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Working as an ECE Professional During Covid-19 in Austria: Demands and Resources Profiles and Their Relations With Exhaustion and Work Engagement

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Abstract

The current study explores patterns of intraindividual demands and resources of ECE professionals in Austria during covid-19 by adopting a person-centred analytic approach. Latent Profile Analyses reveal three distinct subgroups (high demands/low resources vs. moderate demands/high resources vs. high demands/moderate resources). Results show that individuals assigned to the subgroup, which is characterized by moderate demands and high resources are less exhausted and show higher work engagement, than individuals assigned to the other subgroups. Individuals classified in the high demands and moderate resources are also less exhausted and more engaged than the individuals in the high demands and low resources group.

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Keywords

Job demands-resources model, early childhood education professionals, latent profile analysis, exhaustion, work engagement, covid-19

Introduction

Early childhood education (ECE) plays a crucial role in child development, nurturing the social, emotional, cognitive, and behavioural development of all children, (Burchinal et al., 2000; Li et al., 2013; Mashburn et al., 2008; National Institute of Child Health and Human Development Early Child Care Research Network & Duncan, 2003; Romano et al., 2010) which is linked to school readiness (Denham, 2006).

Currently, the covid-19 pandemic is disrupting educational institutions all over the world (UNESCO, 2021)[1]. Due to the physically and emotionally demanding task of working as an ECE professional, it is assumed that the pandemic and the restrictions it carries may increase existing job and family demands and may lead to new covid-specific demands in ECE settings. Recent research dealing with job demands during the covid-19 pandemic focus on healthcare professionals (Barello et al., 2020; Britt et al., 2021; Lorente et al., 2021; Manzano García & Ayala Calvo, 2021), teachers (Marshall et al., 2020; Sokal et al., 2020), learning issues of secondary school students (Pelikan et al., 2021) and in higher education (Holzer et al., 2021). Little is known about the job and family demands and resources of ECE teachers during the pandemic.

Therefore, the aim of the current study is to examine job and family demands as well as resources of ECE staff members in Austria. The job-demands-resources model (Bakker & Demerouti, 2007; Bakker et al., 2005) is used as a framework. In order to study the interplay of different demands and resources simultaneously, person-centred analyses (Molenaar & Campbell, 2009) were conducted. The purpose of this approach is to identify subgroups (called latent profiles) of individuals in a sample sharing homogeneous patterns (Pastor et al., 2007) of demands and resources. Further, the links between these different patterns of demands and resources, representing subgroup membership, with personal and work-related physical and emotional exhaustion (dimension of burnout) and work engagement are investigated.

Job demands educational quality

Working as an ECE professional is associated with high physical and psychological demands (Farewell et al., 2022; Viernickel, et. al., 2017). The job of ECE professionals is characterized by a high amount of social interactions in complex situations with children, ongoing relationship-building activities, high attentional demands, high communication and networking tasks (with parents and other professionals), high societal expectations, high

[1] Access date: June 2021 https://en.unesco.org/news/COVID-19-educational-disruption-and-response

social-emotional competency requirements (Viernickel & Weßels, 2020; Whitaker et al., 2015) and high teacher-child ratios.

High job demands are linked to educational quality in ECE. For example, ECE teachers who experience high cumulative stress and emotional exhaustion report increased anger-aggression problems among the children. Furthermore, these ECE teachers showed themselves to be less tolerant of externalized behaviour of the children (Jeon et al., 2019), exhibit more negative reactions towards challenging child behaviour (Buettner et al., 2016) and show lower-quality interactions with the children (Ansari et al., 2020). This makes it difficult for children with externalized behaviour to learn emotion regulation strategies and thereby reduce their impulsiveness (Valiente et al., 2007). Further, a lack of autonomy at the workplace is associated with low relationship quality and a lack of closeness between the educational professional and the children. High work demands (e. g. high number of responsibilities, high time pressure and frequent disruptions in work) also resulted in increased ECE professional-child conflicts (Whitaker et al., 2015), reduced interaction with parents (Fantuzzo et al., 2012) and an increase of work-family-conflicts (Gu & Wang, 2019).

Research dealing with the link between structural (teacher education, teacher-child-ration, group size) and process quality (children's day to day experiences which are determinants of child development) (Pianta et al., 2005; Thomason & La Paro, 2009) in ECE show that smaller teacher-child ratios are beneficial for teacher-child interactions (De Schipper et al., 2006; Phillipsen et al., 1997) and overall process quality (Barros & Aguiar, 2010). High teacher-child ratios could lead to higher demands and lower availability of work resources like social support or feedback processes due to lack of time.

Job-demands-resources model

The job-demand-resources model (JDR) (Bakker & Demerouti, 2007) distinguishes between job demands and job resources and is a widely used framework. "*Job demands* refer to those physical, social, or organizational aspects of the job that require sustained physical or mental effort and are therefore associated with certain physiological and psychological costs (e. g., exhaustion)" (Demerouti et al., 2001, p. 501) whereas *job resources* refer to "physical, psychological, social, or organizational aspects of the job that may do any of the following: (a) be functional in achieving work goals; (b) reduce job demands at the associated physiological and psychological costs; (c) stimulate personal growth and development" (Demerouti et al., 2001, p. 501).

According to the JDR model, increased work demands that are experienced as stressful (e. g. time pressure, unfavourable work environments) over long periods of time can lead to health problems, increased stress levels, and may even cause exhaustion and burnout. Whether these demands lead to increased stress etc. depends on the availability of job resources (Bakker et al., 2005). While job resources (e. g. autonomy, social support, feedback, good relationship with the supervisor) have a motivating effect and lead to an

increase in work engagement, resources may also help individuals to cope with professional requirements. Job resources (found at the organizational level, in the social relationships of the person and the work-task itself) can thusly reduce the negative effect of increased work demands (Bakker & Demerouti, 2007; Bakker et al., 2005). This interaction between demands and resources indicates that job resources buffer the effect of job demands on burnout and work-related strain (Bakker & Demerouti, 2007). “Job stress or burnout develops – irrespective of the type of job or occupation – when certain job demands are high and when job resources are limited” (Bakker et al., 2005, p. 170). There is also evidence that work and family stress are connected. There is a spillover of stress from one domain to the other. This cumulates the individual’s overall stress and should be taken into account when examining burnout from a multisystem view (Appel & Kim-Appel, 2008; Leiter & Durup, 1996).

Research also shows that the availability of job resources is also associated with job engagement (Schaufeli & Bakker, 2004). “Engagement is defined as a positive, fulfilling, work-related state of mind that is characterized by vigor, dedication, and absorption” (Bakker et al., 2007, p. 274). Job engagement is positively related to the classroom performance of teachers (Bakker & Bal, 2010) and teachers’ organizational commitment (Hakanen et al., 2006).

Research conducted in the school environment shows that social support, innovation, recognition from colleagues, and a good organizational climate are important job resources that aid teachers in coping with their work challenges and ensure their wellbeing (Bakker et al., 2007). In the context of early childhood education, it was shown that supportive and collaborative relationships between colleagues, as well as a high degree of autonomy in the decision-making process, represent important resources that counteract emotional exhaustion (Schaack et al., 2020).

In line with covid-19 specific job demands research of different professions, this paper seeks to address how job and family demands and resources are organized within ECE professionals during the covid-19 pandemic in Austria. Applying Latent Profile Analyses allows us to identify distinct subgroups in the sample based on their job demands and resources.

The following research questions were raised:

Research Question 1: Which distinct latent profiles of ECE professionals’ job and family demands and resources can be identified by adopting a person-centred approach?

Research Question 2: Are there significant differences between latent profiles regarding the perceived personal and work-related exhaustion and work engagement?

Method

Early childhood teacher education in Austria

In Austria, early childhood teachers are trained at BAfEP, a vocational secondary school and, since 2021, also at teacher training colleges in the higher education program elementary pedagogy. Training colleges for elementary education can be completed in five years, where a higher education entrance qualification and professional qualification are acquired. An alternative way to become an early childhood teacher is the collegiate form after a higher education entrance qualification where only the professional qualification is acquired in two years. The admission requirement for the university course in elementary education is a completed bachelor's degree in educational science/pedagogy/primary school teacher, which ends after two semesters with the professional qualification as an early childhood teacher.

Data collection and sample

The data was collected from April to June 2021. The online questionnaire was sent directly to the ECE organizations. Further, the link to the questionnaire was posted on the social media channels of the University College of Teacher Education Vienna and NeBÖ (Network of Early Childhood Education in Austria[2]) and was published in the newsletters of both institutions. 467 ECE professionals (97.6% female; 2.4% male) completed the survey. The low number of male survey participants is reflecting the low number of male ECE professionals in Austria (Statistik Austria, 2021). The average age was 37.3 years (SD=10.66) and the average working experience was 13.7 years (SD=10.02). 24.8% of the survey participants have a leadership position.

Materials

Job and family demands and resources

A list of demands and resources (e.g. lack of safety material, fear of infection) was drawn up, based on the research dealing with pandemic specific research (Britt et al., 2021; Sokal et al., 2020) as well as results of the more general job-demand-resources research (e.g. time pressure, support, feedback) conducted before covid-19 (Bakker et al., 2005; Crawford et al., 2010; Cumming, 2017; Schaack et al., 2020; Skaalvik & Skaalvik, 2018). Furthermore, ECE-specific demands, such as the availability of suitable educational material, parent cooperation, etc. were added to the list. Participants had to rate the frequency of the given demands and resources based on a 7-point rating scale ranging from 1= never to 7= always/every day. Family demands and resources were also included in the study. Research highlights the importance of family demands and resources when examining employee

[2] https://www.neboe.at/

burnout. As mentioned before, there is evidence that there are spillover effects between work and family domains (Appel & Kim-Appel, 2008; Leiter & Durup, 1996).

Exhaustion

To measure personal and work-related exhaustion the German version of the Copenhagen Burnout Inventory (Hanebuth et al., 2012; Kristensen et al., 2005) was used. The two subscales measure personal burnout (6 items; example item: "How often are you emotionally exhausted?") and work-related burnout (7 items; example item: "Are you exhausted in the morning at the thought of another day at work?") on a 5-point rating scale (1=always/to a very high degree; 5=never/almost never or to a very low degree). Low scores indicate strong exhaustion.

Work engagement

Work Engagement, "which is considered to be the antipode of burnout" (Schaufeli et al., 2006, p. 702) was measured using the shortened version of the Utrecht Work Engagement Scale (UWES-9) (Schaufeli et al., 2006). In this study, the one-dimensional engagement factor was used which shows good psychometric qualities (Sautier et al., 2015; Schaufeli et al., 2006). Participants have to rate the 9 items (example item: "At my job, I feel strong and vigorous") on a 7-point frequency scale (1= never to 7= always). Higher values indicate higher work engagement.

Analytic approach

Person-centred approaches like Latent Profile Analysis take a "holistic-interactionist perspective that takes a person as a system and the unit of study" (Mammadov et al., 2016, p. 175). Latent Profile Analysis (LPA) is a latent variable modelling technique used to find latent subgroups based on observed data (Collier & Leite, 2017; Oberski, 2016; Pastor et al., 2007). Individuals that share similar configurations of personal attributes/patterns of variables (in this paper a range of job and family demands and resources) are grouped together (Spurk et al., 2020). LPA is a probabilistic model-based approach with less arbitrary model selection than cluster analysis (Olivera-Aguilar et al., 2017). LPA represents an inductive approach where the number of latent profiles is unknown. To find the best fitting model, the number of latent profiles (subgroups) is increased until the model fit indices indicate that there is no improvement in model fit by adding another profile (Mäkikangas et al., 2021). Analyses were conducted in Mplus 8 (Muthén & Muthén, 2017). To find the best-fitting model the adjusted Lo-Mendell-Rubin Likelihood Ratio Test (LMR) (Lo et al., 2001) the Bayesian Information Criterion (BIC) (Schwarz, 1978), and the Entropy indicator (Celeux & Soromenho, 1996) were examined. A significant improvement of model fit by adding a further profile is indicated by a significant LMR Test (Nylund-Gibson & Choi, 2018). Further, lower BIC values imply better model fit (Nylund et al., 2007). Entropy values close to one indicate better classification accuracy. To avoid local maxima solutions, multiple random starting sets (STARTS: 1000 100, STITERATIONS = 100) were used (Nylund et al., 2007). In the

next step differences in exhaustion and work engagement between the latent profiles were examined.

Results

Preliminary analyses

To assess the validity and reliability of the Copenhagen Burnout Inventory and the Utrecht Work Engagement Scale confirmatory factor analysis was conducted using the lavaan (Rosseel, 2012) package in R (R Core Team, 2017). Further composite reliabilities (CR) (Raykov, 2009) were calculated. To evaluate the goodness-of-fit the root mean squared error of approximation (RMSEA), standardized root mean squared residual (SRMR), Tucker-Lewis index (TLI) and comparative fit index (CFI) were inspected. Cut-off criteria[3] reported by (Hu & Bentler, 1999) were used.

The items of the Copenhagen Burnout Inventory load as expected on two factors namely: personal burnout (6 items; CR= 0.76) and work-related burnout (7 items; CR= 0.748). All items of the Utrecht Work Engagement Scale load on one factor showing good reliability (CR=0.827). The overall model fit was good ($\chi^2(172)=447.116$; p=.000; RMSEA= 0.059; SRMR=0.042; CFI=0.964; TLI=0.952). All standardized factor loadings were moderate to strong (between 0.51 and 0.92). The one-factor model of work engagement shows a better model fit than the three-factor model.

Latent profile analysis

All 27 demand and resource items were used for LPA. The adjusted LMR test implies that the best fitting model is the 3-profile model. BIC values decrease from the 2-profile model to the 4-profile model. The 3-profile solution has very good classification accuracy (entropy = 0.922) and good interpretability (cp table 1). The three latent profiles are displayed in figures 1 to 5 using standardized z-scores (M=0; SD=1) and absolute values (cp figure 6-10). Descriptive statistics of the latent profiles are displayed in table 2.

Table 1. Fit statistics for the LPA

No. Latent Profiles	Log-likelihood	AIC	BIC	SaBIC	Entropy	Lo-Mendell-Rubin adjusted LRT (p)	Smallest class size
2	-22761.582	45741.165	46193.114	45847.172	0.915	.000	49.4%
3	**-22319.826**	**44967.652**	**45647.650**	**45127.150**	**0.922**	**.0014**	**22%**
4	-22086.916	44611.832	45519.878	44824.820	0.937	.2239	11.6%

Note: AIC = Akaike Information Criterion; BIC = Bayesian Information Criterion, SaBIC = Sample Size Adjusted Bayesian Information Criterion; LRT= Likelihood Ratio Test

[3] Cut-off criteria: SRMR $\leq$ .08, RMSEA $\leq$ .06; CFI and TLI $\geq$ 0.95 (Hu & Bentler, 1999)

Table 2. Frequencies of demands and resources of the latent profiles; means, and standard deviations

	Profile 1 (high demands and low resources) n=157		Profile 2 (moderate demands and high resources) n=103		Profile 3 (high demands and moderate resources) n=207	
	M	*SD*	*M*	*SD*	*M*	*SD*
Frequency of demands						
Time pressure	5.29	1.55	4.18	1.88	5.22	1.38
Long working hours	4.32	1.71	3.26	1.55	4.22	1.58
Lack of safety material	2.94	1.63	1.61	0.88	2.89	1.74
Conflicts with colleagues	3.16	1.54	1.93	0.87	2.65	1.07
Conflict with the executive	2.79	1.45	1.42	0.66	1.97	1.03
Family strain	4.15	1.73	2.98	1.49	3.66	1.55
Less family time	4.39	1.62	3.04	1.53	4.04	1.62
Less recovery time outside of work	3.06	1.35	4.49	1.47	3.54	1.37
Fear of infection	4.98	1.92	4.17	1.88	5.13	1.78
Challenging parent interaction	4.88	1.51	4.05	1.53	5.02	1.40
Restrictions concerning activities with the children	5.04	1.80	4.94	1.77	5.43	1.56
Frequency of resources						
Sufficient preparation time	2.52	1.50	4.36	2.01	3.18	1.65
Sufficient rest breaks	2.01	1.26	3.36	2.06	2.56	1.71
Sufficient staff	3.20	1.90	4.98	1.69	3.30	1.66
Sufficient educational working material	4.67	1.80	6.80	0.45	4.97	1.65
Clear and timely information on how to deal with covid at work	2.82	1.43	4.67	1.88	3.18	1.54
Social support from colleagues	3.13	1.20	6.07	1.16	5.23	1.27
Emotional support from colleagues	3.38	1.43	6.12	1.15	5.57	1.18
Social support from executive	2.48	0.98	5.80	1.28	4.86	1.48
Emotional support from executive	2.22	0.97	5.63	1.53	4.72	1.65
Support from organization	1.55	0.81	3.22	1.83	2.06	1.10
Good teamwork	4.04	1.75	6.56	0.61	5.75	1.24
Helpful work related feedback	2.47	0.90	5.19	1.33	4.17	1.31
High appreciation	2.92	1.31	5.23	1.38	4.20	1.39
High autonomy	4.61	1.81	6.53	0.62	5.02	1.61
Family/friends support	4.97	1.55	6.23	0.91	5.73	1.37
Work gratification	4.38	1.33	6.20	0.78	5.51	1.15

Notes: Frequencies of demands and resources: 7-point-scale (1= never to 7= always/every day); n=467

Profile 1: High demands and low resources

Profile 1 groups individuals who frequently experience demands like time pressure, long working hours, lack of planning and preparation time, shortage of staff, lack of recovery time (cp figure 1 and 6), restrictions concerning activities with the children, challenging parent interactions, lack of information to deal with covid-19 on the workplace and fear for infection (cp figure 2 and 7). This subgroup also shows the highest family demand scores (cp figure 3 and 8). Individuals report relative frequent conflicts (compared to the other profiles) and relatively rare support from colleagues and leaders in comparison to persons assigned to profile 2 and 3 (cp figure 4 and 9). Helpful feedback and appreciation are relatively rare compared with the other profiles (cp figure 5 and 10). Even though demands in this subgroup are high, resources like autonomy, gratification (cp figure 5 and 10) and emotional support from family/friends are reported (but these resources are not as frequently as in the other profiles).

Profile 2: Moderate demands and high resources

Profile 2 is characterized by relatively moderate job demands and high availability of resources. Similar to profile 1 frequent demands are restrictions concerning activities with the children, challenging parent communication, and fear of infection (cp figure 2 and 7). Individuals assigned to profile 2 experience relatively moderate time pressure (cp figure 1 and 6), very few conflicts at the job (cp figure 4 and 9), and relatively rare family demands (cp figure 3 and 8) in comparison with the values of profile 1 and 3. They further report appropriate availability of covid-19 safety material (cp figure 2 and 7), good teamwork, frequent social and emotional support from colleagues, leaders, organization (cp figure 4 and 9), and family/friends (cp figure 3 and 8). Individuals receive helpful feedback, appreciation (cp figure 5 and 10), and covid-19 related information (cp figure 2 and 7) relative frequently. Additional resources like autonomy and gratification are very high (the highest values among all profiles) (cp figure 5 and 10).

Profile 3: High demands and moderate resources

Individuals assigned to profile 3 show similar demands (cp figure 1, 2, 3, 6, 7, 8) as individuals in profile 1 (work pressure, long working hours, challenging parent interactions, fear of infection, shortage of staff, family-related demands and lack of information dealing with covid-19). In contrast to profile 1, there are fewer conflicts, better teamwork, and more social and emotional support at the workplace (cp figure 4 and 9). Further autonomy, gratification, appreciation, and feedback scores are higher than in profile 1 but not as high as in profile 2 (cp figure 5 and 10).

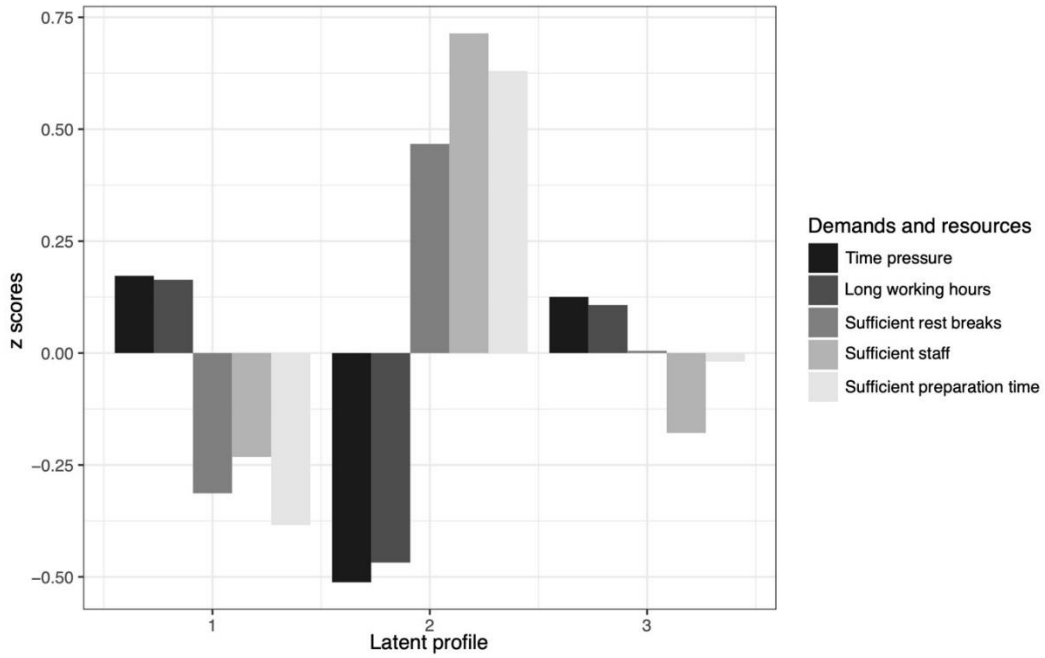

Figure 1. Latent profile solution for demands and resources (z-scores: time pressure, long working hours, sufficient rest breaks, sufficient staff and sufficient preparation time)

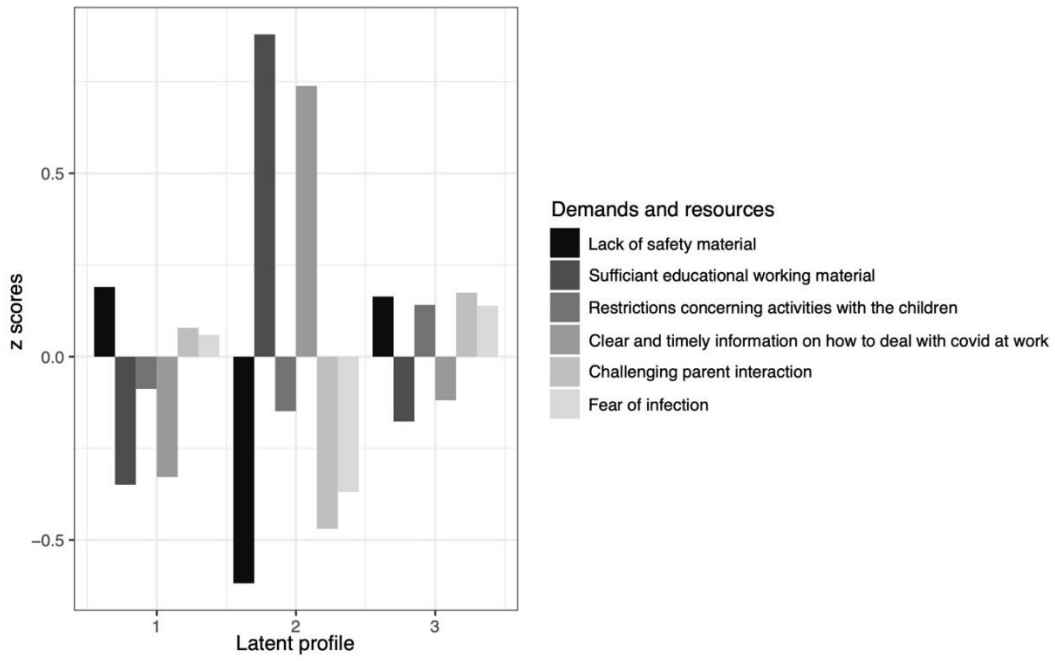

Figure 2. Latent profile solution for demands and resources (z-scores: lack of safety material, sufficient educational working material, restrictions concerning activities with the children, clear and timely information on how to deal with covid at the work, challenging parent interaction and fear of infection)

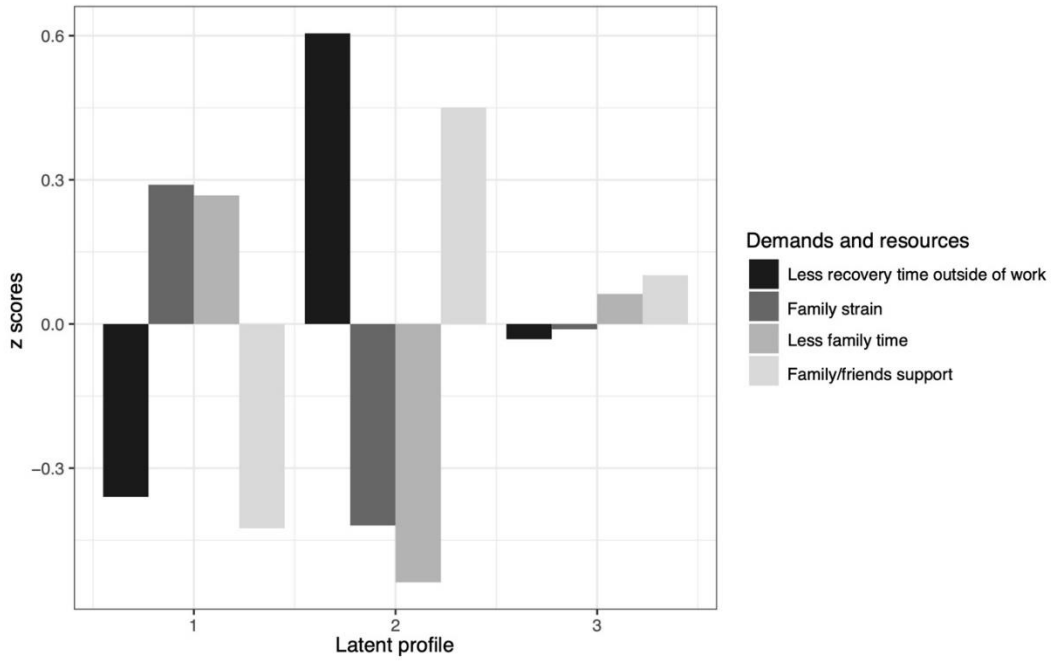

Figure 3. Latent profile solution for demands and resources (z-scores: less recovery time outside of work, family strain, less family time, family/friends support)

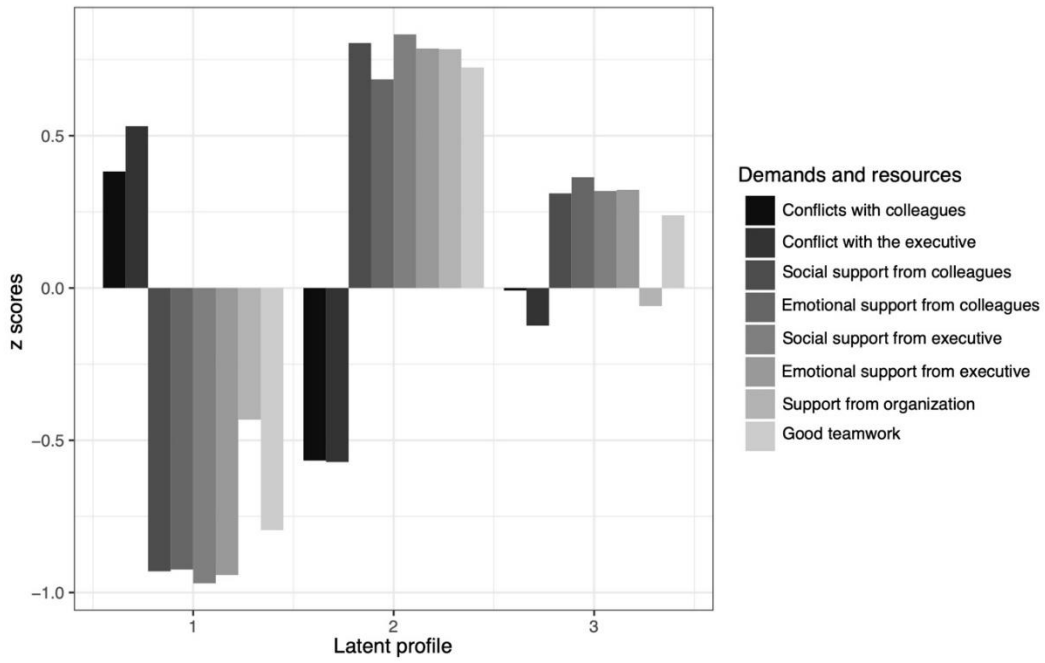

Figure 4. Latent profile solution for demands and resources (z-scores: conflicts with colleagues, conflicts with the executive, social and emotional support from colleagues, social and emotional support from the executive, support from organization, good teamwork)

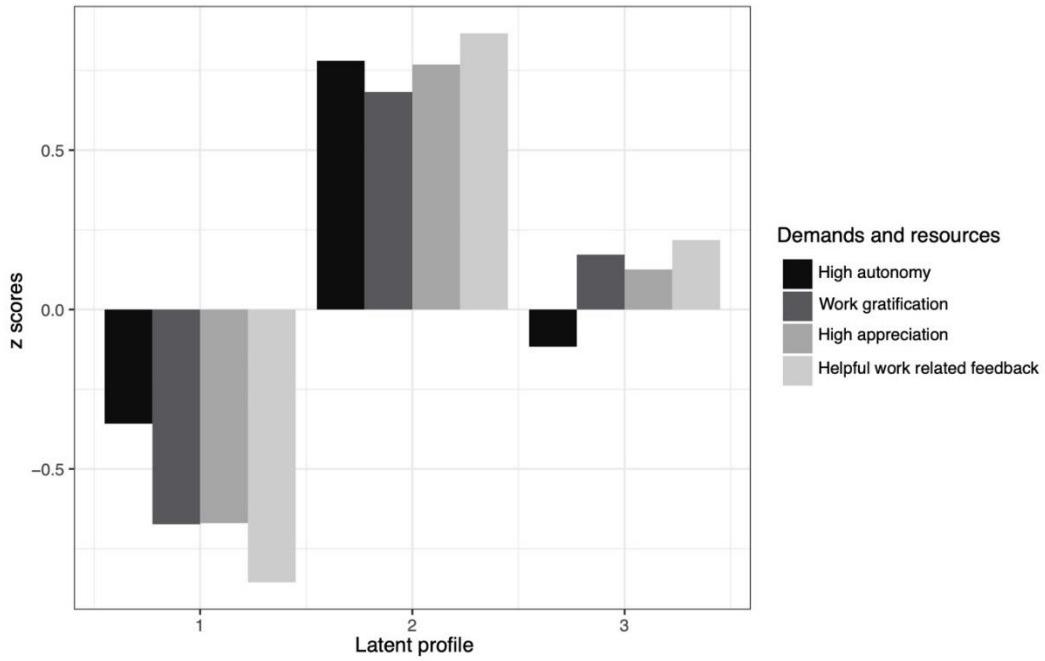

Figure 5. Latent profile solution for demands and resources (z-scores: high autonomy, work gratification, high appreciation, helpful work-related feedback)

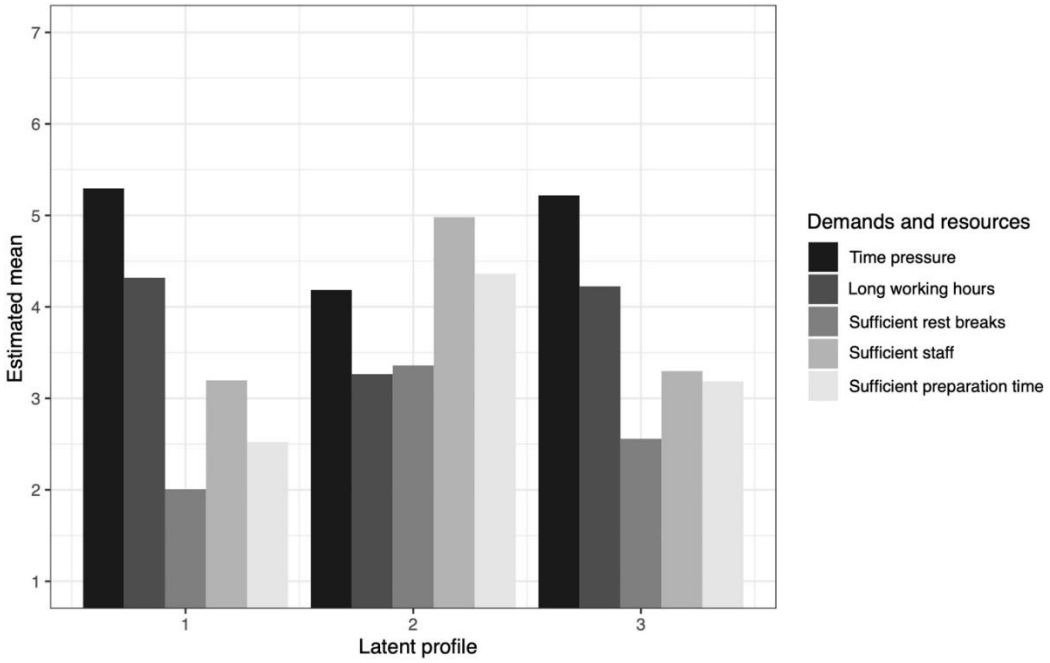

Figure 6. Latent profile solution for demands and resources (estimated means: time pressure, long working hours, sufficient rest breaks, sufficient staff and sufficient preparation time; 7-point Likert scales; 1= never to 7= always/every day)

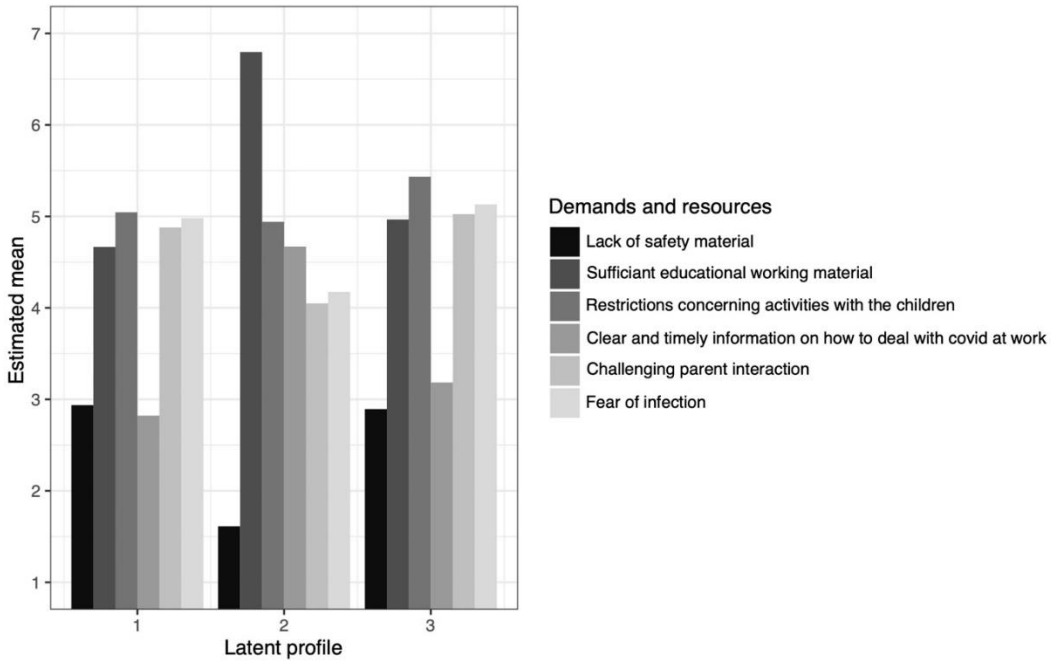

Figure 7. Latent profile solution for demands and resources (estimated means: lack of safety material, sufficient educational working material, restrictions concerning activities with the children, clear and timely information on how to deal with covid at the work, challenging parent interaction and fear of infection; 7-point Likert scales; 1= never to 7= always/every day)

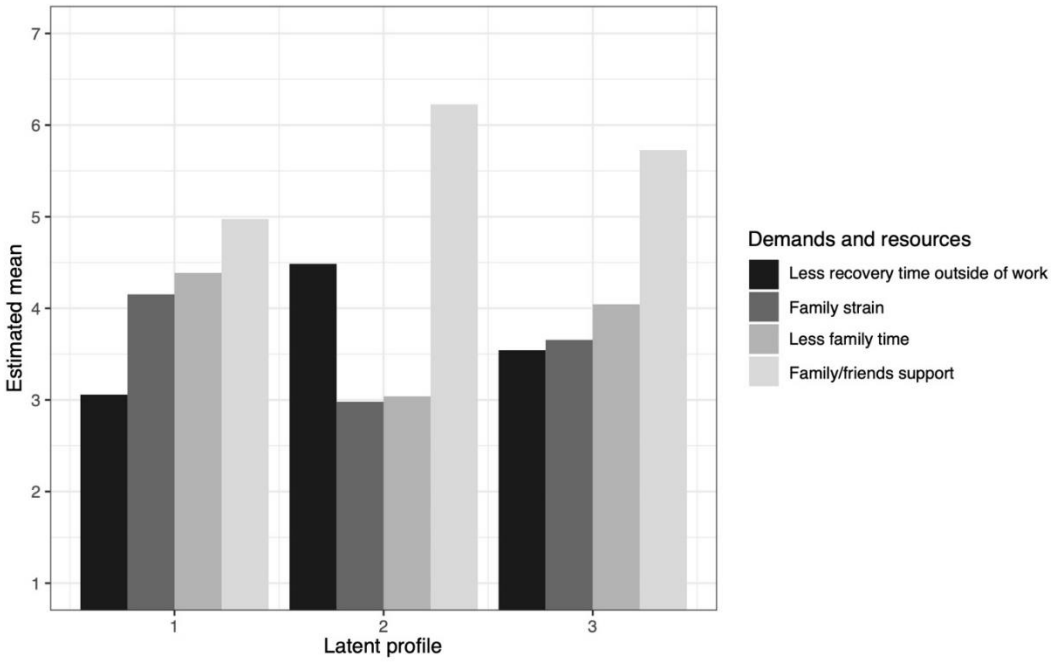

Figure 8. Latent profile solution for demands and resources (estimated means: less recovery time outside of work, family strain, less family time, family/friends support)

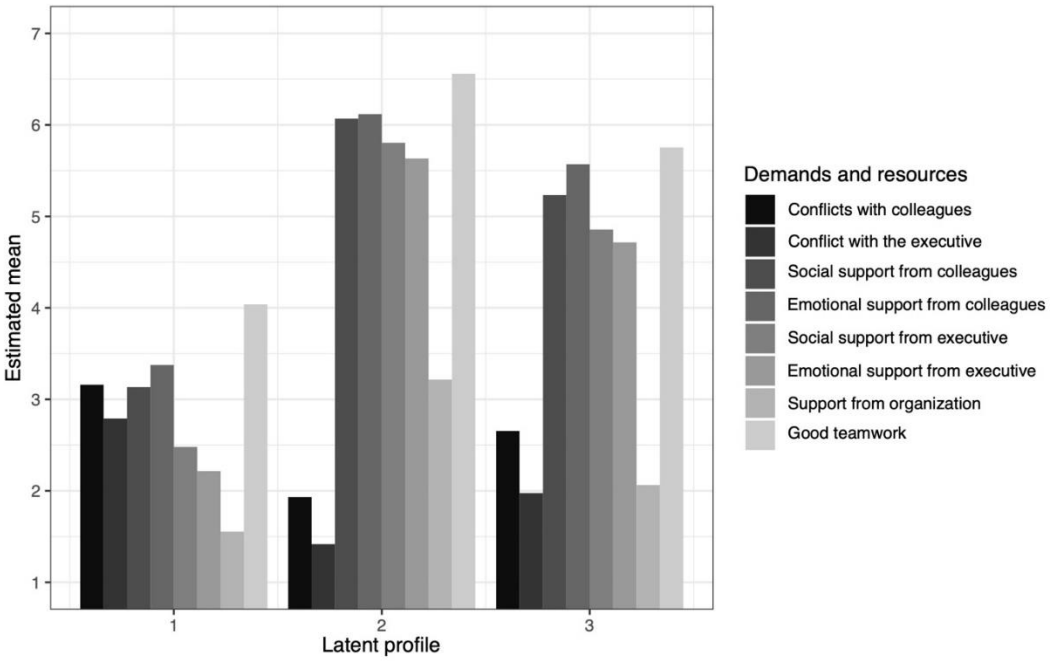

Figure 9. Latent profile solution for demands and resources (estimated means: conflicts with colleagues, conflicts with the executive, social and emotional support from colleagues, social and emotional support from the executive, support from organization, good teamwork; 7-point Likert scales; 1= never to 7= always/every day)

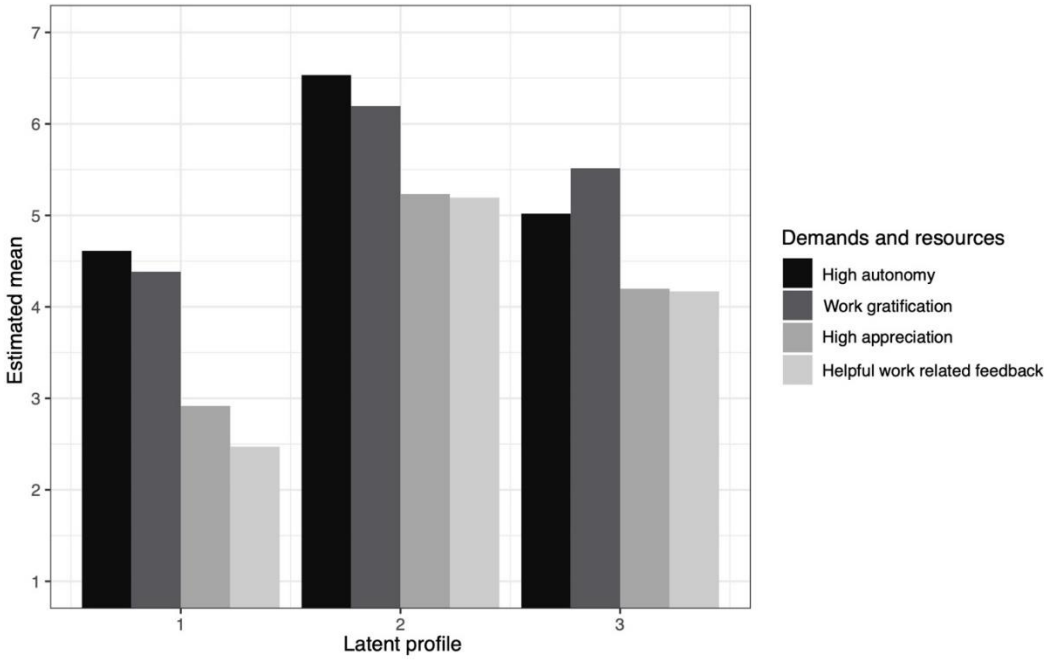

Figure 10. Latent profile solution for demands and resources (estimated means: high autonomy, work gratification, high appreciation, helpful work-related feedback; 7-point Likert scales; 1= never to 7= always/every day)

Differences between profiles regarding exhaustion and work engagement

In the following step, differences between the profiles regarding work-related exhaustion, personal exhaustion, and work engagement are inspected. There are significant differences between the profiles in work-related exhaustion ($F(2, 464)=67.588$, $p<.001$, $\omega^2=0.22$), personal exhaustion ($F(2, 464)=44.769$, $p<.001$, $\omega^2=0.16$) and work engagement ($F(2, 268.75)=59.047$, $p<.001$, $\omega^2=0.2$). Post hoc tests indicate that individuals in profile 1 facing high demands and low resources have the highest work related and personal exhaustion and the lowest work engagement. Persons classified in profile 2 (moderate demands and high resources) show the lowest exhaustion and the highest work engagement. All multiple comparisons are significant (cp table 3).

Work engagement and exhaustion could also be associated with working experience, working hours per week and age. In the present study, there are no significant correlations between the overall working experience and the working experience (in years) in the current ECE centre and the work-related exhaustion and engagement measures. Overall working experience shows weak (but significant) connections to personal exhaustion ($r = -.11$; $r^2 = .012$) explaining only 1.2% of the variance of personal exhaustion. Further, there are significant but very low correlations between age and both exhaustion measures. Age explains only 2.2% of the variance of personal exhaustion and 1% of the variance of work-related exhaustion. Age was not correlated with engagement. Working hours per week also was not associated with exhaustion and engagement (cp table 4).

Discussion

The covid-19 pandemic is a challenging situation for professionals working in an educational setting. The current research aims to identify job and family demands and resources patterns of ECE professionals during the covid-19 pandemic in Austria using a person-centred approach. Further, it is surveyed if the identified subgroups of ECE professionals based on their demands and resources differ in their exhaustion and work engagement.

Analyses show that there are three distinct latent profiles (subgroups) that differ primarily in the quantity of job demands and resources ranging from subgroups reporting high availability of resources and relatively moderate demands (profile 2) to high demands and moderate resources (profile 3) to the most exhausted subgroup characterized by high demands and low resources (profile 1). No profile was characterized by low job demands. Individuals assigned to profile 1 (which are characterized by a wide range of demands and low availability of resources) are more exhausted and less engaged in comparison to individuals of profile 2 and 3.

Individuals in profile 2 are also exposed to demands but in contrast to profile 1 there is frequent social and emotional support, autonomy, very high gratification, and fewer conflicts at the workplace. Further, individuals assigned to profile 2 receive frequent

appreciation and feedback. Individuals in profile 2 are less exhausted and more engaged in the job than individuals classified in profile 1 and 3. Profile 3 members which experience high demands and moderate availability of resources show less exhaustion and more work engagement in contrast to the high demands-low resources profile 1. Age, working experience, and working hours per week show no significant or very weak significant correlations (explained variance between 1% and 2%) to exhaustion and engagement. Due to the low explained variance values these variables don´t play a relevant role in ECE professional exhaustion and engagement issues during the pandemic. Extensive experience (personal resources) accumulated over the course of a career does not seem to help ECE professionals very much when facing demands during the pandemic. The results show that resources located primarily in the social environment (e. g. feedback, support, gratification) play a major role in the demand- exhaustion/engagement connection.

The present study shows that in all profiles gratification and autonomy are moderate to high, but individuals assigned to profile 2 show the highest values in gratification, feedback, appreciation, autonomy, and support. The availability of these multiple resources is linked to the lowest exhaustion and highest work engagement. The results demonstrate that even when demands are present, multiple resources like social support at the workplace, feedback, gratification, etc. can help to reduce exhaustion and induce engagement. Results are quite in line with research conducted before the covid-19 pandemic, reporting a positive link between resources like social support and autonomy and the educational professionals´ well-being and a negative link with depression or exhaustion (Bakker et al., 2007; Gu & Wang, 2019; Nislin et al., 2015; Roberts et al., 2019; Schaack et al., 2020). Research in health care settings during covid-19 also shows a negative link between social support (Manzano García & Ayala Calvo, 2021), gratification and perception of meaningfulness in work (Barello et al., 2020) and burnout.

Beside well-studied demands and resources like workload, shortage of staff, social support, appreciation, and feedback new demands arise during covid-19, namely fear of infection and restrictions of activities with children, which were frequent demands in all profiles. Sokal, Babb, and Eblie Trudel (2021) emphasize in their research on teacher burnout during covid-19 the need for a multi-level response. Job demands and resources can be found on the individual level (e. g. fear of infection, gratification), the group level (e. g. teamwork, conflicts), and the organizational level (e. g. shortage of staff, top-down information, and communication processes). Based on present results interventions should try to balance job demands and resources using individualized group/ECE centre specific interventions and organizational change processes. The implemented interventions should be based on the demand patterns in the ECE centres. Therefore, ongoing analyses of demands and the availability of resources should be a main goal for organizations in order to improve staff working conditions and health issues.

Strategies located on a group level that facilitate social and emotional support, prosocial behaviour and altruism (Holmes et al., 2020), teamwork, supportive leadership (giving staff voice, providing feelings of understanding, positive relationships, acknowledging effort and sacrifice, individual and group support) (Ford et al., 2019; Sokal et al., 2021), and supervision should be promoted in groups with high conflicts and low support from colleagues and leaders. On an individual level, building staffs´ coping strategies (Kar et al., 2021), mindfulness interventions (Dillard & Meier, 2021; Yuan, 2021), etc. can be seen as beneficial. Apart from organizational burnout prevention activities, employer-initiated activities could be beneficial to maintain or increase staffs´ resources (Otto et al., 2019). Further, the improvement of organizational commitment and efficient communication processes (top-down and bottom-up) between all stakeholders should be promoted.

In the present study, a shortage of staff and high workloads are challenges that ECE professionals are facing. Considering that a low teacher-child ratio is beneficial for child development in an ECE setting (Barros & Aguiar, 2010; De Schipper et al., 2006; Mashburn et al., 2008), organizational and political strategies to provide financial resources for hiring an appropriate amount of ECE professionals should be discussed. As mentioned above, monitoring and analysing changing demands and resources over time could help to modify strategies and provide additional organizational and political support if needed. To monitor the working situations of ECE professionals on a national level, OECD started the TALIS (Teaching and Learning International Survey) starting strong large-scale survey, which should provide politics with the necessary information for their decisions (OECD, 2019).

Overall, the present study highlights the role of resources when facing high demands in the ECE context. We also included family related demands and resources in our study because these are also relevant in the study of exhaustion. Individuals grouped in profile 1 facing high work and family demands experienced the highest exhaustion and show the lowest work engagement. The identification of resources in different systems (job, friends, couples, and family recourses) should be intensified by using a “multisystem (systemic) view” when studying employee burnout (Appel & Kim-Appel, 2008, p. 1). The implementation of multiple strategies to enhance working conditions, strengthen job resources and preventive strategies on all levels should be prioritized.

Limitations

Limitations should be considered when interpreting the results. The first limitation refers to the non-representative sample which limits generalizability. The results could not be generalized to the entirety of Austrian ECE professionals. It is possible that very exhausted individuals had insufficient energy and motivation to take part in the study. Further, the underrepresentation of rural areas could be problematic because due to different restrictions in different areas demand patterns could vary. Special ECE professionals like language-training staff are also underrepresented in our sample. Due to the nature of their

work, they could have experienced special demands. Even though we assured participants anonymity, some individuals could have terminated the online questionnaire due to sensitive topics like leader support etc. Considering these limitations, the study with a notable sample size shows demands and resources patterns in ECE professionals which could be used to discuss working conditions in ECE settings.

Declaration of interest

No potential conflict of interest was reported by the authors.

Consent to participate

Participant data have been anonymized. Such alterations have not distorted the scholarly meaning.

Ethical approval

The present study is a non-interventional study (survey) where ethical approval is not required.

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