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Effects of Work–Family Conflict and Facilitation Profiles on Work Engagement

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Abstract: Achieving the balance between work and family life needs a holistic viewpoint on how these two aspects interact. It poses a significant challenge due to its impact on individuals, organizations, and society. Research suggests that employees engaged in both spheres tend to exhibit more favorable work attitudes, and experience improved health and wellbeing. In this study, we examined the interplay between work–family dynamics and work engagement among 654 university professors in Portugal. Using several statistical methods, including confirmatory factor analysis, correlation analysis, cluster analysis, and multivariate analysis, we identified distinct conflict and facilitation patterns within work–family relationships. Our findings revealed four clusters representing different conflict-facilitation profiles: those characterized by either work → family facilitation or conflict, and, similarly, family → work facilitation or conflict. Notably, we observed a significant association between work engagement and work–family facilitation, particularly evident in dimensions such as vigor and dedication. Absorption showed fewer significant effects than the other dimensions. We discuss these results, suggesting interventions within the university professors' careers, as well as further research directions.

Keywords: work–family conflict; work–family facilitation; work engagement; professors

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1. Introduction

In recent decades, significant shifts have transformed how individuals allocate their time, within and beyond the workplace. Technological advancements have transformed how individuals allocate their time, at work and home, making work boundaries more flexible and blurred. This shift has increased organizational efforts to promote employee wellbeing [1]. Changes in demographics, technology, and organizational structures, driven by the Fourth Industrial Revolution, have compelled organizations to adapt, impacting job roles and employees' lifestyles [2]. These developments have influenced how individuals perceive their work, sparking interest in strategies for managing work and family responsibilities [3].

Individuals juggle various roles, such as religious, community, leisure, and educational commitments, with family roles particularly significant. Balancing these roles is crucial for overall health and wellbeing, making work–family conflict a key research topic [4,5].

Employers now strive to create environments that balance personal and professional life, enhancing work engagement and employee wellbeing [6]. The emphasis on work–family balance highlights its importance for overall quality of life and job performance [6,7].

Teaching occupations are amongst the most demanding [8,9] due to several economic and structural changes [10], culminating in high workloads, flexibility but unpredictable working hours [11], emotional labor [12], and specific institutional expectations such as tenure and promotion pressures [13,14]. Professors must balance their demanding professional and personal lives [15,16], influenced by their circumstances and available support systems such as family-friendly policies and childcare availability. University professors, in particular, have multifaceted responsibilities, including mentoring others and the additional research demands inherent to their teaching roles [9,16], which often translate into extended hours immersed in academic responsibilities. Portuguese university professors frequently advocate for more rights and better conditions for career progression, but few achieve the highest levels in their careers [17]. It is not surprising, therefore, that university professors can experience significant work → family/family → work conflict [18,19], especially in recent years [20–22].

1.1. Theoretical Background

The dynamics between work and family are intricate and shaped by contemporary societal norms [10]. Modern life brings work-related pressures (e.g., heightened mental workload, extended working hours, and job uncertainty), alongside family-related challenges, such as caring for ascendants and descendants, and stress from family settings. Most empirical research on comprehensive frameworks of the work–nonwork interface emphasizes work–family balance [23], defined as an individual's appraisal of their effectiveness and satisfaction in both work and family roles [24].

Initial studies viewed the integration of work and family roles as conflict-free [6,7]. However, later research introduced the idea that this integration includes both negative and positive dimensions: work–family conflict and work–family facilitation, respectively [4,23]. Conflict and facilitation are distinct theoretical concepts [4,25], indicating that individuals can simultaneously experience high levels of both in their roles [26,27].

Work–family conflict is a type of inter-role conflict where work and family demands are partly incompatible [28]. This conflict suggests that fulfilling the obligations of one role (work or family) hinders the ability to meet the obligations in the other, highlighting the challenge of juggling competing demands [29]. Greenhaus and Beutell [28] categorize this conflict into three types: (1) time-based conflict, where the time devoted to one role detracts from the other; (2) strain-based conflict, where stress from one role interferes with the other; and (3) behavior-based conflict, where the behaviors required in one role are incompatible with the other. Work–family conflict can negatively impact both individual and organizational wellbeing [30,31], leading to decreased job satisfaction, productivity, and performance [32,33].

Frone [4] further distinguishes between work-to-family conflict and family-to-work conflict. Work → family conflict arises when work demands interfere with home responsibilities [33], such as when work assignments extend into nonworking hours, reducing time for family [34]. Conversely, family → work occurs when family obligations hinder work activities, like caring for a family member impacting work performance. Both forms of conflict pose challenges in balancing professional and personal lives [35] and are associated with poor psychological wellbeing, including depression and anxiety [23,36]. Specifically, family → work conflict is linked to negative outcomes such as job dissatisfaction and burnout [34,37,38], while work → family conflict affects family life, leading to marital dissatisfaction and lack of spousal support [39].

Beyond conflict, there is also a facilitative relationship between work and family roles [34,40]. Work–family facilitation refers to the positive effects of integrating these roles [5], where skills gained at work enhance family responsibilities and vice versa [41,42]. The concept underscores the enrichment and positive spillover that can occur [43], con-

tributing to overall wellbeing and satisfaction, as individuals manage and integrate their professional and personal lives effectively [33].

Frone [4] also suggests a distinction between work-to-family facilitation and family-to-work facilitation. Work → family facilitation involves positive influences from the work domain on family life, such as professional skills benefiting family dynamics [34]. It is linked to overall life satisfaction and physical and mental health, and is a strong predictor of job satisfaction [44,45]. Family → work facilitation refers to the beneficial effects of family life on professional activities, influenced by family identity, quality of family relationships, and the application of family-based skills at work [34,35].

Centered on organizational effectiveness and interpersonal dynamics, the notion of work engagement has steadily gained prominence in recent decades. Work engagement refers to a motivational state characterized by vigor, dedication, and absorption—a positive and fulfilling mindset towards work [46]. Vigor entails high energy and mental resilience, accompanied by a willingness to invest effort and persevere through challenges. Dedication involves profound engagement with an individual's work, feeling a deep sense of importance, passion, motivation, and stimulation. Absorption is marked by complete immersion and concentration in tasks, where time seems to pass effortlessly [47].

Burić and Macuka [48] highlight the significance of professors' work engagement for educators themselves, as well as for students, parents, schools, educational institutions, and the broader educational framework. Engaged professors epitomize professionals who exude enthusiasm, and dedication to their students' learning objectives, passion for teaching, perseverance in the face of challenges, attentiveness to students' needs, and deep absorption in their work. It stands to reason that such educators possess greater potential to foster positive learning outcomes and enhance overall educational quality. Exploring the antecedents and outcomes of professorial work engagement holds equal importance to investigating burnout, a negative facet of educators' professional lives.

Extensive research has linked work engagement to numerous favorable outcomes at both individual and organizational levels, including heightened job performance, improved health, and increased commitment to organizational objectives [49–51].

Contemporary research increasingly examines the intricate relationship between work and family dynamics and their influence on individuals' work engagement [52–54]. This relationship is often described as a complex cycle: achieving work–family balance can enhance work engagement, while high work engagement can, at times, disrupt this balance [55]. Therefore, maintaining a balanced approach to work and family can foster a positive work environment and boost work engagement [56]. Additionally, employees who are highly engaged in their work often manage their work–family balance more effectively [57]. For instance, the positive outcomes of work engagement, such as increased performance and creativity [49], can elevate employees' positive emotions, leading to significant resource gains at home [52,58] and facilitating family–work synergy.

There is a positive correlation between work–family facilitation in both directions: work → family and family → work [59–61]. Specifically, family → work facilitation enhances work engagement [62], and work → family facilitation is also positively associated with work engagement [63]. Conversely, work → family conflict negatively affects work engagement [64–66].

With a sample from Austria, Croatia, Czech Republic, Germany, Serbia, and Slovenia, Žnidaršič and Marič [67] found that an enhancement in work–life balance correlated positively with job satisfaction, while increased job satisfaction corresponded to heightened work engagement. Similarly, Guilbert et al. [68] observed an adverse relationship between the frequency of telecommuting and employees' satisfaction with work–life balance and affective commitment to their organizations. This inverse correlation stemmed from a decline in their satisfaction regarding the equilibrium between work and family responsibilities. Highlighting the prevailing circumstances among Portuguese professors is crucial for identifying areas ripe for positive transformations and interventions.

Perceived organizational support, particularly through family-friendly policies [57], plays a crucial role in reducing conflict [69] and enhancing work engagement [33,59]. When employees feel that their personal and family needs are recognized and valued by their organization [33,70], they gain greater control over their work and feel more supported by their employer [57]. This acknowledgment fosters positive feelings of motivation and work engagement [71], leading to improved work–family facilitation [72]. Employees often reciprocate this support with higher performance and work engagement [73].

Organizations that provide family-related leave [33,74] or childcare services enable employees to concentrate on their work with fewer distractions, thereby reducing stress and enhancing work engagement [1]. Flexible work arrangements that allow employees to manage their schedules contribute significantly to a better work–family balance by providing autonomy, which in turn lowers stress levels. Family-supportive policies and practices enhance work engagement and overall employee wellbeing, resulting in a more satisfied and productive workforce.

Understanding the inseparability of work and family roles highlights the impact of personal life on individuals' workplace thoughts and behaviors [75]. Experiences and responsibilities in one's personal or family life can directly affect their mindset, emotions, and actions at work. For example, a supportive home environment can lead to higher job satisfaction and productivity, while personal stress or conflicts at home may negatively affect work engagement and performance. Recognizing this interdependence helps employers design policies that support a healthy balance between work and family life, ultimately benefiting both employees and the organization.

1.2. The Present Study

Building upon prior research, with this study, we aim to extend the investigation initiated by Alegre et al. [76], focusing on the dimensions of *facilitation* and *conflict* within work–family relationships.

Drawing from Frone's [4] fourfold taxonomy of work–family balance, we examined both work → family and family → work conflicts, as well as facilitation in both directions. Additionally, we intend to scrutinize eventual differences in work engagement across the identified profiles. Therefore, we aim to determine whether distinct patterns of work–family conflict and facilitation are consistent with varying levels of work engagement among participants. It is imperative to delve into the repercussions of the work–family interface to develop social policies appropriate to each country's cultural context and foster organizational awareness [77], particularly within higher education institutions. Such endeavors are crucial for enhancing professors' quality of life, teaching effectiveness, and overall work engagement experience.

Finally, with this study, we seek to raise some clues for investigations in this field, hoping to gradually achieve a better balance/management between the spheres of family and professional life. For this purpose, we suggest some preventative and intervention measures. On this basis, we propose the following hypotheses:

Hypotheses 1. *Four distinct profiles will emerge based on the interplay of work and family dynamics concerning conflict and facilitation: 1.1: High work–family conflict with simultaneous high work–family facilitation; 1.2: Low work–family conflict coupled with low work–family facilitation; 1.3: Low work–family conflict alongside high work–family facilitation; and 1.4: High work–family conflict paired with low work–family facilitation.*

Hypotheses 2. *Participants with different conflict and facilitation work–family profiles present different work engagement (see Figure 1): 2.1: Those experiencing high conflict alongside high facilitation will demonstrate elevated work engagement; 2.2: Individuals with low facilitation and low conflict will exhibit lower work engagement; 2.3: Participants characterized by high facilitation and low conflict will demonstrate heightened work engagement; and 2.4: Those facing high conflict paired with low facilitation will present lower work engagement.*

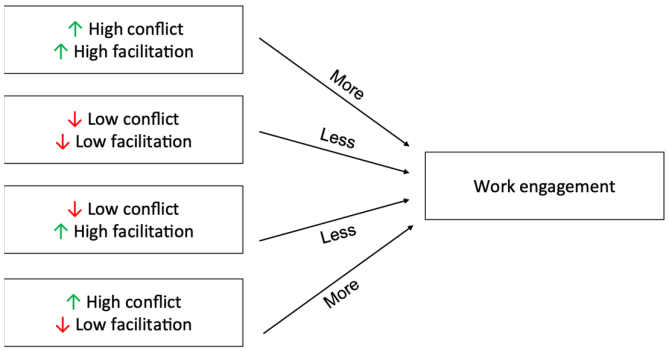


Figure 1. Hypothesized model: Effects of work–family conflict and facilitation on work engagement.

2. Materials and Methods

2.1. Sample and Procedures

In this study, 654 university professors from Portugal (mainland and its islands), spanning ages 22 to 90 and representing various Portuguese universities, participated voluntarily. These participants are part of the approximately 35,549 university teachers in Portugal [78]. Two participants were excluded due to having over 30% missing data. As a result, 652 respondents were part of the final sample. Table 1 provides a summary of the key organized information.

Table 1. Summary of sample characteristics.

	n	**%**	***M***	***SD***
Gender				
Female	312	47.7		
Male	322	49.2		
N/A	20	3.1		
Age			42.9	9.7
Marital status				
Single	150	22.9		
Married	385	58.9		
Divorced or separated	70	10.7		
Number of children			1.2	1.1
Type of University				
Public	503	76.9		
Private	126	19.3		
Seniority in the University [1]			12.8	8.60
University by region				
North	25	3.8		
Center	598	91.5		
South	15	2.4		
Islands	13	2.0		
Missing	3	0.5		

[1] By years.

We used a convenience sampling method, reaching out to potential participants through written correspondence (such as letters and emails), telephone calls, or in-person visits to outline the study's primary objectives. Participants completed the questionnaires

independently using a self-administered survey method. Additionally, we provided an online version of the questionnaires to enhance accessibility during data collection.

This study adhered to all ethical standards and received approval from the Ethics and Deontology Committee of Psychological Research by the Faculty of Psychology and Educational Sciences of the University of Coimbra. We requested informed consent from the participants, containing information about the objectives of the study, completion instructions, voluntary participation, and assurance of data anonymity and confidentiality.

2.2. Measures

In this study, we employed two quantitative instruments: the Work–Family Scale (W–FS) [21,79–83], and the Utrecht Work Engagement Scale (UWES) [84]. Additionally, a sociodemographic questionnaire was answered by the participants.

2.2.1. Work–Family Scale—W–FS

The W–FS [21,79–83] provides a comprehensive assessment of the interplay between work and family, evaluating both the harmony and tension experienced between these domains, as well as the interference between them. Specifically, it examines the conflict arising from the demands of work and family roles, and the extent to which each domain facilitates the other.

Originally comprising 92 items [21,79–83], the scale was condensed for this study to include 25 items, rated on a four-point Likert scale (ranging from 1: Rarely to 4: Most often). This shortened form, which excludes one dimension not analyzed in this study, focuses on two main areas of the W–FS: (1) Conflict measure, composed of two dimensions: work → family conflict (7 items), evaluating conflict in work with family/personal life relation (e.g., *I came home from work too tired to do some of the personal/family stuff I wanted to do*); and family → work conflict (7 items), focused on the conflict in family/personal life and work relation (e.g., *The amount of time my family or personal responsibilities took made me work less than I wanted to*); (2) Facilitation measure composed of two dimensions: work → family facilitation (5 items) evaluating work as a facilitator of family/personal life (e.g., *My work gave me the energy to do activities with my family or with other people important to me*); and family → work facilitation (6 items), focused in family/personal life as a facilitator of work (e.g., *My family or personal life gave me energy to do my job*).

The psychometric properties of these two short versions were developed by Alegre [76] under the supervision of her tutors. Exploratory factor analysis was performed for the conflict measure (14 items, factorial loadings from 0.60 to 85; commonalities from 0.42 to 0.73) and the facilitation measure (11 items, factorial loadings from 0.60 to 81; commonalities from 0.39 to 0.73). All the requirements necessary for reliable interpretation of principal components analysis were fulfilled and, after several exploratory factor analysis, we reached the 25-items short-version used in this paper. A confirmatory factor analysis to this version (conflict measure: work → family conflict, $\alpha = 0.91$, family → work conflict, $\alpha = 0.81$; facilitation measure: work → family facilitation, $\alpha = 0.85$, and family → work facilitation, $\alpha = 0.78$) presented good reliability and fit indices: CMIN/DF = 2.25, NFI = 0.850, TLI = 0.899, CFI = 0.910, and RMSEA = 0.064 (90 CI 0.057–0.071).

2.2.2. Utrecht Work Engagement Scale—UWES

The UWES statements, developed by Schaufeli and Bakker [84], capture the individuals' feelings towards their work, gauging work engagement by assuming that employees with high work engagement exhibit a vigorous and emotional connection to their work, enabling them to effectively manage work demands. The scale comprises 17 items rated on a seven-point Likert scale (ranging from 0: Never to 6: Always), aimed at measuring the three work engagement dimensions: Vigor, assessed by 6 items, which measures individuals' energy, resilience, effort investment, resistance to fatigue, and ability to persevere through challenges (e.g., *At my work, I feel I am bursting with energy*); Dedication, assessed by 5 items, which explores the individuals' significance attributed to their work, their

enthusiasm, pride, inspiration, and willingness to face challenges (e.g., *I am enthusiastic about my job*); and Absorption, assessed by 6 items, which examines the individuals' ability to immerse themselves completely in their work and the difficulty they face in detaching from it (e.g., *I feel happy when I am working intensely*). This scale exhibits a high Cronbach's alpha coefficient of 0.95.

2.3. Data Analysis

We used IBM SPSS Statistics [85] to undertake several analyses including confirmatory factor analysis (CFA), assessing scale reliability, generating descriptive statistics, examining correlations, conducting cluster analysis, and performing multivariate analysis (MANOVA). We conducted a CFA for both scales to evaluate the suitability of the factorial model. We also correlated some error terms in each dimension. Additionally, we correlated some error terms within each dimension. This covariation indicated nonrandom measurement errors, which may stem from item similarities (e.g., semantic redundancy), sequential placement in the scale, or specific respondents' characteristics [86]. We assessed reliability using Cronbach's alpha [87], with coefficients above 0.70 deemed acceptable [88]. Furthermore, we assessed the composite reliability and the average variance extracted for each factor, according to the method outlined by Fornell and Larcker [89].

Following descriptive statistics, we conducted a cluster analysis using the K-means procedure to identify whether there were distinct profiles of individuals based on the scores of the W–FS short version, regarding the mean scores in the four dimensions (two for conflict and two for facilitation measures). In K-means cluster analysis, we inserted the desired number of clusters and further performed a hierarchical method (between-groups linkage) to evaluate the optimal cluster number [90,91]. Squared Euclidean distance was used to measure intervals. Convergence was achieved due to no or small changes in cluster centers. The maximum absolute coordinate change for any center was 0.000 (seven iterations is 7; minimum distance between initial centers of 4.24). For work $\rightarrow$ family conflict, two clusters were created: low (final cluster center = 1.66) and high (final cluster center = 3.01), with statistically significant differences, $F_{(1,\,650)} = 302.07$, $p < 0.001$. For family $\rightarrow$ work conflict, two clusters were also created: low (final cluster center = 1.46) and high (final cluster center = 1.23), $F_{(1,\,650)} = 617.96$, $p < 0.001$. For work $\rightarrow$ family facilitation, two clusters were created: low (final cluster center = 1.87) and high (final cluster center = 2.61), $F_{(1,\,650)} = 1661.57$, $p < 0.001$. For family $\rightarrow$ work facilitation, two clusters were also created: low (final cluster center = 2.28) and high (final cluster center = 3.27), $F_{(1,\,650)} = 59.04$, $p < 0.001$.

Profiles of workers regarding these clusters combination were created based on scores from W–FS across four dimensions: (1) high work–family conflict–high work–family facilitation profile; (2) low work–family conflict–low work–family facilitation profile; (3) low work–family conflict–high work–family facilitation profile; and (4) high work–family conflict–low work–family facilitation profile.

Profiles' mean differences regarding UWES factor scores were analyzed using an MANOVA through a general linear model procedure [88]. The assumptions of independence of observations and homogeneity of variance/covariance were checked; we used Pillai's trace due to its robustness to modest violations of normality and equality of the covariance and variance matrix, Box's M = 68.76, $F_{(18,\,891678)} = 3.78$, $p < 0.001$, and error variance of the dependent variable different across groups for the majority of items, Levene's tests with $F_{(3,\,644)} = 5.40$, (vigor), 5.69 (dedication), and 7.66 (absorption), $p \leq 0.001$. Additionally, we conducted post hoc Tukey LSD tests for multiple comparisons [92] since we have three UWES dimensions, and classified the effect sizes of correlations as low, medium, or high, based on Cohen's guidelines [93]. A significance level of $\alpha = 0.05$ for Type I error was considered for all the analyses.

3. Results

Regarding CFA results, Model 1 (Table 2) generally showed a good fit. Model 2 (see Table 2) indicated a poor fit, failing to meet most of the acceptable values for the indices.

Table 2. Fit statistics for both measures.

Models-Scales	χ^2/df	*RMSEA*	*NFI*	*TLI*	*CFI*	*RMSEA 90% CI*
Model 1—Conflict-facilitation profiles	3.44 * (df = 113)	0.061	0.895	0.913	0.923	0.057–0.066 *
Model 2—Work engagement	8.11 * (df = 109)	0.105	0.898	0.888	0.909	0.098–0.111 *

Note. χ^2 = chi-square; df = degrees of freedom; RMSEA = root mean square error of approximation; NFI = normed fit index; TLI = Tucker Lewis index, CFI = comparative fit index. * Significance level $p < 0.05$.

Composite reliability (CR; see Table 3) presented good scores (CR > 0.70 [88]) and showed the highest scores for dimensions dedication (UWES) and work–family conflict (W–FS). Average variance extracted (AVE) scores were considered good when AVE > 0.50 [94] since the explained variance is greater than the residual variance, indicating convergent validity; these AVE scores were achieved for all dimensions except family–work conflict and family–work facilitation. The Cronbach's alphas (Table 3, in brackets) were good for all the factors, standing above 0.80 [88]. The descriptive statistics and intercorrelations among the dimensions of conflict-facilitation and work engagement measures are presented in Table 3. Regarding work engagement, mean scores indicated that dedication had the highest values (M = 4.30, SD = 1.14), followed by absorption (M = 2.25, SD = 1.04) and vigor (M = 4.24, SD = 0.99). Concerning conflict-facilitation profiles, mean scores indicated higher values for family–work facilitation (M = 2.90, SD = 0.70), followed by work–family facilitation (M = 2.29, SD = 0.65), work–family conflict (M = 2.19, SD = 0.78), and family–work conflict (M = 1.32, SD = 0.39).

Table 3. Average variance extracted (AVE), composite reliability (CR), means (M), standard deviations (SD), intercorrelations (r), and Cronbach's alpha (in brackets) for the dimensions of both scales.

	AVE	CR	M	SD	1	2	3	4	5	6	7
UWES											
1. Vigor	0.510	0.858	4.24	0.99	(0.850)						
2. Dedication	0.681	0.861	4.30	1.14	0.837 **	(0.919)					
3. Absorption	0.517	0.861	4.25	1.04	0.846 **	0.814 **	(0.861)				
W–FS short version											
4. Work–family conflict	0.615	0.918	2.19	0.78	−0.021	−0.050	0.033	(0.921)			
5. Family–work conflict	0.397	0.821	1.32	0.39	−0.050	−0.064	−0.019	0.279 **	(0.823)		
6. Work–family facilitation	0.517	0.838	2.29	0.65	−0.027	−0.015	−0.023	−0.506 **	−0.049	(0.811)	
7. Family–work facilitation	0.374	0.762	2.90	0.70	−0.118 **	−0.083 *	−0.068	−0.065	−0.135 **	0.304 **	(0.854)

** Correlation is significant at the 0.01 level (2-tailed). * Correlation is significant at the 0.05 level (2-tailed).

Analysis of the average scores of the dimensions of both scales (three work engagement dimensions and four conflict-facilitation profiles) revealed significant results for understanding the behavior of these variables. The results indicate that work engagement, particularly in vigor and dedication, was negatively associated with family–work facilitation.

3.1. Work Engagement and Conflict-Facilitation Profile Analysis

Using the K-means analysis, for each dimension of the Work–Family Scale, we found two clusters of conflict (work → family conflict and family → work conflict) and two clusters of facilitation (work → family facilitation and family → work facilitation). Based on these clusters, we obtained four profiles (Table 4): Profile 1 (low conflict and high facilitation; n = 255), Profile 2 (low conflict and low facilitation; n = 137), Profile 3 (high conflict and low facilitation; n = 140), and Profile 4 (high conflict and high facilitation; n = 116).

Table 4. Clusters sizes, means, and description of profiles clusters. Work–family means of each profile and multiple comparisons between profiles.

	Profile 1 (*n* = 225)		**Profile 2 (*n* = 137)**		**Profile 3 (*n* = 140)**		**Profile 4 (*n* = 116)**		$F_{(2, 644)}$	**Partial Eta Squared η_p^2**
	M	**SD**	**M**	**SD**	**M**	**SD**	**M**	**SD**		
Vigor	4.13	1.07	4.45	0.98	4.41	0.80	4.03	0.94	6.33 *	0.03
Dedication	4.21	1.24	4.56	1.04	4.45	0.94	3.99	1.16	6.56 *	0.03
Absorption	4.13	1.12	4.34	0.97	4.52	0.83	4.06	1.10	6.06 *	0.03

* Significance level $p < 0.05$.

3.2. Differences in Work Engagement between Work–Family Profiles

The MANOVA results indicated that the overall effect was statistically significant, Pillai's trace = 0.060, $F_{(9, 1932)} = 4.35$, $p < 0.001$. We performed Tukey HSD multiple comparison tests, which revealed statistically significant differences in work engagement dimensions between some profiles (Table 5). Specifically, significant mean disparities were observed in vigor between Profiles 1 and 2, 1 and 3, and 2 and 4. For dedication, significant contrasts emerged between Profiles 1 and 2, 2 and 4, and 3 and 4. Although absorption yielded fewer significant outcomes compared to the other dimensions, significant differences were still observed between Profiles 1 and 3 and 3 and 4. Moreover, we found that the profiles that showed less work–family facilitation were positively correlated with higher work engagement, as depicted in Figure 2.

Table 5. Mean differences between the three work engagement dimensions and the four work–family profiles.

		Mean Difference	**Std Error**	**Mean Difference**	**Std Error**	**Mean Difference**	**Std Error**
Vigor	Profile 1	−0.314 *	00.10	−0.28 *	0.10	0.10	0.11
	Profile 2	-		0.04	0.12	0.42 *	0.12
	Profile 3	-		-		0.38 *	0.12
	Profile 4	-		-		-	
Dedication	Profile 1	−0.34 *	0.12	−0.24	0.12	0.22	0.13
	Profile 2	-		0.11	0.13	0.56 *	0.14
	Profile 3	-		-		−0.45 *	0.14
	Profile 4	-		-		-	
Absorption	Profile 1	−0.21	0.11	−0.39 *	0.11	0.07	0.12
	Profile 2	-		−0.18	0.12	0.28	0.13
	Profile 3	-		-		−0.46 *	0.13
	Profile 4	-		-		-	

Unshared subscripts indicate that means are significantly different. * $p \leq 0.005$. Profile 1= low conflict and high facilitation; Profile 2 = low conflict and low facilitation; Profile 3 = high conflict and low facilitation; Profile 4 = high conflict and high facilitation.

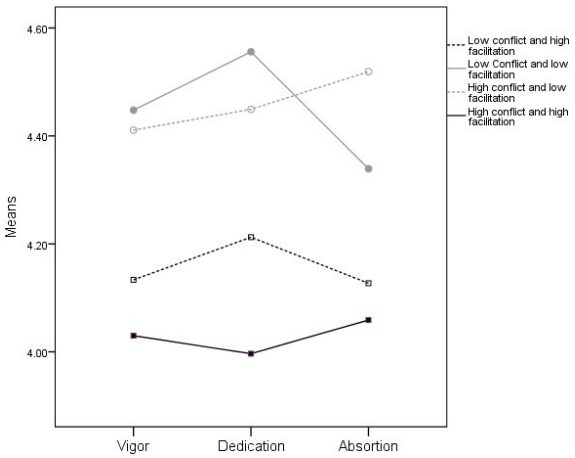


Figure 2. Mean scores of work engagement dimensions and the four work–family profiles.

4. Discussion

The primary objective of this study was to examine the potential relationship between the four identified profiles regarding conflict and facilitation in both work and family domains and their impact on work engagement among participants. Using cluster analysis on a sample of 654 Portuguese university professors, we identified four distinct profiles characterized by the varying levels of conflict or facilitation between their work and family spheres. The profiles observed in this study align with theoretical frameworks, which delineate work–family conflict and work–family facilitation as distinct constructs [4,25]. Previous research by Tomida et al. [23] has also identified these profiles. Specifically, they found that Profile 1, characterized by low conflict and high facilitation, is the most desirable. Individuals in this profile typically maintain healthy lifestyles, characterized by ample sleep, nutritious diets, and moderate alcohol consumption. Profile 2, with low conflict and low facilitation, includes individuals who exhibit low commitment in both work and family domains, primarily characterized by extended sleep periods. Profile 3, defined by high conflict and low facilitation, comprises hardworking individuals who face challenges balancing work and family responsibilities, leading to inadequate sleep and poor dietary habits. These individuals often struggle significantly with work–life balance. Finally, Profile 4, marked by high conflict and high facilitation, involves individuals who experience substantial demands from work and family roles but also benefit from certain positive elements of a balanced life.

Our correlation analysis revealed that conflict is more prevalent from work to family, while facilitation is more significant from family to work. Previous studies have found similar results [22,34,95]. Job demands and family characteristics are acknowledged as pivotal elements explaining work–family conflict [96]. Extended work hours, intensified workload pressures, lengthened commutes, increased work-related tasks at home, and managing multiple work–family responsibilities [97,98] are associated with heightened work–family conflict. Moreover, factors like constrained decision-making authority and insufficient support at work [39] compound these difficulties. Consequently, university professors are increasingly burdened with extensive career responsibilities [22], potentially leading to pressure to meet and sustain high performance standards [28]. These pressures can significantly impact their ability to engage in family activities and influence family dynamics.

Additionally, previous research has shown a relationship between work engagement and higher work–family facilitation [52,62,64]. The aspiration for a healthier and more fulfilling balance between work and family roles and responsibilities is common among employed individuals, including university professors, regardless of their marital or parental status [55]. Given that people worldwide spend a significant portion of their adult lives working [18,19], researchers have increasingly focused on the relationship between work–family balance (or the management of work–family dynamics, acknowledging the challenge of perfect balance) and work engagement [52].

We hypothesized that work engagement would positively correlate with higher levels of work–family facilitation, and negatively correlate with lower levels of work–family conflict. Interestingly, our analysis results diverged from this hypothesis: profiles characterized by lower facilitation were associated with higher work engagement. Furthermore, correlation analysis results revealed a negative relationship between work engagement and family–work facilitation, especially regarding vigor and dedication. Achieving work–family balance involves fulfilling work and family responsibilities and activities, and highly engaged employees may dedicate more time to work, potentially compromising work–life balance [55,99]. As a result, highly engaged employees may sometimes prioritize professional aspirations over work–family balance. University professors face challenges in juggling several roles, often resulting in fewer hours dedicated to nonprofessional activities [13]. Accordingly, they encounter numerous obstacles in their dynamic and ever-evolving work environments [9,33,100]. Consequently, they must have confidence in their abilities to conduct work-related tasks, which boosts their work engagement [64,101].

Conversely, Žnidaršič and Bernik [102] found that organizational practices and policies promoting work–family balance—such as leader support, coworker dynamics, and family-friendly initiatives—positively impact individuals' work–family equilibrium. Achieving this balance correlates with heightened work engagement, as employees who perceive strong organizational support for work–family balance tend to be more engaged at work. Wood et al. [6] highlighted that organizations prioritize employee work engagement due to its significant potential to drive organizational success. As a result, employers actively foster environments conducive to work–life balance. According to Schaufeli [51], and Schaufeli et al. [46], engaged employees are typically energetic, perseverant, proud, enthusiastic about their work, and deeply immersed in their work-related tasks.

In short, it is crucial to consider both work and family dynamics comprehensively to foster work engagement and wellbeing among employees [53,54]. This means recognizing and addressing how both aspects of employees' life interact and influence each other, which can lead to better job performance and a more balanced, fulfilling life.

4.1. Implications and Contributions

Portuguese professors constantly advocate for increased rights and improved conditions to advance their careers and research. They seek greater recognition of the significance attributed to their profession. They are willing to prioritize their work over nonprofessional activities, investing more time and energy accordingly. Some studies have demonstrated that professors who reserve time for activities benefiting their personal wellbeing—generating personal satisfaction, and energy replacement—contribute to better work–family balance, organizational commitment, and work engagement. Therefore, policymakers in higher education should consider these findings when reevaluating management policies in Portugal. Reorganizing the demanding career of professors can mitigate work–family/family–work conflict and enhance their work engagement. Furthermore, higher education institutions can address work–family/family–work conflicts through rational emotive occupational health coaching [19], which has proven effective in managing work–life balance, enhancing emotional wellbeing, and increasing productivity at home and work.

Teaching careers demand significant time and energy from individuals, leaving limited opportunities for personal self-care. This challenge is heightened for those who also have family members depending on them. Consequently, balancing work and family roles often results in unavoidable conflicts. While some studies have explored this issue [18,19], there is a notable absence of research specifically focused on university professors' unique conflict and facilitation profiles, and how they relate to work engagement. Therefore, our study represents a foundational contribution to understanding this topic.

4.2. Limitations and Future Directions

Notwithstanding the positive aspects, this study has a few potential limitations. Firstly, although our results can be generalized to university professors, they cannot be generalized to all professor/teacher professionals. We only included university professors in the data collection. Despite that the teaching profession may be identical for all educative levels, there may be some variations that we have not considered. Moreover, considering the current headcount of university professors and response rate, we recommend that the conclusions drawn from this study be interpreted with caution. Secondly, the cross-sectional nature of this study overlooks the dynamic nature of the variables under consideration by relying solely on perceptual measurement variables. Lastly, although this study is part of a larger project, our aim here was not to analyze the participants' sociodemographic characteristics in conflict and facilitation profiles in work–family/family–work dynamics and work engagement. While not our primary focus of analysis, we recognize that this information may be essential for drawing more robust conclusions.

We conclude this study with suggestions for future research. Firstly, further investigation into conflict-facilitation profiles and work engagement in the teaching context

is recommended to establish more robust conclusions. Such studies should encompass diverse categories of universities (e.g., private or public) and faculty members (e.g., assistants or full professors), and consider sociodemographic factors such as gender and number of children. This approach will enable comparisons to determine which categories exhibit higher levels of conflict and facilitation in both work–family and family–work dynamics. Additionally, research involving teachers across various educational levels is crucial to identifying differences in these dynamics among different teaching contexts. Secondly, additional studies incorporating measures of health, wellbeing, and quality of life at work are essential. This approach will provide a more comprehensive understanding of this occupation and allow for an assessment of the implications of conflict-facilitation profiles at different levels. Finally, future studies should focus on other professions with demanding work–life balance, such as first responders and healthcare workers. This comparative analysis would help ascertain which professions experience higher levels of work → family/family → work conflict and which exhibit greater work → family/family → work facilitation.

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