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The work-family interface

Job demands, work engagement and turnover intentions
of Polish nurses



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Key words: COR theory, work-family conflict, family-work conflict, demands, work engagement, turnover intentions

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The results were orally presented at the 4th World Conference on Psychology and Sociology, WCPS- 2015, Roma, Italy, 26-28 November 2015.

Beata A. Basinska was the Operative Project Manager regarding Polish data, while Anna M. Dåderman was the Scientific Project Manager. Both authors made an intellectual contribution to the formulation of hypotheses, to the analysis and interpretation of data, description and interpretation of results, and the formulation of final conclusions. Both also revised the manuscript for intellectual content, and approved the published version. Anna M. Dåderman prepared the abstract and the introduction, described the methods, created the tables and the figure, wrote the discussion, and compiled the references. Beata A. Basinska initiated the project, made a substantial contribution to the conception and design of the study with regards to knowledge, and prepared all questionnaires for distribution among Polish nurses. Questionnaires were returned to her, and she prepared the database and carried out the preliminary analysis. She drafted a preliminary research report in Polish, before some of the results were presented at a medical conference in Warsaw.

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The work-family interface

Job demands, work engagement and turnover intentions of Polish nurses

Abstract

A conflict between one's professional life and one's family life may lead to lower well-being both at work and home. Most nurses are women who have traditionally reconciled their professional life with family life. One aim of this study was to examine the relationships between the work-family conflict (WFC), the family-work conflict (FWC), and the perception of job demands (quantitative workload and interpersonal conflicts at work). We intended also to examine the components of work engagement (vigour, dedication, and absorption) and turnover intentions. Another aim was to determine whether the variables that we examined are important for turnover intentions. This study comprised Polish registered nurses. The following instruments were used: Work-Family Conflict and Family-Work Conflict Scales (Netemeyer, Boles, & McMurrian, 1996), the Interpersonal Conflict at Work Scale and Quantitative Workload Index (Spector & Jex, 1998), the Utrecht Work Engagement Scale (Schaufeli, Bakker, & Salanova, 2006), and measures of turnover intentions (intention to leave the present workplace and intention to leave the nursing profession). The score on the scale to measure WFC was positively related to perceived workload and to both turnover intentions, while negatively related to vigour. The WFC was experienced significantly more intensively than FWC. The perception of differences in mean scale scores of job demands had a moderate effect on the FWC and WFC, while differences in mean scale scores of vigour had a strong effect on the WFC. WFC, quantitative workload and a low level of dedication were significant predictors of the intention to leave the present workplace, while the level of job demands was a significant predictor of the intention to leave the nursing profession. The results are interpreted and discussed using Hobfoll's Conservation of Resources theory.

Key words: COR theory, work-family conflict, family-work conflict, demands, work engagement, turnover intentions

Sammanfattning

En konflikt mellan yrkesliv och familjeliv leder till lägre välbefinnande både på jobbet och hemma. De flesta sjuksköterskor är kvinnor som traditionellt förenar yrkesliv med familjeliv. Ett syfte med studien var att undersöka sambanden mellan konflikterna arbete-familj (WFC), familj-arbete (FWC), och uppfattningen av yrkeskraven (kvantitativ arbetsbelastning och mellanmännsliga konflikter på arbetsplatsen). Vi ville även undersöka komponenterna i arbetsengagemanget (vitalitet, entusiasm och försjunkhet i arbetet) och i avsikten att byta arbete. Ett annat syfte var att fastställa huruvida de variabler som vi granskade är viktiga för avsikten att byta arbete. Studien omfattade polska sjuksköterskor. Följande instrument användes: Work-Family Conflict och Family- Work Konflikt Scales (Netemeyer, Boles & McMurrian, 1996), Interpersonal Conflict at Work Scale och Quantitative Workload Index (Spector & Jex, 1998), Utrecht Work Engagement Scale (Schaufeli, Bakker, & Salanova, 2006), och mått på avsikten att byta arbete (lämna nuvarande arbetsplats resp. lämna sjuksköterskeyrket). WFC var positivt relaterad till upplevd arbetsbelastning och till avsikten att byta arbete, men visade ett negativt samband med vitalitet. WFC upplevdes betydligt mer intensivt än FWC. Upplevda skillnader i yrkeskrav hade en måttlig effekt på FWC och WFC, medan skillnaderna i genomsnittlig vitalitet hade en stark effekt på WFC. WFC, kvantitativ arbetsbelastning och en låg nivå av entusiasm var signifikanta prediktorer för avsikt att lämna nuvarande arbetsplats, medan nivån av yrkeskrav var en signifikant prediktor för avsikt att lämna sjuksköterskeyrket. Resultaten tolkas och diskuteras med hjälp av Hobfolls teori om bevarande av resurser.

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Introduction

Nursing is important for society, and those involved in the profession are responsible for patient safety (Aiken, Clarke, Sloane, Sochalski, & Silber, 2002). Nursing work is stressful (e.g., Purcell, Kutash, & Cobb, 2011; Sorgaard, Ryan, & Dawson, 2010). Most nurses are women, who traditionally often reconcile professional demands with responsibilities for the family. In recent years, the demands of this profession have increased, while the rewards have decreased. This is true in an international perspective, and not only in some countries such as Poland or Sweden (Basinska & Wilczek-Ruzyczka, 2013). We are examining nursing in two EU member states, Poland and Sweden, as part of an ongoing project. The pilot study described here concerns a group of Polish nurses, and examines the relationships between the work-family conflict (WFC), the family-work conflict (FWC), and job demands (quantitative workload and interpersonal conflicts with co-workers, patients and the nurse's family). It concerns also components of work engagement (vigour, dedication, and absorption), and turnover intentions in the study group. The particular circumstances of the nursing profession, combined with current general trends in working life (such as organizational changes and job insecurity), have given rise to two stressors that reflect the changes that have occurred. These stressors are job demands and the WFC/FWC. We discuss the results of our study using Hobfoll's Conservation of Resources theory (COR, Hobfoll 1988, 1989, 2011), and we have for this reason included work engagement in the study design, in order to be able to examine its relationship with work stressors. We have assumed that work engagement is a personal resource that is important for the employee's work performance. A nurse is expected to build good relationships with the patients, to be empathetic, and thus engaged. An organization with engaged employees is competitive in the labour market.

The work described here fills a gap in our knowledge of the WFC and FWC in Polish nurses by relating these conflicts to the perception of job demands and work outcomes. It should be noted that these conflicts are reciprocal, although the WFC has sometimes not been investigated with FWC. The work presented here, therefore, extends our knowledge about these two important domains of human activity by considering them together. The study produces also new knowledge by examining the importance of the variables we have studied for turnover intentions in a group of Polish nurses. Studies that seek to illuminate the role of the WFC/FWC, job demands, and a lack of work engagement in the turnover intentions of Polish nurses have not previously been published.

The social and cultural context

People participate in several life domains, and participation in the work and non-work (e.g. family) domains is the most prevalent and comprehensive for most people. Work and non-work demands have generally increased during recent decades for many women. The nature of these demands has traditionally depended on whether a woman is playing a non-traditional sex role, such as being a member of a dual-earner household, or a single-parent household (Duxbury and Higgins (1991); Greenhaus, Collins, & Shaw (2003)). A model that was based on dual earners, in which females were subject to a double burden, was adopted in Poland under state socialism. Additional demands on women in post-transformational countries arise from a tradition in which women take care of elderly parents. Thus, in Poland, and probably in a lot of other countries, a woman who is a member of a family must play several roles: to be a mother, a wife, and a caring daughter.

Economic transition and rapid development, not only in Poland, but more generally, have transformed the structure of work demands. And, work demands now partially depend on the nature of the work itself, characterised by a dynamic development of technology in all workplaces, access to advanced instruments and electronic devices, and demands on interaction with these innovations. Work has become more challenging due also to global competition, public evaluations of organizations, focus on work performance and innovative ability, and the tendency to work in ever-changing new projects rather than to carry out unchanging duties. These changes have made expectations related to professional and non-professional roles more complex, and the boundary between work and non-work life has in many cases become unclear. Poland is a country in which significant changes have occurred following a system transformation. The most important changes concern the commercialization of medical institutions and the introduction of work for hire in place of contracts of employment for medical staff. Job insecurity, insufficient pay increases and extended working hours are common (Basinska & Wilczek-Ruzyczka, 2011).

Most nurses are women – about 96% of the 270,000 nurses and midwives in Poland are women (Borowiak, Manes, & Kostka, 2011). The country is facing severe demographic ageing (the effects of a “generation gap”), and the mean age of Polish nurses is 45 years. The situation is similar in Sweden, where the mean age of nurses is 50 years. Poland joined the European Union in 2004, after which more than 17,000 Polish nurses and midwives have left the country to work in other EU member states, while most Polish nurses who emigrated work in England and the Scandinavian countries (Binkowska-Bury, Nagorska, Januszewicz, & Ryzko, 2010). Beckford and Macfarlane reported in 2014 that 2,473 nurses from Poland were working in England at that time, and they

expected that more nurses would be recruited. Small numbers of nurses have been recruited to Swedish hospitals during the past 10 years, although far fewer than those recruited to England. Petersson (2015), for example, recently reported that 10-14 nurses had been recruited to a Swedish hospital. Many newly educated nurses never begin to work in the country that educated them, and are directly recruited by recruiting agencies. Thus, a relatively high average age in combination with a relatively low salary, a high level of migration of nurses between European states, and the low status of this profession that leads to a low interest among young women to become nurses, lead to a work situation in which all nurses experience work overload (Borowiak et al., 2011). It is, therefore, important to examine which factors play a role in determining turnover intentions.

Job demands (quantitative workload and interpersonal conflicts at work)

Several job demands may be experienced as important stressors that interfere with family life and other non-professional life. We have defined job demands by two common work stressors: one concerning the tasks to be carried out (quantitative workload), and one concerning interactions with people (interpersonal conflicts). We decided to examine these two job demands because they are the most relevant for psychological well-being at work (Spector & Jex, 1998), and are closely related to one's daily perception of the work situation. "Quantitative workload" is defined as "the sheer volume of work required of an employee" (Spector & Jex, p. 358). Shaffer, Joplin, and Hsu (2011) have shown that job demands include broad categories of hours/time pressure, work expectations, and role stressors.

Quantitative workload is correlated with several negative outcomes. Spector and Jex (1998) showed that quantitative workload is correlated more strongly with role conflict and frustration than with depression. Further, quantitative workload is strongly correlated with fatigue after the working day (Basinska & Wilczek-Ruzyczka, 2011). A high workload is related to a certain level of uncertainty (feelings of worry and anxiety) (Beehr & Bhagat, 1985), because an employee who has too much to do may neglect some aspects of work life or family life in order to manage the situation at work. It is worth emphasising that Poland has one of the lowest ratios of nurses employed per 1,000 inhabitants in the EU (4.9 in Poland, to be compared to 10.2 in Sweden and to 14.8 in Norway). This low ratio leads to a high workload, which may result in excessive absorption, in the form of a difficulty to detach oneself from work. Another trend in Poland is a decrease in the employment of experienced nurses. The number of nurses who abandon the profession has increased in recent years (Main Chamber of Nurses and Midwives, 2010).

Interpersonal conflicts in the workplace are one of the most important stressors (Keenan & Newton, 1985), while the risk that nurses are exposed to violence is significant (Happell, 2008; Nachreiner et al., 2005). Conflict at work is associated with a lower efficiency of the team and lower productivity (Alper, Tjosvold, & Law, 2000; Dunlop & Lee, 2004). Spector and Jex (1998) state that a conflict may be overt (such as the case in which one person is rude to others) or covert (such as the case in which one person spreads rumours about others). Interpersonal conflicts at work range from minor disagreements to severe violence, which may result in physical injury. Non-physical violence, however, such as incivility or serious verbal abuse, is more common. Interpersonal conflicts also comprise bullying and sexual harassment. Spector, Zhou and Che (2014) recently reviewed estimates of the amount of physical and non-physical violence, bullying, and sexual harassment experienced by nurses, classified by type, setting, source, and world region. The results from 136 studies comprised almost 20,000 nurses. Spector et al. showed that 36% of nurses reported being physically assaulted and 67% non-physically assaulted, 37% reported being bullied, and 28% reported sexual harassment. About 50% of nurses reported general violence without specifying its type. Physical violence was most prevalent in psychiatric, geriatric, and emergency departments, and was performed by patients in about two thirds of cases, and by patients' family or friends in about one third. Approximately 10% of violent acts were performed by other nurses, physicians or staff. The report by Spector et al. makes it clear that interpersonal conflicts at work are a common stressor and that their relationship with the WFC/FWC should be studied. Spector et al. reviewed also three Polish studies that showed that work violence in Polish nurses occurs (Kowalczyk, Jankowiak, Krajewska-Kulak, Van Damme-Ostapowicz, & Kowalewska, 2011; Merecz, Drabek, & Moscicka, 2009; Merecz, Rymaszewska, Moscicka, Kiejna, & Jarosz-Nowak, 2006). The results from these Polish studies are alarming. Kowalczyk et al., for example, reported that 95% of nurses had experienced aggression in the form of a raised voice, 73% had received threats, 72% had experienced a dangerous attitude, 77% vulgar behaviour in the presence of co-workers, and 75% such behaviour in the presence of patients. About 90% of the nurses had experienced aggression from patients, while 54% from doctors. Such results show that the work situation of Polish nurses' must be studied in depth. We have examined the role that conflicts at work and workload play in turnover intentions.

Work engagement (vigour, dedication, and absorption) as a personal resource

Work engagement is a personal resource that is brought into an organization by the employees. Time spent working may be sometimes stressful, but it engages

people and makes their working life meaningful. Playing several roles is related to positive outcomes such as higher self-esteem and greater life satisfaction (e.g., Barnett & Baruch, 1985, Barnett & Marshall, 1992). Work engagement is one of the most important components of positive, subjective well-being at work, and of adult happiness (Bakker & Oerlemans, 2011). Work engagement is defined as “a positive, fulfilling work-related state of mind that is characterized by vigour, dedication and absorption” (Schaufeli, Salanova, González-Romá, & Bakker, 2002, p. 74). Vigour is reflected in high levels of energy and cognitive resilience while at work, the willingness to invest effort at work, and perseverance in the face of difficult situations at work. Dedication is reflected in an experience of a sense of significance, enthusiasm, inspiration, pride and challenge while at work. Finally, absorption is reflected in the state of being fully focused and deeply engrossed in one’s work, so much so that time passes quickly and one has difficulty detaching oneself from the work. Work engagement is positively correlated with intrinsic motivation (Schaufeli & Salanova, 2007). Further, an engaged employee differs from an unengaged one in the amounts of other personal resources such as autonomy, optimism, self-esteem, and self-efficacy that are available (Bakker, Schaufeli, Leiter, & Taris, 2008). An engaged employee is energetic, effective in the work activities, and experiences himself or herself as able to deal well with work-related demands (Schaufeli et al., 2002). Employees who have high work engagement are more committed to delivering high-quality performance at work, receive higher work ratings from their supervisors, are promoted more rapidly within the organization, and enjoy higher levels of gratitude from their customers (Schaufeli, Taris, Le Blanc, Peeters, Bakker, & De Jonge, 2001). An engaged employee is also willing to carry out both in-role behaviour and extra-role behaviour at work (Bakker & Schaufeli, 2008). For definitions of these behaviours, see Zhu, 2013).

A high WFC predicts low work engagement (Mauno, Kinnunen, & Ruokolainen, 2007). Sliter, Boyd, Sinclair, Cheung, and McFadden (2014) noted that dedication “primarily refers to individuals who have very strong cognitive and emotional involvement in their workplace” (p. 47). Values of absorption are lower in healthcare professionals than in police officers, managers and educators (Schaufeli, Bakker, Salanova, 2006). It should also be noted that vigour and dedication are correlated, (while absorption is independent of these), while they are different psychological states, direct opposites, of the core burnout dimensions of exhaustion and cynicism, as defined by Schaufeli et al.

Work-family conflict (WFC) and family-work conflict (FWC)

The conflict between the professional and non-professional domains (such as family life) is bilateral (Grzywacz & Marks, 2000). Inter-role conflicts between work and family life occur when these roles cannot be reconciled with

appropriate commitment. The WFC, also known as “work-family interference”, takes place when participation in the work role is made more difficult by participation in a non-work role (such as a family role) (Greenhaus & Beutell, 1985). Greenhaus and Beutell distinguished between two types of conflict, WFC and FWC, where the latter is also known as “family-work interference”. An FWC takes place when family responsibilities make it difficult to function as a professional. In other words, the outcomes of work stressors (such as interpersonal conflicts) may transfer to the non-work domain, and may be a source of work-family interference. For example, conflicts at work may affect employees negatively even when they are not at work. Bacharach, Bamberger, and Conley (1991) listed the components of these conflicts as: (a) the requirements posed by the two roles (such as responsibilities and commitments); (b) the time devoted to them, in that a conflict arises when activities in one of the roles take time that should be devoted to the other; and (c) tension related to the roles, which arises when activity in one of the roles affects functioning in the other. It should be clarified that the family is viewed as “a larger, non-work entity that includes responsibilities towards spouses, children, unmarried partners, and home life in general” (Netemeyer, Maxham III, & Pullig, 2005, p. 130). We have adopted the definitions of WFC and FWC laid down by Netemeyer, Boles and McMurrian (1996), and we have used instruments developed by Netemeyer et al. to measure them. The definitions of Netemeyer et al. are the following: “WFC is a form of inter-role conflict in which the general demands of, time devoted to, and strain created by the job interfere with performing family-related responsibilities. FWC is a form of inter-role conflict in which the general demands of, time devoted to, and strain created by the family interfere with performing work-related responsibilities” (p. 401). According to assumption of Netemeyer et al., occupational stress leads to work-family interference, which in turn seriously impairs the employee’s performance. The WFC and FWC are regarded as stressors in this interface. Demands created by the workplace interfere with the performance of family-related responsibilities, and *vice versa*. In this way, according to Netemeyer et al., troubles and difficulties at home impair job performance and decrease the employee’s efficiency.

WFC and FWC are moderately correlated, but their antecedents and consequences differ. Meta-analytic reviews have examined whether the two types of conflict are distinct or not (Byron, 2005; Kossek & Ozeki, 1998; Mesmer-Magnus & Viswesvaran, 2005), and these reviews have reported average weighted correlations of this relationship: it is evident that the concepts are positively related to each other (with a correlation coefficient that lies between .28 and .38). Nohe, Meier, Sonntag, and Michel (2015) showed that WFC has a stronger effect on work-specific reactions to demands, threats and

stressors (including various responses such as burnout, headache and depression) than FWC does. Byron's meta-analysis showed that these concepts are related to the perception of the intensity of occupational and family-related stress. Mesmer-Magnus and Viswesvaran's meta-analysis showed that WFC has a correlation coefficient of .41 with work-related stressors (such as lack of autonomy, schedule inflexibility, work-role overload, work-role conflict, work stress, work distress, work-role ambiguity, and work tension) and a correlation coefficient of .17 with family-related stressors (such as parental demands, low family/friend support, family personal conflict, high emotional or instrumental assistance, family-role conflict, family-role ambiguity, family overload, family involvement, family satisfaction, time-commitment to family, and perceived family demand). In contrast, FWC has a correlation coefficient of .27 with work-related stressors and .23 with family-related stressors. Lubranska (2014) showed that WFC is more strongly correlated with FWC in mothers (.54) than in childless persons (.24) in the Polish working population. It is also stronger (.38) in middle adulthood (36-55 years) than in early adulthood (below 36 years) (.32). The correlation coefficient between WFC and FWC is .40 in Polish nurses (Baka, 2013). Moreover, Baka showed that the correlation (.29) between WFC and physical complaints (such as gastrointestinal problems, headache, pain in the joints, insomnia and muscle tension) is somewhat higher than the correlation (.23) between FWC and these complaints. A larger number of hours devoted to professional work is positively related to WFC, and a greater number of children is positively related to FWC in Polish nurses (Baka, 2013).

Results from past research have indicated that WFC is larger than FWC (see, for example, Baka, 2013, Table 1, p. 780; Grandley & Cropanzano, 1999, Table 1, p. 362; Lubranska, 2014, Table 1, p. 523, Netemeyer et al. 2005, Table 2, p. 137), and consequently, a negative impact of work on an employee's family life occurs more often than the reverse (see, for example, Geurts, Kompier, Roxburgh, & Houtman, 2003).

WFC differs between the sexes (Eby, Casper, Lockwood, Bordeaux, & Brinley, 2005), but Byron (2005) showed that sex *alone* is a poor predictor of WFC. Swedish professional women, for example, have more difficulty relaxing after work and experience greater stress both in their work life and in their family life than Swedish professional men (Frankenhaeuser et al., 1989; Lundberg & Frankenhaeuser, 1999). These results suggest that more research on WFC and FWC in women is required, as is more research on this issue in typical female occupations such as nursing.

Employees adopt various strategies, one of which is to develop a turnover intention, to manage stressors at work. We consider two turnover intentions: (a)

the intention to leave the nursing profession, and to take up non-nursing work in another organization; and (b) the intention to leave the present workplace. It should be noted that the FWC has been found directly and indirectly related to turnover intention in employees in a financial firm (Frone, Yardley, & Markel, 1997), school teachers and administrators, real estate sales personnel, small-business owners (Netemeyer et al. 1996), police department employees (MacEwen & Barling 1994), government employees (Brotheridge & Lee 2005), and bank employees (Hammer, Bauer, & Grandey, 2003). Amstad, Meier, Fasel, Elfering, and Semmer (2011) have shown that both WFC and FWC are positively correlated with turnover intention.

Research in this area is deficient in several ways. Eby et al. (2005) carried out a content-analysis review of more than twenty years of research (1980-2002) on variables concerning the work and family domains. The review showed that none of the publications that were included discussed the work engagement of nurses, nor the job demands, such as workload or interpersonal conflicts at work, placed on them. Further, none had examined turnover intentions. Ten years later, a database search of PSYCInfo, carried out with a combination of the following keywords: (work-family conflict) AND (workload) AND (interpersonal conflict at work) AND (work engagement) AND (turnover intentions) AND (Polish OR Poland), returned no results that shed light on the relationships between the work-family conflict and job demands and engagement in Polish nurses. A similar search of Google Scholar in the publication interval 2002-2015 returned 101 results with a mixed focus of issues. Shaffer et al. (2011) reviewed the literature and focused on work-family research literature from outside the US with publication dates between 1986 and 2010. They identified 219 articles. Only one study included in the Shaffer et al. review had been conducted in Poland, and it was impossible to see which of the references was the Polish study. This unexpected result may be because studies from this scientific discipline are not presented for international audiences and, thus, insufficiently published.

Theoretical framework: Hobfoll's theory of the Conservation of Resources (COR)

Many theoretical frameworks used in this field assume that the WFC, FWC, and work stress compete for the employee resources of time, cognitive and emotional efforts, and psychological energy. One of these frameworks is Hobfoll's COR theory (Hobfoll 1988, 1989, 2011), which provides a useful framework for the conceptualization of relationships between job demands and work engagement. The COR theory is a leading theory used when studying burnout (Halbesleben, 2006), and has been successfully used in recent years to

explain other work-related issues. We believe that the COR theory is an appropriate theoretical framework to interpret and discuss the results presented here, because it has been supported by past research on the WFC/FWC (Grandley & Cropanzano, 1999). Further, the COR theory was one of the theories on which Netemeyer et al. (2005) built their hypothesis when they investigated how work-family interference affects work stress and work performance in customer service employees. Nohe et al. (2015) have recently shown that the COR theory is useful in the WFC/FWC context.

The COR theory states that people strive to retain, gain, and protect their resources (Hobfoll, 1989). The theory assumes that stress is perceived when there is a loss of resources (during, for example, unemployment) or when a loss of resources is anticipated (when there is, for example, a risk of losing one's job). The perceived stress arises due to the threat to the person's overall balance of resources. The COR theory further states that people attempt to preserve, protect and create new resources in order to maximize their ability to manage and mitigate the stress. Life events that involve loss or the threat of loss may be particularly stressful. Certain life events (such as divorce, unemployment and the loss of a spouse) trigger stress responses in most people (Hobfoll, 1988; Parks, 1971). The extent to which people react to a generally stressful event can, however, be attributed to individual factors (Hobfoll, 1988). From the perspective of life events, such events that bring change, a transition or a challenge for the person are generally stressful (Hobfoll, 1989).

Hobfoll (1988, 1989) described several types of "resource" that are generally regarded as valuable. "Resources" may be possessions (such as money), or personal characteristics (such as self-esteem). Resources may also be conditions or energies, such as belonging to a particular social system or to a social network. Shaffer et al. (2011) categorized work resources into four broad categories: positive work attitudes, support, work autonomy/flexibility, and organizational climate/practices. We have defined work engagement also as a personal resource, because it reflects a positive attitude towards work. Organizations can use this attitude as an organizational resource, to build a competitive advantage. The COR theory proposes that people experience stress when resources are threatened or missing. Those with a low level of resources are more vulnerable to losing resources and less able to raise them. It is probable that such people take a defensive position to defend their resources, at least when under high stress.

Hobfoll (1988, 1989) described the COR theory as a simple, powerful and comprehensive theory with several attractive characteristics when reporting stress-related variables at work. It assumes, for example, that possible losses are

linked to, among other things, relational factors in a family for a family member who experiences work-related stressors. The relationship with a working person who is living with a high level of perceived work-related stressors (such as quantitative workload or interpersonal conflicts at work) may be regarded as threatened by his or her family existence if this person is at risk of losing his or her work. The relationship may be threatened also by a change in roles or by being given or taking on greater responsibility for the person who is experiencing perceived work-related stressors. This situation may involve a departure from home or from a professional life, which may affect the financial situation of the family. Plans and investment in this person's common future may be lost. The closely related feeling of context and control of the situation may be threatened, which has implications for self-esteem. An employee who is experiencing perceived work-related stressors often devotes time and commitment, which may give rise to the need to give up habits and interests. This can lead to a conflict between work and the needs of the family and may risk the employee's own health and well-being. Confronting loss is often experienced as stressful, and the COR theory proposes that people who are confronted with loss or the threat of loss attempt to avoid these, or at least minimize their effects, using existing intrapersonal resources or resources available in the environment. People strive to minimize the loss or to make it manageable. Hobfoll's theory suggests that an excess of resources is required to experience a state of health/well-being (eustress).

We have investigated the negative sides of the WFC and FWC, and not the balance between them. We have based the work on the idea that occupational stress leads to WFC because resources are lost in the process of seeking a compromise between work and family roles (Grandey & Cropanzano, 1999). For example, excessive work demands in one domain may reduce the resources that are available in the same domain and impair function in another area. The demands we have examined are quantitative overload (too much work to do in too short a time) and interpersonal conflicts (between nurses and patients, their family, and other medical staff) in the work of nurses. The resource we have examined is work engagement. We suggest that different levels of WFC, job demands (work-related stressors) and work engagement indicate different degrees of investment of personal resources in the work process. If the resources are lost (are exhausted), employees consider leaving their work, their profession or their position. The COR theory suggests that resources will become more and more depleted if no coping behaviour is undertaken, which results in exhaustion. Hobfoll (1989) described a situation of "loss spirals" (p. 519), a term that describes a process in which people become more vulnerable to further losses following an initial loss, because they attempt to prevent such further losses by using other resources. Loss spirals may in this way follow initial

losses. A meta-analysis of Nohe et al. (2015) supported this view, since it showed that WFC and strain predict each other. Nohe et al. concluded that “Hobfoll’s COR theory seems to be a valuable lens that can be used to better understand the relationship between work-family conflict and strain” (p. 529). In summary, personal resources, such as energy and cognitive effort (vigour), motivation and involvement (dedication) are limited resources that people use in both their work and family roles. Those who experience a high WFC feel high work stress because resources may be lost in the process of combining work and family roles. Those who experience a high FWC feel that family duties compete for resources that are needed to fulfil the work role, which increases work stress. An FWC may also reduce the availability of personal resources that are important to function well in the work role, but this aspect has not been often investigated or reported.

Aims, research questions and hypotheses

One aim of the study described here was to examine the relationships between WFC and FWC, the perception of job demands (workload and interpersonal conflicts at work), the components of engagement (vigour, dedication, and absorption), and turnover intentions. Another aim was to determine the importance of the work-related variables that we examined for turnover intentions. The following research questions were formulated: (1) How are WFC/FWC, job demands, work engagement, and turnover intentions related to each other in a group of nurses? (2) Is WFC experienced more strongly than FWC? (3) How strongly is the perception of job demands, work engagement and turnover intentions related to WFC and FWC? (4) Are these variables important for turnover intentions?

We proposed the following hypotheses, based on the COR theory and past research:

H1. WFC and FWC are associated with different occupational sources of stress and work outcomes (Nohe et al., 2015). We expect, therefore, that WFC and FWC are positively related to job demands and to turnover intentions, and negatively related to the components of engagement.

H2. WFC is moderately and positively related to FWC, and WFC is larger than FWC (see, for example, Mesmer-Magnus & Viswesvaran, 2005). This has been shown for employees of several occupations, including nurses. We expect, therefore, that these relationships have the same directions and magnitude in the group of nurses we studied:

H2a. WFC is positively related to FWC, with a medium effect size.

H2b. WFC is larger than FWC.

H3. The COR theory predicts that demands will be related to a decrease in engagement, which results in increased WFC and FWC.

H3a. Thus, we expect that nurses with a high WFC experience larger job demands (workload and interpersonal conflicts at work) and less engagement (vigour, dedication, and absorption) than nurses with a low WFC. In addition, we expect those with a high WFC to experience depletion of a personal resource (engagement) and a high intensity of experienced work demands, which would lead them to declare turnover intentions (Amstad et al., 2011). We expect that the effect size is large or medium.

H3b. We expect a similar pattern in nurses with a high FWC, but with somewhat lower effect sizes. This is a result of an expected difference between WFC and FWC.

H4. Both WFC and FWC are directly or indirectly related to turnover intentions. Moreover, the workload of Polish nurses is strongly correlated with fatigue after the working day (Basinska & Wilczek-Ruzyczka, 2011). In addition, Kowalczyk et al. (2011) and Merecz et al. (2006, 2009) have shown that the work situation of Polish nurses is extremely hard due to excessive levels of work aggression. Many Polish nurses migrate to other European countries, and we therefore expect that WFC, FWC, and work demands (quantitative workload and interpersonal conflicts at work) are significant predictors of the nurses' turnover intentions. In contrast, we expect that engagement, which is assumed here to be a personal resource that employees bring to the organization, is negatively associated with turnover intentions.

Methods

Participants and procedure

The participants were 98 female nurses (mean age, $M = 41$ years, $SD = 6$, range 28-57) who were employed in various hospitals and public or private clinics in Southern Poland. Their average job tenure was 19 years ($SD = 7$, range 1.5-33 years). More than 60% of the participants had at least two children, which is a circumstance that may intensify the WFC. Table 1 presents descriptive statistics of the participants. The study was conducted in accordance with applicable ethical rules (the Helsinki Declaration) and was reviewed by the local ethics committee (DRN 2014/730 B 22, University West). Information about the study was presented in a written form to potential participants, and nurses gave their written consent to participate in the study. Questionnaires were completed

by the participants as a group during classes that were part of the nurses' further education.

Table 1. Individual and organizational characteristics of the nurses (N = 98)

Variable	n	%	Missing data
Has a partner	85	87	0
Partner employed	80	82	11
Has no children	10	10	3
1 child	23	23	
2 children	42	43	
3-5 children	20	20	
Supervises others	16	16	10
Works at a hospital ^a	70	71	13
Works at a public institution ^b	68	69	9
In full-time employment	84	86	7

Note. ^aThe remaining participants worked at public or private clinics.

^bThe remaining participants worked at a non-public or a private institution.

Measures

Quantitative workload was assessed by Spector and Jex's (1998) five-item Quantitative Workload Inventory (QWI). The Polish version was used (Baka & Cieslak, 2010). Responses are given on a scale of 1 (*Less than once per month or never*) to 5 (*Several times per day*). An example item is "How often does your job require you to work very fast?". The sum of scores of the five items indicates the quantity of work in the participant's work situation. High scores correspond to a high workload. Cronbach's alpha for data from the group was .82.

Interpersonal conflicts at work were measured by Spector and Jex's (1998) four-item Interpersonal Conflict at Work Scale (ICAWS). The Polish version was used (Baka & Cieslak, 2010). Participants are asked to indicate on a 5-point scale how often each of the four events described by the statements occurs at work. The response options range from 1 (*Less than once per month or never*) to 5 (*Several times per day*). Example items are "How often do you get into an argument with others at work?" and "How often do other people do nasty things to you?". High scores correspond to frequent conflicts with others, and describe how often the respondent experiences disagreements or is poorly treated at work. The ICAWS assesses how well people get along with others, and how often negative behaviour by others is directed towards them. The scale treats interpersonal conflicts as a unidimensional construct, and the different sources of interpersonal conflict are not assessed (the word "others", for example, is not defined). Cronbach's alpha was .68.

Work engagement was measured using the Utrecht Work Engagement Scale (UWES-9) (Schaufeli et al., 2006). The Polish Version was used (“UWES-9”, 2015). The UWES-9 comprises nine statements that measure the concepts of vigour, dedication, and absorption (three items each). Schaufeli et al. showed that the internal consistency of the three subscales is satisfactory (greater than .70) across different national samples. This scale measures overall work engagement in terms of vigour (by, for example, the statement “At my work, I feel that I am bursting with energy”), dedication (“I am enthusiastic about my job”), and absorption (“I feel happy when I am working intensely”). Each item is rated on a seven-point scale that ranges from 0 (*Never*) to 6 (*Always/ every day*). The average of the sum of scores divided by the number of items gives the level of engagement. Higher scores indicate a higher work engagement. The three components are often correlated with each other (.60-.99). The construct validity of UWES-9 is good in various samples (Seppälä et al., 2009). Cronbach’s alpha for the total UWES-9 in the present group was .82, while it was .74, .70, and .66 for vigour, dedication, and absorption, respectively.

Work-family interference was measured by the Work-Family Conflict and Family-Work Conflict Scales developed by Netemeyer et al. (1996). Polish versions were used (Zalewska, 2008). These scales assess how work affects family life and *vice versa*. Each scale comprises five items. The scale ranges from 1 (*Strongly agree*) to 7 (*Strongly disagree*). An example of an item from the WFC scale is “The amount of time my job takes up makes it difficult to fulfil family responsibilities”. A high score on the WFC scale indicates a strong conflict in which work is impaired by family responsibilities. The items of FWC parallel the items of WFC, reversing the source of the stressor. Netemeyer et al. have determined the validities of these scales. The scores on both scales are positively correlated with work stressors, non-work stressors, and organizational withdrawal, while they are negatively correlated with job satisfaction, life satisfaction and health. The presence of a supportive work environment is negatively related to WFC, but is not related to FWC. Boyar, Carson, Mosley Jr., Maertz Jr., and Pearson (2006) have confirmed the construct validity and predictive validity of these scales, in a sample of employees of a large poultry processing plant. Boyar et al. suggested that one item should be deleted from the WFC scale and two items from the FWC scale. Both the WFC and FWC scores accurately predicted the participants’ intention to leave the job, which shows that the modified scales have predictive validity. We have used all items, as suggested by Netemeyer et al. and Zalewska, in order to be able to compare our results with others. Cronbach’s alpha in the present group was .89 for the WFC and .86 for the FWC.

Turnover intentions were assessed by two single-item scales. **Intention to leave the present workplace** was measured by the following item “During the recent period I have considered leaving this hospital/organization to begin work in another hospital/organization”, while **Intention to leave the nursing profession** was assessed by the item “During the recent period I have considered leaving the nursing profession”. High scores indicate high levels of turnover intentions. Most studies use multi-item measures to determine turnover intentions (Hom & Griffeth, 1991), but single-item measures of turnover intentions have successfully been used (Parasuraman, 1982).

An additional variable, **self-esteem**, was sampled, but the analysis of this variable is not presented here. It was measured by two scales, the Basic Self-Esteem Scale and the Earning Self-Esteem Scale (for details, see Dåderman & Basinska, 2013). Results from an examination of the psychometric properties of the scales in a larger group of Polish nurses will be published elsewhere (Dåderman & Basinska, manuscript in preparation).

Treatment of data and statistical analyses

Questionnaires were returned to the investigators and data were coded and entered into Excel (Microsoft). Some participants did not respond to all items on some instruments. The non-response rate for a given instrument was very low (the item non-response rate was less than 5% in all cases), and the participants' scores in all measures (except for background variables and turnover intention) were determined by averaging the scores of the items for which responses had been given. This method of computing scores accounts for the slight differences in the number of degrees of freedom between several of the analyses. The analyses were carried out in the IBM SPSS Statistics program. Standard descriptive statistics (frequencies, percentages, means, *SD*s, ranges) were used to summarize the data. The distributions of the personality variables were checked for severe deviations from normality. All exact *p*-values for both significant and non-significant results, and 95% confidence intervals around the means, were reported where appropriate, as recommended in the recent APA Manual (American Psychological Association, 2010). The distributions of the variables were checked for severe deviations from normality. The distributions for interpersonal conflicts at work, absorption and FWC were skewed. (A non-normal distribution of FWC is a well-known problem from previous research.) A non-parametric test (Spearman's Rho correlation, r_s) was therefore used to calculate correlations between these variables and the other variables. We calculated Pearson correlation coefficients (r) for other associations. The means of the components of engagement differed from published means from the similar populations, and we therefore performed one-sample *t*-tests to compare these means with the published means.

Our sample was small (98 participants), and the size of the sample affects p -values. We have interpreted r and r_s , as measures of effect size, as recommended by Field (2013), Cumming (2012) and Rosenthal (1991), in addition to reporting and discussing p -values. Field concluded that besides being a measure of the strength of relationships between two variables, “Pearson’s correlation coefficient, r , is also a versatile effect size measure” (p. 84). Cohen (1988, 1992) provides rules of thumb for determining these effect sizes from r , and suggests that an r of .10 corresponds to a small effect size, .30 corresponds to a moderate effect size, and .50 corresponds a large effect size. In some cases, we interpreted the amount of variability in one variable that is shared by another, and therefore we calculated coefficients of determination (R^2) by squaring the correlation coefficients. For example, “ $r = .30$ (medium effect): the effect accounts for 9% of the total variance” (Field, 2013, p. 82).

The distribution of FWC was skewed, and we therefore report median values of WFC and FWC. We compare values for these variables using a non-parametric test, the Wilcoxon signed-rank test (Field, 2013). The effect size estimate was calculated by hand using a z -score, which was automatically produced by SPSS while calculating the Wilcoxon signed-rank test. The equation to convert a z -score into the effect size estimate, r , is presented by Rosenthal (p. 19) and by Field (p. 227).

We calculated the medians of WFC and FWC, to examine the effect on the variables examined of being low or high in WFC and FWC. Only participants with scores that were below/above the median comprised the low/high WFC/FWC groups, and those with median scores were not included in these groups. The groups that were created in this way differed significantly from each other in their mean values of WFC and FWC. Differences in the variables between low and high groups were examined by independent t -tests. Levene’s test (Levene, 1960) was used to examine whether the two groups had equal variances. The variance of interpersonal conflicts at work, absorption and FWC were unequal, and the special formula for the t -test, automatically produced by SPSS, was therefore used in these analyses. We computed effect sizes (Cohen’s d) of the differences in means using an on-line calculator (<http://www.uccs.edu/~lbecker/>). Field (2013, p. 85) recommends that effect sizes be reported even for non-significant p -values, and we have followed this recommendation. This recommendation has been put forward because even a non-significant effect may be fairly substantial, especially when the sample size is small. This may be important in practical terms. Cohen (1988, 1992) suggests that a d of .20 corresponds to a small effect size, .50 corresponds to a moderate effect size, and .80 corresponds a large effect size. Cohen (1988) provides rules of thumb for determining these effect sizes from r , and suggests that an r of .10

corresponds to a small effect size, .30 to a moderate effect size, and .50 to a large effect size. However, based on large meta-analyses in psychology (Bosco, Aguinis, Singh, Field, & Pierce, 2015; Hemphill, 2003; Richard, Bond, & Stokes-Zoota, 2003), the interpretation of the term “moderate” has recently been suggested to be changed. A moderate effect size should be considered for an r around .20.

We carried out two multiple analyses with predictor variables whose correlation with the respective outcome variable exceeded .20 (see above for an explanation of this rationale), in order to determine the importance of the measures examined for turnover intentions. The value of .20 was chosen because it was the correlation between FWC and the intention to leave the nursing profession, and past research has suggested that FWC is a significant predictor for turnover intention (e.g., Brotheridge & Lee 2005). An intention to leave the present workplace was the outcome variable in the first regression analysis, while an intention to leave the nursing profession was the outcome variable in the second analysis. The data of interpersonal conflicts at work and FWC were non-normally distributed, and we examined whether it was possible to transform these data. Neither the logarithm of the values (in base 10) nor the squared root of the values was distributed normally. Therefore, we replaced the raw values of a few (non-significant) outliers with the next highest score that was not an outlier, a procedure known as “winscorizing” (Field, 2013, p. 198). The distributions of these variables in the adjusted dataset were approximately normal, with kurtosis and skewness values between -1 and 1. FWC and absorption are collinear, with a relatively high variance inflation factors (VIF) measure value (above 7), and for this reason we excluded absorption from the second regression model. Previous research that studied Polish nurses has not given any reason to believe that any one variable is a better predictor than any other, and we did not, therefore, perform hierarchical multiple regression analysis. We have instead used the forced entry method (known as “enter” in SPSS). All predictors are entered into the model simultaneously in this method. Values of adjusted R^2 , which takes into account the number of variables and the number of participants in the model, are presented along with R^2 .

Results

Descriptive statistics and associations between variables

Hypothesis 1 predicts that WFC and FWC are positively related to job demands and to turnover intentions, and that WFC and FWC are negatively related to the components of engagement. Table 2 shows descriptive statistics and correlations between the variables, and shows that the scales behaved generally as expected.

Table 2. Correlations and descriptive statistics of the variables for the participants

Variable	<i>M</i>	<i>SD</i>	<i>S</i>	<i>K</i>	1	2	3	4	5	6	7	8
1. QW	18.27	4.07	-0.46	-0.54								
2. ICAW	1.32	0.42	1.39	1.03	.21							
3. VI	3.81	0.94	-0.35	0.09	-.23	-.20						
4. DE	4.54	0.89	-0.44	-0.42	-.03	-.29	.54*					
5. AB	2.37	1.08	1.31	2.04	.10	.06	-.10	-.02				
6. IQW	2.02	0.80	0.33	-.53	.38*	.39*	-.39*	-.38*	.04			
7. ILNP	1.64	0.71	0.67	-.77	.36*	.44*	-.35*	-.30	.21	.56*		
8. WFC	17.73	6.24	0.08	-0.73	.41*	.26	-.31*	-.13	.22	.39*	.32*	
9. FWC	11.64	5.23	1.32	2.28	.16	.07	-.10	.00	.97*	.03	.20	.23

Note. * $p < .05$, after the Bonferroni correction ($.05/36 = .0014$). *S* = skewness. *K* = kurtosis. QW = quantitative workload. ICAW = interpersonal conflicts at work. VI = vigour. DE = dedication. AB = absorption. IQW = intention to quit the present workplace. ILNP = intention leave the nursing profession. WFC = work-family conflict. FWC = family-work conflict. The *SE* of kurtosis was 0.48 for all values, while for skewness it was 0.24. Means and standard deviations of vigour, dedication, and absorption are based on summated scale averages. Intention to quit the present workplace and intention leave the nursing profession were one-item measures.

Few correlations remained statistically significant after the Bonferroni correction. WFC was positively correlated with one of the job demands (quantitative workload) and had a negative relationship with vigour, a component of engagement. Vigour and dedication were positively correlated with each other, but absorption was not, which agrees with previous research (Schaufeli et al., 2006).

WFC was positively related also to both turnover intentions (intention to leave the present workplace and intention to leave the nursing profession). In addition, both turnover intentions were positively correlated with quantitative workload and interpersonal conflicts, and were negatively correlated with vigour. (The strengths of these correlations, and thus, the effect sizes, were small.) We carried out complementary analyses to explore, and to discuss, where possible, further turnover intentions. The sample was divided into two classes of age: early adulthood (younger than 36 years, $n = 16$) and middle adulthood ($n = 77$). The intention to leave the nursing profession was the same in these two groups. However, participants in early adulthood had a greater intention to leave the present workplace ($M = 2.44$, $SE = 0.18$) than those in middle adulthood ($M = 1.94$, $SE = 0.09$). This difference, 0.50, 95% CI [0.07, 0.93] was significant, with $t(91) = 2.32$ and $p = .023$.

FWC was positively correlated with absorption, and this effect size was very strong. Thus, the findings partially support Hypothesis 1: WFC was positively

related to workload and to turnover intentions, and was negatively related to vigour. In contrast, FWC was positively related only to absorption. The effect size of this relationship was very strong, and 94% (.97 x .97) of the variation in FWC can be explained by absorption in this sample of nurses, if we assume that the relationship is causal – absorption causes FWC. Again, we carried out complementary analyses to explore, and to discuss this huge effect size. The effects of the individual and organisational characteristics (Table 1) on absorption were, however, non-significant.

Table 2 shows also that the averaged mean values of two components of engagement (vigour and absorption) were lower than published means. We compared these means with those from a larger sample ($N = 736$) of healthcare workers (Seppälä et al., 2009; Sample 1), where the majority of the participants were women and worked as nurses. The average value of vigour and absorption for participants from our sample were significantly lower than those from the Seppälä et al. sample (vigour: $t = 8.71, p < .001$; absorption: $t = 15.83, p < .001$). We conclude that participants put low values of these personal resources into their organizations.

The relationship between WFC and FWC

Hypothesis 2a predicts that WFC is positively related to FWC (where we expect a moderate effect size). Table 2 shows that WFC was positively correlated with FWC, but this relationship was non-significant after the Bonferroni correction, and the effect size was small. The result is consistent with H2a with respect the direction of the relationship. Hypothesis 2b predicts that WFC is larger than FWC. This relationship was examined by the related samples Wilcoxon signed rank test. Figure 1 illustrates the distribution of the two variables.

WFC levels were significantly higher (Mdn = 18) than FWC levels (Mdn = 10), $T = 377, p < .001, r = .67$. The effect size of .67 corresponds to a large difference in the levels of these two measures (it is greater than Cohen's benchmark of .50). It is apparent that WFC was larger (or is experienced with greater intensity) than FWC, which agrees with previous research and is compatible with Hypothesis 2b.

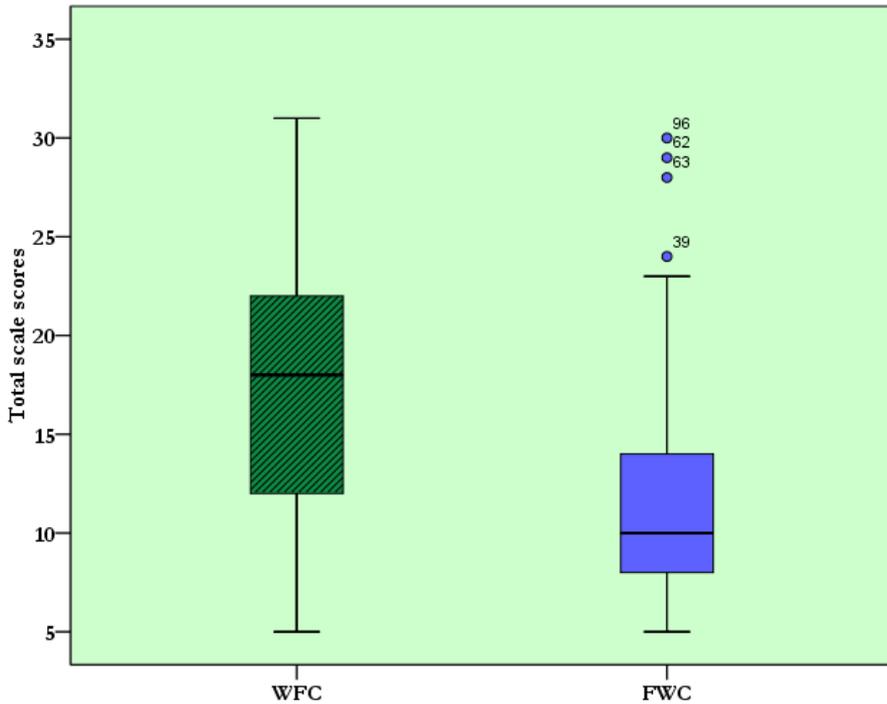


Figure 1. The distribution of scores of work-family conflict (WFC) and family-work conflict (FWC) for the group of Polish nurses ($N = 98$). The figure shows the minimum and maximum values, the medians (the dark lines inside the boxes), the lower quartiles (the bottom lines in the boxes), the upper quartiles (the top lines in the boxes), and extreme values (outliers) of the FWC. The outliers were here non-significant.

Comparison between those with low WFC and those with high WFC

Hypothesis 3a predicts that the nurses with a high WFC experience greater job demands (workload and interpersonal conflicts at work), greater turnover intentions (intention to leave the present workplace and intention leave the nursing profession), and less engagement (vigour and dedication) than nurses with a low WFC. Table 3 shows that participants with a high WFC experienced significantly more job demands (quantitative workload and interpersonal conflicts) and significantly less engagement (in all three aspects: vigour, dedication and absorption) than participants with a low WFC. The effect sizes of the differences in means were large for interpersonal conflicts, vigour, intention to leave the present workplace, and intention leave the nursing

profession. It should be noted that the effect sizes for both vigour and intention to leave the present workplace were huge, which is compatible with the COR theory. Confrontations with work stressors (high workload and many interpersonal conflicts) lead to the deterioration in one component (vigour) of the personal resource, engagement, which those with a high WFC bring to the organization, resulting in a very strong intention to leave this organization. We conclude that these results support Hypothesis 2.

Table 3. Comparisons between two groups with low or high values of work-family conflict (WFC)

Variable	Low WFC (<i>n</i> = 46)		High WFC (<i>n</i> = 46)		<i>t</i>	<i>df</i>	<i>p</i>	<i>d</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>				
Quantitative workload	17.12	(4.29)	19.29	(3.71)	2.61	90	.011	0.54
Interpersonal conflicts at work	1.19	(0.31)	1.44	(0.49)	2.96	75.8	.004	0.61
Vigour	4.20	(0.90)	3.47	(0.85)	4.02	90	< .001	0.83
Dedication	4.75	(0.90)	4.28	(0.84)	2.59	90	.011	0.54
Absorption	2.12	(0.87)	2.57	(1.25)	2.00	80.1	.049	0.42
Intention to quit the present workplace	1.69	(0.67)	2.35	(0.80)	4.28	89	< .001	0.89
Intention leave the nursing profession	1.40	(0.61)	1.84	(0.74)	3.10	88	.003	0.65
Family-work conflict (FWC)	10.52	(4.10)	12.48	(6.14)	1.80	78.5	.076	0.38

Note. The group with low WFC comprised participants with a value of WFC below the median of 18, while the group with high WFC comprised those with a value of WFC above this level. Participants with WFC = 18 were excluded from the analysis. Levene's test (Levene, 1960) was used to test whether the two samples had equal variances. The variances of interpersonal conflicts at work, absorption and FWC were unequal, and the special formula of the *t*-test, automatically generated by SPSS, was therefore used in these analyses.

We carried out complementary analyses to explore the results on turnover intentions in more detail. Table 3 shows that the figure for the intention to leave the present organization was larger than it was for the intention to leave the nursing profession. We compared these values using a paired *t*-test. The difference, 0.40, 95% CI [0.25, 0.54], was significant $t(95) = 5.40, p < .001$. Table 3 shows also that those with a greater WFC experienced a greater FWC, although the difference was not significant. These data show how a medium effect size can still be non-significant in a small sample.

Comparisons between those with a low FWC and those with a high FWC

Hypothesis 3b predicts that those with a high FWC experience higher WFC than those with a low FWC. Table 4 shows the relevant comparisons. These results do not support Hypothesis 3b: the effect sizes of the differences were small (not presented). It should be noted that participants with a high FWC had a significantly higher absorption. This effect size was large. Participants who experienced a high negative impact of family on work (those with a high FWC) experienced also a greater adverse effect of work on family (high WFC). The difference in means was not significant, but the effect size of the difference was nearly large. This is an example of how a nearly large effect size can still be non-significant in a small sample.

Table 4. Comparisons between two groups with low or high values of family-work conflict (FWC)

Variable	Low FWC (<i>n</i> = 31)		High FWC (<i>n</i> = 49)		<i>t</i>	<i>df</i>	<i>p</i>	<i>d</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>				
Quantitative workload	18.16	(4.38)	18.76	(3.64)	0.66	78	.510	-
Interpersonal conflicts at work	1,37	(0,49)	1,34	(0,41)	0.27	78	.787	-
Vigour	3.82	(1.07)	3.72	(0.95)	0.42	78	.676	-
Dedication	4.43	(0.99)	4.48	(0.81)	0.26	78	.795	-
Absorption	1.37	(0.33)	3.13	(1.01)	11.34	62.4	<.001	2.34
Intention to quit the present workplace	2.03	(0.88)	2.13	(0.76)	0.50	77	.620	-
Intention leave the nursing profession	1.65	(0.80)	1.77	(0.69)	0.74	77	.460	-
Work-family conflict (WFC)	16.65	(7.26)	19.57	(5.28)	1.94	49.9	.058	0.46

Note. The group with a low FWC comprised participants with a value of FWC below the median of 10, while the group with a high FWC comprised those with a value of FWC above this level. Participants with FWC = 10 were excluded from the analysis. Levene's test (Levene, 1960) was used to test whether the two samples had equal variances. The variances of absorption and WFC were unequal, and the special formula of the *t*-test, automatically generated by SPSS, was therefore used in these analyses.

Are the examined variables important for turnover intentions?

Hypothesis 4 predicts that WFC/FWC, and work demands (quantitative workload, interpersonal conflicts at work) predict the nurses' turnover intentions, and that engagement is negatively associated with turnover intentions. Variables whose correlation coefficient with turnover intentions was

greater than .20 were potential predictors (see the *Methods* section for a discussion of the assumptions behind this statement). The values of WFC, interpersonal conflicts, quantitative workload, vigour and dedication (FWC was not included) were regressed onto intention to leave the present workplace, and gave a significant model, with $F(91, 5) = 9.65, p < .001, R^2 = .35, R^2_{adj} = .31$. This model indicates that 31% of the variation in intention to leave the present workplace is accounted for by the predictors that are included in the model. Table 5 presents a summary of the regression model.

Table 5 shows the importance of each of the measures. A low dedication makes the most significant contribution to an intention to leave the present workplace, followed by quantitative workload and a high WFC. The intention to leave the present workplace increases, for example, by one standard deviation (0.88) when the WFC increases by one standard deviation (6.24) (Table 2), which constitutes a change of 1.25 ($.20 \times 6.24$) in the score of this intention. This interpretation is true only if the effects of the remaining measures are constant.

The values of WFC, interpersonal conflicts, quantitative workload, vigour, dedication and FWC were regressed onto intention to leave the nursing profession, and resulted in a significant model, with $F(89, 6) = 7.15, p < .001, R^2 = .33, R^2_{adj} = .28$. This model indicates that 28% of the variation in the intention to leave the nursing profession is accounted for by the predictors that are included in the model. Only conflicts at work ($\beta = .27, p = .005$) and quantitative workload ($\beta = .21, p = .039$) contributed significantly to this model.

Table 5. Linear model of predictors of an intention to leave the present workplace, with 95% confidence intervals in parentheses, among Polish nurses (N = 98)

Measure	B	SE B	β	p
Constant	1.67 [0.46, 2.89,]	0.61		.007
Work-family conflict	0.03 [0.001, 0.05]	0.01	.20	.043
Interpersonal conflicts at work	0.32 [-0.10, 0.73]	0.21	.14	.131
Quantitative workload	0.05 [0.01, 0.08]	0.02	.23	.018
Vigour	0.09 [-0.27, 0.09]	0.09	-.11	.315
Dedication	-0.22 [-0.40, -0.03]	0.09	-.24	.023

Note. B = unstandardized coefficient. SE = standard error. β = standardised coefficient.

The summary of statistically significant findings

WFC was positively related to quantitative workload and turnover intentions, and negatively related to vigour. In contrast, FWC was positively related only to absorption.

WFC was larger than FWC.

Nurses with high WFC (a negative impact of work on family life) experienced larger job demands (quantitative workload and interpersonal conflicts at work) and less engagement (vigour, dedication, and absorption) than nurses with lower WFC. In addition, they declared greater turnover intentions.

Nurses with high FWC (a negative impact of family life on work) had a higher level of absorption.

Low dedication, a high quantitative workload, and high WFC can predict an intention to leave the present workplace, while conflicts at work and quantitative workload can predict an intention to leave the nursing profession.

Discussion

This pilot study has examined the relationships between WFC, FWC and relevant work-related variables in a group of Polish nurses. Poland is a post-transformation country with a long tradition of high female full-time employment rates (Matysiak & Steinmetz, 2008). It is known that a change in different work demands occurs over time in post-transformation countries, because of rapid changes in society, increased competition, and thus, more demanding work conditions.

The results presented here support the suggestion that WFC is positively related to quantitative workload and turnover intentions among Polish nurses, and that quantitative workload, WFC and low dedication are significant predictors of an intention to leave the present workplace.

The answer to the first research question is that job demands, work engagement, turnover intentions and WFC/FWC are generally related to each other in a group of Polish nurses in theoretically reasonable directions (Table 2). WFC was positively correlated (with a medium effect size) with job demands, quantitative workload and interpersonal conflicts. An excessive workload is an example of a work demand that is linked to WFC (Geurts et al., 2003). Further, the occurrence of interpersonal conflicts, which is an example of an emotional demand, is also linked to WFC (Peeters, Montgomery, Bakker, & Schaufeli, 2005). Both an excessive workload and the occurrence of interpersonal conflicts are antecedents of WFC. WFC also had a significant negative relationship with one component of work engagement, vigour. Nurses who experience a low WFC have a high level of energy and cognitive resilience while at work. The willingness to invest effort at work, and perseverance in the face of difficult situations are resources that these nurses possess. WFC, but not FWC, had a

positive correlation (medium effect size) with turnover intentions, which is theoretically and empirically reasonable (Nohe & Sonntag, 2014). The effect of WFC on the intention to leave the present workplace was stronger than it was with the intention to leave the nursing profession, which indicates that changing one's workplace is an available option. The current trend towards globalisation in the profession, which provides good opportunities to leave the present workplace for another that may offer better working conditions, may improve the retention of nurses in the profession. Recently, a group of well-educated nurses was offered work in a Swedish hospital, with better working conditions and the opportunity to move to another country and live there with the whole family (Pettersson, 2015). Such a solution (to provide the conditions required such that the whole family experiences advantages from the move) is a human solution that may explain why those with low FWC and those with high FWC differ so little in their intention to leave the nursing profession (Table 5). It is, however, not a good solution for Poland, whose citizens are aging and where many nurses are needed. It is worth emphasising that Poland is a country in which the employment of nurses is in decline.

We hypothesized that WFC is positively related to FWC, and expected that this relationship would have a medium effect size. The correlation between the two measures, after the Bonferroni correction, was small (and not significant), which indicates that the effect size is small. The correlation is much lower than expected (Mesmer-Magnus & Viswesvaran, 2005). The average age of the participants in the study described here was 41 years, which may explain this. This group of nurses was, thus, in their middle adulthood (Demerouti, Peeters, & Van der Heijden, 2012). Employees are exposed during this stage of their life to high work demands and average home demands, while they possess large amounts of resources in both the work and non-work domains. It is possible that this combination of different levels of demands explains the relatively low correlation between WFC and FWC. It would be of great value to assess and examine other relevant variables, such as whether the participants have children of preschool age at home, in order to examine this possibility in more detail.

The strength of the relationship (.97) between FWC and one of the dimensions of engagement, absorption, was unexpected, and indicates that these constructs are collinear in the nurses who participated. It is hard to explain this result. It is possible that absorption is related to an excessive commitment work (bordering on workaholism), and thus, excess investment of resources without gains. Nurses who are more absorbed in their work may feel discomfort when household responsibilities detach them from their lovely work. The number of observations is rather small, however, and it is possible that unknown sample-specific features led to the strong correlation. The result must, therefore,

be taken with caution. Only a small number of studies have applied the short version of UWES in the nursing population and measured FWC at the same time, which restricts the possibility of comparing our results with those of others. This is particularly the case since some authors present results only for engagement, without presenting results for its three components. We have, however, compared the levels of two dimensions of engagement, vigour and absorption, with the levels of these components in nurses from the study presented by Seppälä et al. (2009), because the mean values of vigour and absorption in the present study were lower than the mean value of dedication. The mean values of vigour and absorption in the nurses in our sample were significantly lower than those in the Finnish nurses studied by Seppälä et al., which shows that the nurses had lower levels of energy and cognitive resilience while at work, a lower willingness to invest effort at work. They did not persevere in the face of difficult situations at work. “Absorption” describes a state of being fully focused and deeply engrossed in one’s work, so much so that time passes quickly and one has difficulty in detaching oneself from the work. Our results show that the nurses studied here had relatively low levels of this characteristic. We conclude that the members of the group were not highly motivated in their work, because work engagement is generally positively correlated with intrinsic motivation (Schaufeli & Salanova, 2007). These conclusions are compatible with our results that showed positive correlations between declared turnover intentions and work stressors (Table 2). Polish surgical nurses experience deficient esteem, work promotion and salary, and excessive demands are placed on them (Basinska & Wilczek-Ruzyczka, 2013). This means that motivation at work is truly deficient, leading to turnover intention. We have, however, not investigated intrinsic motivation, and further research is needed to confirm our results.

The answer to the second research question is that the magnitude of WFC is greater than that of FWC, as had previously been shown by Grandley & Cropanzano (1999). It is interesting that this result is confirmed in a post-transformation country. Several explanations of the difference in intensity of these two types of conflict are possible. Most of the nurses in the present study were in their middle adulthood, older than 36 years. The presence of adolescent children or preschool children at this stage of life has different sex-related impacts on FWC. Hundley (2001) showed that the presence of adolescents at home is associated with a greater FWC than WFC in men, while the presence of younger children is associated with a greater FWC than WFC in women. We have studied only women, and we have no information about the ages of their children at home. We cannot, therefore, discuss this result in more detail.

The answer to the third research question is that groups with high scores for WFC and FWC differ from those with low scores in the degree to which the difference in perception between job demands and work engagement has a negative impact. FWC is, however, more intense in nurses with high WFC. Hobfoll's COR theory is an appropriate theory against which to discuss this finding. The results (Table 3) are compatible with the COR theory, which predicts that personal resources (here: vigour and dedication) will deteriorate when excessive demands (here: quantitative workload and interpersonal conflicts at work) are experienced in a group with a high WFC. In addition, those with a high WFC declared an intention to leave the present workplace and an intention to leave the nursing profession, which is also compatible with the COR theory.

The answer to the fourth research question is that low dedication, a high quantitative workload, and a high WFC can predict an intention to leave the present workplace, while conflicts at work and quantitative workload can predict an intention to leave the nursing profession. These results are preliminary, should be taken with caution. Further research is required to confirm them. We decided not to apply a hierarchical regression model to our data, since the theoretical assumptions are uncertain and few results are available for Polish nurses regarding the measures we have studied. It is well-known that the importance of predictors may change depending on which predictors are entered first into a model. We have, therefore, used a method of forced entry. Our predictors explained more than 30% of the variation in the intention to leave the present organization, which shows that other measures, not measured here, are important. This is the first study that has examined the importance of the WFC/FWC, job demands, and work engagement for the turnover intentions of Polish nurses. Future research should include other measures, and the present study may give some guidelines about which measures should be included in the regression model. Our results are compatible with the COR theory, which states that when personal resources are depleted people will conserve their remaining resources by relieving the source of stress. The integration of the results has been based mainly on the results of analyses made at the group level or phenomenon level, and a more or less implicit assumption in the integration of the results is that all nurses with a high WFC experience more intense work demands, and experience these as a threat to their highly valued resources. The COR theory suggests that an individual's perception of what constitutes resources and what constitutes threats to these resources is strongly influenced by his or her values, which can, in turn, be regarded as the common basis of culture (Hobfoll, 1988).

Limitations and methodological considerations

This study has methodological shortcomings, which should be addressed. First, all studies on the WFC/FWC are based on self-reports, which may increase the risk of common-method variance. This occurs when the variance in the measured dependent and independent variables is attributable to the measurement method only, and not to the measured variables. The effect may inflate relationships between variables. Moreover, Schaubroeck (1999) postulated that the use of subjective measures fails to take objective factors into account. Some sources of strain, work conflicts, etc., may be left out. Future research on the relationship between the WFC/FWC and other work-related variables should comprise some objective indicators as alternative or additional measures.

Second, the sample size was small and participants were recruited from nurses who were taking further education, which may have had an impact on the significance level of the correlations between the variables. For example, our results support Hypotheses 2 and 3a (Tables 3 and 4), but the results did not match the significance level, despite the effect size of the mean differences being moderate. Further, the correlation between FWC and one component of engagement (absorption) was excessively large (Table 2). This result may be due to a somewhat lower reliability of this component of engagement, or to its relatively low mean value, about 2. This is lower than published means, which are generally around 4 (see, for example, Seppälä et al., 2009). Cronbach's alpha for absorption was relatively low in the present sample of nurses. A similar figure, however, was found in a large sample of Spanish nurses (Garrosa, Moreno-Jiménez, Rodríguez-Muñoz, Rodríguez-Carvajal, 2011), and it should be remembered that this measure comprises only three items. We used a measure developed by Schaufeli et al. (2002) to assess work engagement that is highly recommended for use when studying populations of nurses (Simpson, 2009). Seppälä et al. suggested that work engagement is a stable indicator of occupational well-being, and it has been used as an outcome variable in programmes to improve quality in ward teams (White, Wels, & Butterworth, 2014). The study of White et al. confirmed also that work engagement can be considered to be a personal resource that an employee puts into the organization, and showed that "the engagement of nurses and front-line clinical teams is a major component of creating, developing and sustaining a culture of improvement" (p. 1634). The engagement of nurses thus empowers ward teams to be active and innovative. Additional studies of larger samples are needed to validate the results presented in this study. The relatively small sample size limits the depth of analysis and the validity of the conclusions. We have compensated for this limitation by using the Bonferroni correction in our correlational

analyses, and by trimming the data of two measures to reduce the influence of outliers.

Third, the measure used for interpersonal conflicts suffers from limitations. We have not used the modified versions of ICAWS with which it is possible to measure different kinds of work conflict. Several recent studies (such as Sliter et al., 2014) have used modified versions of the scale, and ask respondents about different sources of work conflicts. These versions distinguish between, for example, conflicts originating from co-workers, physicians, managers, patients, and relatives or friends of patients. Sliter et al. (2014), for example, show that the correlation of engagement with work conflicts depends on the source of conflict. It is $-.33$ for conflicts with physicians, $-.28$ for conflicts with co-workers, and $-.24$ for conflicts with managers. The rates of incidence of these conflicts correlate moderately with each other ($.39$ -. 52), and we conclude that the use of modified versions of the scale will add very little to our understanding of the origin of variance in the relationships. Future studies should comprise more measures and analyses of family-related conflicts. Such studies should include the possibility to measure and compare conflicts that occur in both directions. We have assessed only interpersonal conflicts at work.

Fourth, turnover intentions have been operationalized with single-item measures that may be unreliable (Rice, Frone, & McFarlin, 1992; Voydanoff, Donnelly, & Fine, 1988). We argue, however, that assessment by a single question is appropriate, and single-item measures of turnover intention have been successfully used (see, for example, Igbaria, Kassiech, & Silver, 1999; Parasuraman, 1982). We have used these measures not only as preliminary outcomes, but also to support the explanation of some deviant results (such as the high correlation between FWC and absorption). We have, thus, used these measures in a theoretical interpretation of FWC. The measures have different correlations with the predictors, when used as outcomes, despite the fact that the measures are relatively highly correlated with each other.

Finally, we have not considered links between non-work and FWC. One such demand is the number of children living at home (Baka, 2013; Kinnunen & Mauno, 1998). We have collected data of the number of children (Table 1), but have not carried out statistical analyses of these, due to the small sample size. We have not collected data concerning the number of children *at home*. We do not, therefore, know how many of the participants took care of other children from their spouses' former relationships. Thus, the number of children at home may be larger, at least during school holidays. Examples of other demands that we have not examined are home workload (Peeters et al., 2005), caring for

caring for sick or elderly parents (Marks, 1998), and marital conflicts (Fincham, 2003).

We have interpreted the results from this study against the background of a specific theory. This limits, naturally, the way in which we look at the results, and may mean that some important results have been rejected because they are not compatible with the theory. It is, of course, possible to use other theories and to highlight in this way other results and perspectives. The COR theory has, however, helped to integrate the results in such a way that the analyses formed a coherent whole, and we believe that the theory is appropriate in this context.

Conclusions and recommendations

This study adds significantly to current knowledge, within the constraints of the limitations discussed above. It is important not to overlook organizational factors in the working situation of nurses. Excessive workload and frequent interpersonal conflicts at work may lead to a lower efficiency of nurses, and may place the safety of patients at risk. We may speculate that these factors lead also to lower engagement. The nurses who participated in this study had low values of engagement. Engaged employees are an important resource for an organization. Organizations need engaged employees not only to build competitive advantage, but also to enable development. This is particularly true in the service sector. Previous work has not examined whether the variables measured in the present study are associated with turnover intentions of Polish nurses. We have shown that Polish nurses are willing to change their present work place, even though the data were collected when the participants were undergoing further education, and despite the long work tenure of the participants. Polish nurses may be as willing as many other nurses in the European Union to move abroad. Guidance and counselling for nurses in health organizations are required to retain them in Polish health organizations and to promote decent working conditions and a happy life. We suggest that intervention programmes be developed, which should at least deal with the management of work conflicts, increase the level of absorption, and alleviate the family-work conflict. It is possible to manage these variables by management, in contrast with other work stressors, such as organizational constraints. These interventions should be developed with due consideration of Hobfoll's (1989) discussion of loss spirals, because nurses seem to have already become more vulnerable to additional losses, as revealed by our results. As a result of our study practical implications may be that interventions are needed to reduce the quantitative workload and the WFC, and to increase dedication among Polish nurses. These characteristics are significant predictors of an intention to leave the present work place, and high turnover rates are currently a major problem in Poland.

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