMSEA = .05 (90%CI = .03 - .07). Therefore, we created three items parcels for the work enjoyment factor, one parcel with three items and two parcels with 2 items.

Work hours was measured by asking the question "How many hours do you actually work per week (on/off site)?" Seven time category options were provided ranging from zero to ten hours to in excess of 60 hours per week.

Work-life conflict was measured using a scale developed by Wayne and colleagues (Wayne, Musisca, & Fleeson, 2004b). The scale includes 4-items (e.g., "Your job reduces the effort you can give to activities at home"). Internal consistency for the scale in the current study was α = .69. For further evidience on the construct validity of the work-life conflict measure see Wayne et al., (2004b).

Psychological strain was measured using 12-items from the General Well-Being Questionnaire (GWBQ) (Cox, Thirlaway, Gotts, & Cox, 1983). The 12 items are scored on a five-point Likert scale ranging from "never" to "all the time" (e.g., how often within the past six months "Have things tended to get on your nerves and wear you out?"). Higher scores indicate higher psychological strain. For details on construct and convergent validity of the GWBQ, see Cox et al. (1983). Notably, in the current study four items with low factor loadings were removed from the scale to create a good fitting one-factor measure, χ^2 (15) = 50.36, p< .001, CFI = .97. TLI = .95, IFI = .97, RMSEA = .07 (90%CI = .05 - .10). We then created three item parcels using the remaining items, two parcels with three items (items 1, 2, 3 and 4, 5, 6, respectively) and one parcel with 2 items (items 7 and 9). Internal consistency for the scale was α = .71.

Results

Results indicated that 16% (N=72) of respondents worked less than 40 hours per week. 37% (N=171) worked between 41-50 hours per week, and 29% (N=136) worked between 51-60 hours per week. 18% (N=85) worked 60 hours or more per week. A Mann-Whitney U test comparison of males and females revealed that males work more hours per week than females (Mann-Whitney U = 17668, z = 2.92, p <.01). In addition, a Chi-Squared analysis revealed that senior academic males (i.e., senior lecturer and professors) were more likely to have children than senior academic females and junior academic males and females $\chi^2(1, N=207) = 19.57$, $p<.0005$. A series of t-tests were conducted to determine gender differences on all variables. Female academics reported significantly higher organisational expectations, organisational support, work intensity, and psychological strain, while male academics reported significantly higher work enjoyment and job involvement (See Table 3).

Structural equation modelling and hypothesis testing

Confirmatory factor analysis (CFA) using AMOS Version 21 was employed to test the adequacy of the eight factor measurement model which included factors for 1) organisational expectations, 2) organisational support, 3) job involvement, 4) work intensity 5) enjoyment-related workaholism, 6) drive-related workaholism, 7) work-life conflict, and 8) general well-being.

Following guidelines from Byrne (2010) and Kline (2005), the adequacy of model fit (both measurement and structural) was evaluated using the chi-square, the Tucker-Lewis index (TLI), comparative fit index (CFI), and the incremental fit index (IFI). A non-significant chi-square and values greater than 0.90 for the TLI, CFI, and

IFI reflect acceptable fit and values above .95 suggest good fit (Byrne, 2010; Kline, 2005). In addition, the Root-mean-square-error-of-approximation (RMSEA) with 90% confidence intervals (90%Cl) is reported, where values less than .08 reflect adequate fit with values less than .06 indicating good fit (Byrne, 2010; Kline, 2005). Akaike information criteria (AIC) is also reported when comparing two models, with smaller values representing a better fit (Byrne, 2010).

Tests for invariant factorial structure of the measurement model across gender were conducted using multiple-group CFAs to fit a series of hierarchically nested factor structures (Chen, Sousa & West, 2005). First, configural invariance was assessed by allowing the same set of subscales to form a factor in each group while allowing all model parameters to be freely estimated. Metric invariance was then assessed by constraining the factor loadings across groups to be equivalent (Steencamp & Baumgartner, 1998). Equivalence at the metric level allows the comparison of relationships. Scalar equivalence between groups is then tested by constraining factor loadings and intercepts to be equal. Measurement invariance is supported when constrained models do not provide poorer fit as indicated by fit indices (i.e., ΔCFI) and the chi-square difference test. The chi-square difference test is deemed inappropriate in isolation because of its dependance on sample size, therefore the ΔCFI index with a cut-off criterion of <.01 has been suggested by Byrne (2010).

Measurement models

The adequacy of the eight factor measurement model was tested with all eight factors (i.e., organisational expectations, organisational support, job involvement, work intensity, work enjoyment, work drive, work-life conflict, and well-being) constrained to have equal factor loadings and intercepts across males and females. A

test of the full eight factor measurement model with item parcels included did not provide a very good fit to the data, χ^2 (489) = 857.79, p< .001, CFI = .94. TLI = .93, IFI = .94, AIC = 1175.79, RMSEA = .04 (90%CI = .04 - .05). After an examination of possible modifications, a number of changes were made to the model. Notably, one job involvement item ("The most important things that happen to me involve my job") had a factor loading of .46. A second job involvement item ("Most of my interests are centred around my job") had both a relatively low factor loading (.51) and the residual error covaried with items on the work drive scale. Removing these two scale items, and introducing seven correlated errors, and one cross-factor loading from organisational expectations to a work intensity scale item, significantly improved the fit of the model ($\Delta\chi^2$ = 179.14, $\Delta df = 14$, $p <$ .001) and also resulted in a reduction in AIC and CFI, TLI, and IFI fit indices with values greater than 0.95, χ^2 (474) = 678.65, p< .001 CFI = .95. TLI = .95, IFI = .95, AIC = 1026.65, RMSEA = .03 (90%CI = .03 - .04). At this point no further changes were sought to the model.

Structural models

When testing the structural models we retained the measurement model constraints of equal factor loadings and intercepts across males and females and introduced a series of structural hypotheses to evaluate the fit of the fully-mediated and partially-mediated Extended Rational Model. Multi-group structural equation modelling was used to test a series of nested models. The first model evaluated the fit of the Fully-Mediated Extended Rational Model (see Figure 1). This model did not provide a good fit to the data, χ^2 (568) = 890.75, p< .001, CFI = .93. TLI = .92, IFI = .93, AIC = 1262.75, RMSEA = .037 (90%CI = .033 - .042). The second model tested the Partially Mediated Extended Rational Model which allowed for the examination of direct effects of exogenous variables on work-life conflict, in addition to those in

the previous model. The addition of paths was guided by the requirement to test hypotheses H1b – H6b (see Figure 1; dashed lines). This model provided a better fit to the data, χ^2 (556) = 724.35, p<.001, CFI = .96. TLI = .96, IFI = .96, AIC = 1120.35, RMSEA = .027 (90%CI = .021 - .033), and was a significant improvement on the fully mediated model ($\Delta\chi^2$ = 166.40, $\Delta df = 12, p < .001$). We used the χ^2 difference test to examine specific gender differences, one at a time, for each path where differences were hypothesised. It should be noted that, although 5 paths in our model were significant for women but not men, or vice versa, using the model x^2 to evaluate the significance of these gender differences did not reveal any significant gender differences. This has occurred because the sampling differences reported at the cut point for significance (1.96) is within sampling difference, and in addition the chi-square value can depend on the value of parameter, number of indicators and the sample size. Therefore, where paths were significant for one group but not another, we allowed the path to be freely estimated for both groups and we report these differences below. The final model is presented in Figure 2 and includes significant standardized effects only, and results for each study hypotheses are presented in Table 4. In summary, converse to H1a, having children predicted longer working hours for males, but not females. Furthermore, having children was not related to work-life conflict. Contrary to H2a, it was found that lower organisational expectations predicted longer working hours for male and female academics. H5a was partially supported, with work intensity predicting longer working hours for males, but not females. However, H5b was fully supported as higher work intensity predicted higher levels of work-life conflict for both males and females. H6a was partially supported as high work enjoyment was found to predict longer working hours for female academics only, however, work drive was unrelated to working hours and work-life

conflict. H7 was partially supported as long working hours predicted work-life conflict for female academics only, while H8 was fully supported as high levels of work-life conflict predicted higher psychological strain in both male and female academics.

Insert Table 4 and Figure 2 around here

Discussion

The current study used multi-group structural equation modeling to examine the influence of individual and organisational factors and life circumstances on work hours, work-life conflict, and psychological strain in male and female academics. Consistent with previous research (Lee et al., 2007), the study revealed that men worked longer hours than women. However, there was no difference in mean levels of work-life conflict reported by men and women. Consistent with the findings of Cantano et al. (2010), women in the current study reported significantly higher psychological strain than men. Women also reported higher organisational expectations to work long hours, higher work intensity, higher organisational support, lower work enjoyment and lower job involvement than men.

Extending the Rational Model of work-life conflict, the current study compared a fully-mediated Extended Rational Model and a partially mediated Extended Rational Model of work-life conflict in academia. The partially mediated model provided a better fit to the data. Consistent with the Rational Model of work-life conflict, longer work hours predicted higher levels of work-life conflict in women. Interestingly, results indicated no effect of work hours on work-life conflict

in male academics. In the final model, the only significant predictor of work-life conflict in men was work intensity.

Consistent with our hypotheses and previous research in the area (Skinner & Pocock, 2003), for both men and women, we found that high work intensity predicted work-life conflict, and higher work-life conflict in turn predicted higher levels of psychological strain. In line with the Rational Model it was hypothesised that higher work intensity would predict longer work hours, and that this effect would be similar for both male and female academics. However, the results of the current study revealed that higher work intensity predicted longer working hours in men only. As such, work intensity predicted both longer working hours and higher work-life conflict in men.

It was also hypothesised that higher workaholism (i.e., both work enjoyment and work drive factors) would predict longer work hours and these effects would be stronger for female academics compared with male academics. However, we found that higher work enjoyment predicted longer working hours in women, but not men. It has been suggested that women working in competitive academic environments may have a greater tendency toward workaholism (Aziz & Cunningham, 2008). The finding that work enjoyment predicted longer working hours for female academics only is interesting given that male academics in this study reported higher mean levels of work enjoyment than female academics and longer working hours.

A number of other results from this study were contrary to our hypotheses. For example, longer work hours was predicted by lower work hours expectations in both men and women. This finding may possibly be attributed to the measure employed, as all of the questions refered to ones' supervisor expectations. The term supervisor is not widely used in academia and academic work is largely autonomous, therefore, this

measure may not have adequately captured the relationship between organisational expectations and working hours in academia. This issue deserves further research attention, possibly using a revised measure to tap into implicit and explicit institutional expectations.

The currrent study also revealed that men with children reported working longer, not shorter, hours, whereas having children did not impact on female academics' work hours. However, contrary to the Rational Model, the longer working hours of male academics did not directly affect levels of work-life conflict. Analyses revealed that men in the more senior academic positions were more likely to have children than were men in more junior positions; therefore,the effects of dependents on men in this study may be in part explained by their more senior positions being associated with more demands and thus longer working hours.

Previous research suggests that having children increases work-life conflict (Behson, 2002), however, in this study having children was found to have no effect on levels of work-life conflict. Also, contrary to hypotheses and previous findings that academics who reported high levels of organisational support report shorter working hours (Burke et al., 2008), in this study, controlling for other factors, no relationship was observed between organisational support and work hours. It appears from these results that perceived levels of organisational support does not translate in practice into lower work-life conflict for male and female academics. It may be that, in the context of potentially long working hours, even higher perceived levels of organisational support is not sufficient to offset the negative effects of high work intensity, which predicted higher work-life conflict in both male and female academics in the current study.

Finally, we found that two of our model variables, that is, work drive and job involvement had no effect on work hours or work-life conflict in the current study. The findings in relation to job involvement are inconsistent with the extant literature (see Michel et al., 2011, for a review). Similarly, the non-significant relationship between work drive and work hours and work-life conflict differs from previous workaholism research (Burke et al. 2008; Brady, Vodanovich, & Rotunda, 2008). However, it has been noted that the relationship between workaholism and work-life conflict to date has been under-researched (Tabassum & Rachmann, 2013), therefore, further studies may be required in order to enhance our understanding of this relationship. Also, the current study tested individual hypotheses in a multivariate context with a moderate sample size, and thus exogenous variables that had slightly weaker relationships with outcomes were more likely to be associated with non-significant effects in the model in the context of variables with weaker relationships with outcomes.

Limitations

The current study had some limitations which must be acknowledged. First, this study consisted of a cross-sectional design; therefore, no causal inferences can be made in relation to the observed pattern of structural relationships. Future longitudinal and prospective research is warranted. Second, this study employed self-reported data, which gives rise to the potential for recall bias. Finally, the low response rate (23%) to the survey may cause concerns with regard to self-selection and non-reponse bias. Although the response rate was low, it is comparable to other surveys of academic stress; for example, Catano et al. (2010) achieved a response rate of 27%. The low response rates of academics to questionnaire surveys may reflect a number of factors

such as survey fatigue, or high work intensity resulting in a lack of time to complete surveys.

Practical Implications

These findings are important as they advance our knowledge on the significant antecedents of long working hours and work-life conflict in the Irish academic sector. Currently in the Irish higher education sector, and internationally, pressures on academic staff are increasing due to factors such as recruitment and promotion freezes, a targeted reduction in staff numbers, increasing student numbers, and a greater emphasis on research outputs. However, it has previously been noted that over-work may be voluntary and occur without any organisational rewards (Peiperl & Jones, 2001), and as seen in this study, work enjoyment was a significant factor in long working hours for female academics, which in turn caused work-life conflict. Academic freedom is highly valued, and the level of work enjoyment experienced by many academics when working leads to challenging questions as to at what point work becomes leisure. From an organisational perspective, there is a significant design challenge in relation to how best to cultivate a work environment that results in both high work enjoyment, reasonable work intensity and working hours, and low levels of work-life conflict. The challenge for universities moving forward is to design work systems and processes that maintain the agility and resilience of both individual workers and the university as a whole in the face of both internal and external pressures.

Conclusions

The current study evaluated an extended Rational Model of Work-life Conflict in Irish academics. The study findings provided support for a partially-mediated Rational Model of Work-life Conflict. Notably, for both women and men, results

revealed common predictors of long work hours (i.e., organisational expectations) and work-life conflict (i.e., work intensity). Higher levels of work-life conflict also predicted higher levels of psychological strain for both men and women. For women, higher work enjoyment predicted longer working hours, which in turn predicted higher work-life conflict, suggesting that female academics experience higher levels of time-based conflict in accordance with the Rational Model of work-life conflict. Conversely, high work intensity predicted longer working hours in men only; however, these longer working hours did not predict work-life conflict. Coupled with the effect of work intensity on work-life conflict in men, these findings suggest that for male academics strain-based work-life conflict may be more significant, whereby, the stresses associated with juggling multiple demands negatively impacts on the work-home interface and in turn cause psychological strain. Overall, the findings of the current study highligh the complexity of the relationship between gender, organisational and individual factors and work hours, work-life conflict and psychological strain in academia and the need for further research to examine the dynamics of change over time.

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Figure Captions

Figure 1. The Fully-Mediated (solid lines) and Partially-Mediated (solid plus dashed lines) Extended Rational Model describing factors hypothesised to impact on work hours, work-life conflict, and general well-being in academics.

Figure 2: Significant paths in the final best-fitting model.

Table 1. Occupational distribution of study sample versus total population

Job Title	**Study Population**		**Study Sample**	
	N	**%**	**N**	**%**
Professor	321	17	55	14
Senior Lecturer	340	18	60	16
Lecturer	680	37	182	47
Junior Lecturer	529	28	95	23

Table 2. Measures in the model

Model variables	**Measure employed**
Children	Single item question -- “Are there any children in your household?”
Organisational expectations	Organisational Expectations Scale (Major et al., 2002)
Organisational support	Perceived Organisational Family Support Scale (Jahn et al., 2003).
Job involvement	Job Involvement Scale (Kanungo, 1982).
Work intensity	Extrinsic effort subscale of the Effort-Reward Imbalance Scale (Siegrist, 2006)
Workaholism	14-item WorkBat-R measure (McMillan et al., 2002) Work Drive Factor – 7 items Work Enjoyment Factor – 7 items
Work hours	Single item question -- “How many hours do you actually work per week (on/off site)?”
Work-life conflict	Work-life conflict Scale (Wayne, Musisca, & Fleeson, 2004b).
Psychological strain	12-items from the General Well-Being Questionnaire (Cox, Thirlaway, Gotts, & Cox, 1983).

Table 3. Gender differences on model variables

		Mean	*SD*	*t-value*	*P*
Organisational expectations	male	9.04	2.53	3.295	.001
	female	9.89	2.69		
Organisational support	male	5.78	1.92	2.189	.029
	female	6.19	1.83		
Job involvement	male	18.66	3.45	2.198	.029
	female	17.87	3.51		
Work Effort	male	13.19	4.31	2.680	.008
	female	14.36	4.31		
Workaholism – Enjoyment	male	24.15	4.65	2.613	.009
	female	22.92	4.72		
Psychological Strain	male	30.49	6.87	2.003	.046
	female	31.75	6.45		

Table 4. Estimates for specific effects tested in the model

Hypothesis	Paths	Beta	SE	t	p
H1a	Dependents → working hours	Males: ß = 0.295 Females: ß = 0.208	0.120 0.117	2.466 1.774	p < .05 p > .05
H1b	Dependents → work-life conflict	Males: ß = 0.048 Females: ß = -0.093	0.055 0.057	0.879 -1.622	p > .05 p > .05
H2a	Organisational expectations → working hours	Males: ß =-0.413 Females: ß = -0.512	0.118 0.102	-3.482 -5.001	p < .001 p < .001
H2b	Organisational expectations → work-life conflict	Males: ß = -0.042 Females: ß = -0.045	0.063 0.055	-0.669 0.818	p > .05 p > .05.
H3a	Organisational support → working hours	Males: ß = -0.029 Females: ß = -0.047	0.077 0.083	-0.378 -0.566	p > .05 p > .05.
H3b	Organisational support → work-life conflict	Males: ß = -0.091 Females: ß = -0.051	0.050 0. 055	-1.821 -0.933	p > .05 p > .05.
H4a	Job involvement → working hours	Males: ß = 0. 190 Females: ß = 0.023	0. 155 0.133	1.225 0.173	p > .05 p > .05
H4b	Job involvement → work-life conflict	Males: ß = 0.130 Females: ß = 0.088	0. 086 0. 075	1.512 1.169	p > .05 p > .05
H5a	Work intensity → working hours	Males: ß = 0. 285	0 .099	2.881	p < .01

		Females: ß = 0.152	0.110	1.385	p > .05
H5b	Work intensity → work-life conflict	Males: ß =0.295 Females: ß = 0. 330	0 .051 0.066	5.785 4.986	p < .001 p < .001
H6a	Work Enjoyment →Work hours	Males: ß = 0.079 Women: ß = 0. 180	0.061 0 .063	1.291 2.864	p > .05 p < .01
	Work Drive →Work hours	Males: ß = -0.031 Females: ß = 0.015	0.119 0.115	-0.262 0.129	p > .05 p > .05
H6b	Work Enjoyment →Work-life conflict	Males: : ß = -0.058 Females: ß = -0.027	0.031 -0.025	-1.914 -1.060	p > .05 p > .05
	Work Drive → Work-life conflict	Males: ß = 0.025 Females: ß = 0.045	0.051 0.057	0.484 0.781	p > .05 p > .05
H7	Work hours → Work-life conflict	Males: ß = -0.001 Females: ß = 0.077	.032 .037	-0.040 2.073	p > .05 p < .05
H8	Work-life conflict → Psychological Strain	Males: ß = 3.495 Females: ß = 2.422	0.601 .0.469	5.816 5.169	p<.001 p<.001

Note: Results support H5b and H8 for both men and women, H5a in men only, and H6a and H7 in women only. Δx^2 difference tests ($\Delta df = 1$) comparing effects for men and women revealed no significant gender differences and are therefore not presented here (see discussion). Significant indirect effects of organisational expectations on work-life conflict (ß = -0.078, SE = 0.038, t = -2.032, *p* <.05) and psychological strain (ß = -0.096, SE = .047, t = - 2.05, *p* <.05) were observed for women only.

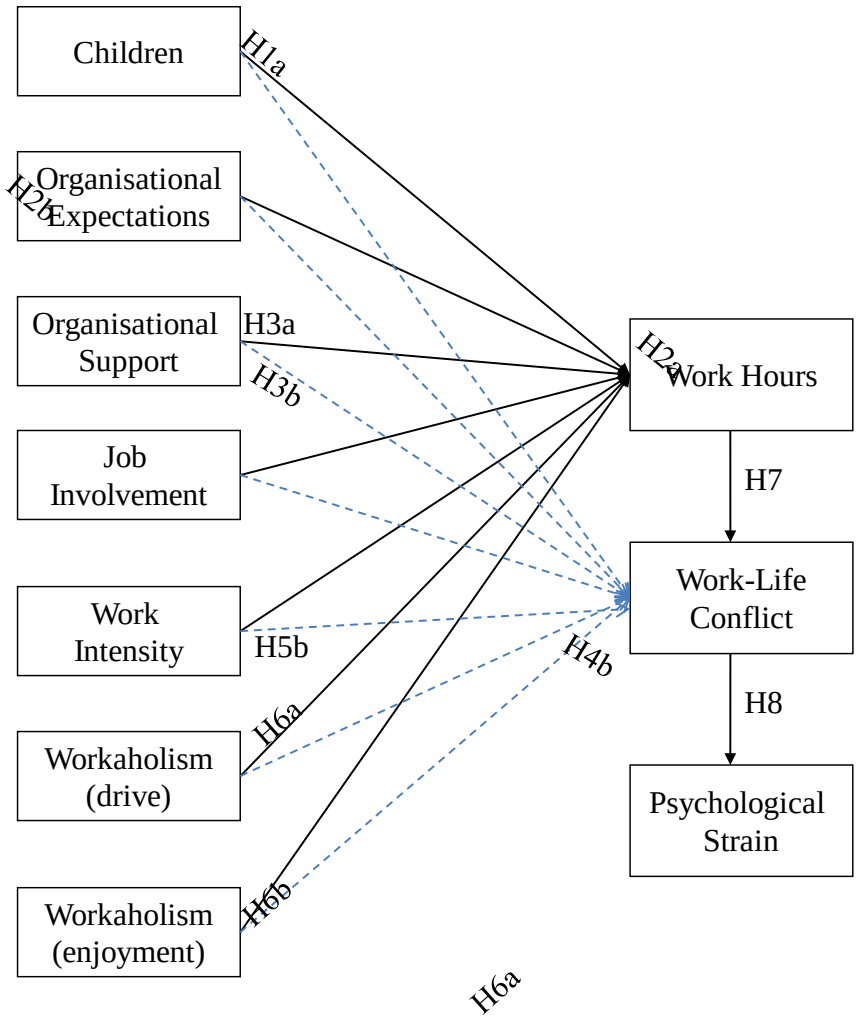

Figure 1: The Fully-Mediated (solid lines) and Partially-Mediated (solid plus dashed lines) Extended Rational Model describing factors hypothesized to impact on work hours, work-life conflict, and psychological strain in academics

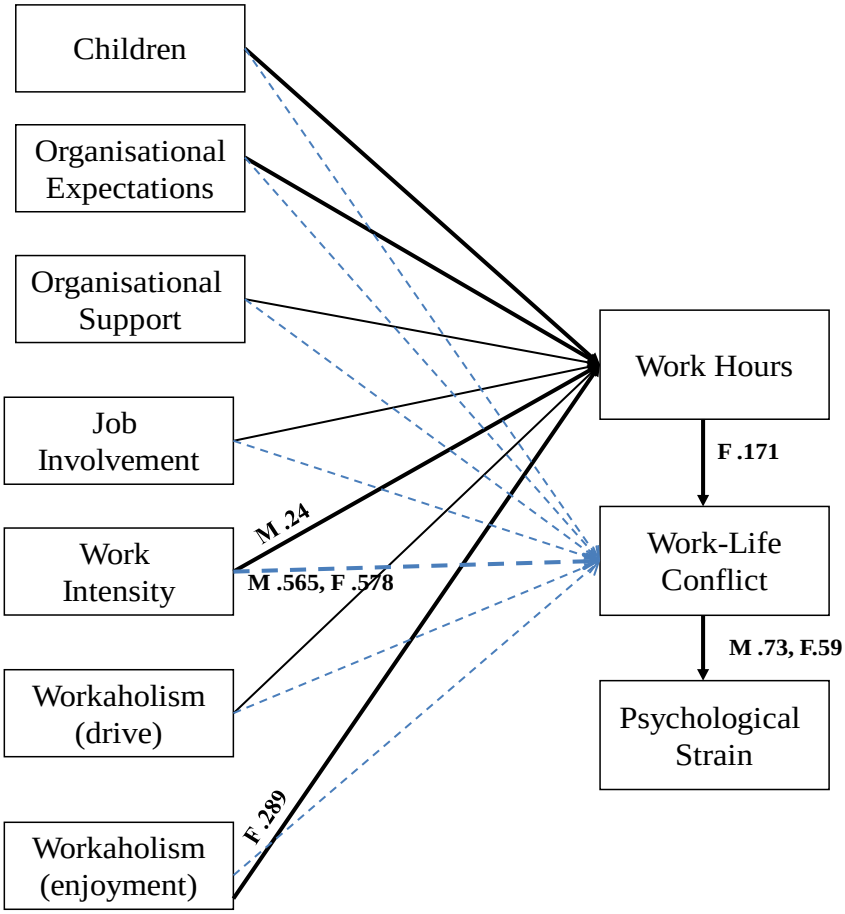

Figure 2: Significant paths in the final best-fitting model, with standardized effects for females (F) and males (M).