

# A Two-Wave Study On The Associations Of Burnout With Depression And Anxiety: The Mediating And Moderating Role Of Perceived Family Support

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## Abstract

Studies have shown strong associations between burnout and depression and burnout and anxiety but their exact interrelationships still remain unclear. Few studies have examined the psychosocial mechanisms that might underlie these two relationships. Non-work social factors such as perceived family support can affect mental health. The present study investigated the distinctiveness and the reciprocal associations between burnout and depression, and burnout and anxiety by collecting data twice over an 8 month interval. Perceived family support was examined as a mediating and a moderating factor underlying the two relationships. The Maslach Burnout Inventory- General Survey, the Hospital Depression and Anxiety Scale, and the Julkunen Family Support Scale were administered to employees of the general working population ( $N = 52$ ). First, our results revealed moderate associations between burnout and depression, and burnout and anxiety, supporting the distinctiveness of burnout from the two psychological phenomena. Second, the exhaustion and cynicism burnout

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dimensions showed reciprocal associations with depression. Moreover, anxiety was found to be a consequence of cynicism while it presented reciprocal associations with the exhaustion dimension of burnout. Perceived family support did not mediate the burnout-depression and burnout-anxiety relationships. However, it moderated the depression-exhaustion relationship in a direction opposite from our hypothesis.

### Keywords

burnout, depression, anxiety, perceived family support, moderation analysis, mediation analysis

## Introduction

Burnout is a psychological syndrome resulting from chronic occupational stress and it consists of three dimensions, namely exhaustion, cynicism and reduced personal efficacy (Maslach et al., 2001). Exhaustion refers to feelings of emotional and physical depletion. Cynicism describes employees' detachment and withdrawal from their work and clients while reduced personal efficacy refers to employees' negative self-evaluation concerning their work efficacy (Maslach et al., 2001). The main topic of recent research studies is work-related stress (e.g., work load and co-worker interactions) and how they contribute to the development of burnout. Nevertheless, humans are a total of complex facets (e.g., social relationships and family interactions) (Colichi et al., 2017). Therefore, in order to have a more comprehensive picture on which factors can lead to burnout, researchers should not only be restricted to employees' working environment, but take into account non-work factors as well. Employees' perceived family support is one of these factors and it refers to individuals' perceptions regarding the help (emotional or instrumental) they receive from the person(s) they live with.

An important question in the burnout research is why some individuals develop burnout, whereas others do not, even when they are working under the same working conditions (Bühler & Land, 2003). Some researchers have highlighted the role of personality characteristics as a coping mechanism that helps individuals to conserve their resources (Ghorpade et al., 2007). Others have focused on the role of cognitive functions and argued that individuals with higher executive functioning skills are less prone in the stress effects (Williams et al., 2009). However, employees' perceived family support might also have a key role in the burnout experience.

An additional issue when examining burnout concerns its relationship with depression and anxiety. Depression is a psychological disorder which is characterized by feelings of sadness, anhedonia (i.e., loss of interest) and it can interfere with one's ability to function effectively both at work and at home (American Psychiatric Association, 2013). Anxiety is a psychological condition characterized by feelings of tension, anguished thoughts, and physiological changes (e.g., high blood pressure) (Cole, 2014). Burned-out employees often exhibit similar behavioral characteristics

with depressed and anxious individuals (e.g., impaired concentration) (Kaschka et al., 2011), often making burnout indistinguishable from these two psychological disorders. The present study focuses on the examination of the association between burnout and depression, and burnout and anxiety, and the role of perceived family support as a potential explanatory mechanism underlying these two relationships. Considering the lack of longitudinal studies, by conducting this two-wave study we aim to gain a better understanding of the burnout-depression and the burnout-anxiety associations.

### *Burnout, Depression, and Anxiety*

Several researchers have pointed out the strong relationships between burnout and depression, and burnout and anxiety. In fact, these significant associations are so frequent which have raised a debate among scholars on whether burnout is differentiated from depression and anxiety or it is just a different side of the same coin; with a greater emphasis being given in the burnout-depression relationship.

With respect to the empirical distinction between burnout and depression, several research evidence have documented significant associations between the two mental health issues (Bianchi et al., 2016, 2020; Schonfeld et al., 2019; Szigeti et al., 2017). In fact, of the three burnout dimensions, exhaustion appears to be closest to depression as various studies have shown stronger and positive correlations between the two constructs (Ahola et al., 2014; Schonfeld et al., 2019; Verkuilen et al., 2020). These empirical observations have led some researchers to argue that burnout might be a specific form of depression rather than a distinct psychological syndrome (Bianchi et al., 2015a, 2015). Nevertheless, not all researchers have met favorably this suggestion as various empirical evidence point to the distinction of the two constructs (Ahola & Hakanen, 2007; Tóth-Király et al., 2020). Moreover, a meta-analysis concluded that burnout is differentiated from depression as the reported associations between the two constructs are mainly moderate (Koutsimani et al., 2019). Similarly, a more recent meta-regression analysis found moderate associations between the two psychological phenomena while the researchers indicated the complexity of this relationship as it can be affected by several factors such as age, gender, and years of working experience (Meier & Kim, 2021). However, apart from their empirical distinction, burnout and depression are also conceptually different as several researchers have argued that burnout is situation specific (i.e., work-related), whereas depression is context-free (Maslach & Leiter, 2016).

The conceptual and empirical differentiation between burnout and anxiety has been less investigated. However, the relevant research evidence shows positive associations between the two psychological concepts (Ding et al., 2014; Vasilopoulos, 2012; Zhou et al., 2016). In their meta-analysis, Koutsimani et al. (2019) examined 36 studies focusing on the associations of burnout with anxiety and the researchers supported the distinctiveness of the two constructs as their interrelations are not so strong to suggest an overlap.

Notably, the studies examining the burnout-depression and burnout-anxiety relationships are mainly cross-sectional. Thus, our understanding of the two relationships remains limited as the cross-sectional studies do not allow for the exploration of causality in the two relationships.

In view of the longitudinal relationships between burnout and depression, four theoretical models have been proposed. The stability model which suggests that burnout and depression are associated with each other at the same time but none of the two predicts the other. This model has received some empirical support. Indicatively, [Idris et al. \(2014\)](#) observed that burnout and depression were cross-sectionally associated but not longitudinally after a 3 month follow-up period. Similarly, [Bianchi et al. \(2015\)](#) found that both psychological constructs were cross-sectionally related; however, after a 21-month follow-up period burnout did not lead to depression onset. This evidence suggests that burnout and depression are independent from one another. Thus, the two constructs could exist together at the same time just by chance due to the fact that both are common psychological problems. Nevertheless, the majority of the longitudinal studies reject this notion as they mainly give support to the following models.

The burnout-as-antecedent model states that burnout can result in an increase in depression levels but depression does not increase burnout; suggesting that burnout is an early phase of depression. This model is in accordance with both the conservation of resources (COR) model ([Hobfoll, 1989](#)) and the job demands resource (JDR) model ([Demerouti et al., 2001](#)). That is, when there is a mismatch between the demands of one's job and the resources available this can lead to a depletion of resources and thus, burned-out feelings might expand to the employee's personal life, creating a spill-over effect. This model has received some empirical support from longitudinal studies which found that burnout predicted the development of depression ([Bianchi et al., 2015b](#); [Hakanen et al., 2008](#); [Hakanen & Schaufeli, 2012](#); [Salmela-Aro & Upadyaya, 2014](#); [Shin et al., 2013](#)). Nevertheless, it is of importance to note that only three of the abovementioned studies ([Hakanen et al., 2008](#); [Hakanen & Schaufeli, 2012](#); [Shin et al., 2013](#)) examined the paths from depression to burnout which makes it difficult to gain a comprehensive idea regarding the directionality of the two constructs.

The third model considers burnout as a consequence of depression. That is, depression is regarded as an antecedent of the negative feelings towards one's work but burnout does not result in depression. Similarly to the previous model, some scholars have suggested that depression can lead to the depletion of the employee's energy resources which are necessary for coping with the work demands ([De Lange \\* et al., 2004](#)). Hence, considering that depression is characterized by a generalized negative appraisal of one's life, this can result in a negative evaluation of their work and their work efficacy as well. Although some studies give support to this model ([Armon et al., 2012](#); [Johnson et al., 2020](#); [Upadyaya et al., 2016](#); [Salmela-Aro et al., 2008](#)) only one of them ([Upadyaya et al., 2016](#)) explored the path from burnout to depression.

Lastly, the reciprocal effects model posits that both the "burnout-as-antecedent" and the "burnout-as-consequence" models are true. Hence, both psychological phenomena

have mutual relations. As the COR model (Hobfoll & Freedy, 1993) later suggested, the loss of resources experienced, either within the work context or within individuals' personal lives, can result in a spill-over effect. That is, burnout can result in the loss of the employees' psychological resources and this loss of resources spreads to their personal lives, leading to depression. Likewise, depression can lead to the depletion of the psychological resources that are necessary for the employee in order to cope with the work demands, resulting in work difficulties, and eventually in burnout. Several longitudinal studies have lend support to this model (Ahola & Hakanen, 2007; Salmela-Aro et al., 2009; Toker & Biron, 2012; Tóth-Király et al., 2020).

The reciprocal effects model is the most complete model as its examination allows researchers to compare all four models. Hence, in order to obtain a comprehensive picture regarding the causality of the two constructs, in the present study we considered the reciprocal effects model and explored all possible associations longitudinally, that is, the associations of the two constructs over time as well as the path from burnout to depression and vice versa. By taking into account that no similar theoretical models exist regarding the directionality of the associations between burnout and anxiety, the same reasoning was applied for the examination of these two constructs as well.

An additional limitation in the relevant literature is the lack of studies examining the psychosocial basis of the burnout-depression and burnout-anxiety relationships (Koutsimani et al., 2019). The investigation of the psychosocial factors which could underlie these three constructs could contribute to their further elucidation. The support of one's family environment is one such factor.

### *Family Support*

The connection of belonging to a group derives from the family process where an individual learns the group structure which will give the support base for their co-existence with other groups. Although the role of family support in workers' mental health is still an under-investigated research area, the relevant studies suggest its beneficial effects. Indicatively, family support has been positively (Pérez et al., 2015) and reversely (Drummond et al., 2017) related to job satisfaction and burnout, respectively, even when the job demands increase (Rupert et al., 2009) while it has been linked with reduced depression and anxiety (Vest et al., 2017); indicating its role as a potential resilience factor. However, it is noteworthy that other studies have not observed such associations between family support and work. Wilczyński et al., 2015, for instance, found that family life had a very poor effect on work engagement and in the risk of burnout. Moreover, in their systematic review Beauregard et al. (2011) examined 13 longitudinal studies and they did not find sufficient results supporting the effects of family factors on employees' mental health. The authors concluded that the study of the non-work determinants to employees' mental health is an under-investigated area of research; a notion supported by additional researchers as well (Colichi et al., 2017).

Indeed, although there is a close relationship between burnout and depression and burnout and anxiety, little is known on which factors might underlie the two relationships. Perceived support has been proposed to both mediate and moderate the stress effects on individuals' mental health (Folkman et al., 1986; Lazarus, 1993). Specifically, with respect to the mediating role of perceived family support and for the purpose of a conceptual clarity, following the COR model, depression and anxiety feelings might be the product of an interaction between burnout and perceived family support. The COR model of stress is considered the most dominant theory for understanding the reasons that lead to stress (Shirom, 2003). According to the COR model, individuals are propelled to gain and preserve resources and when these resources are no longer available, threatened or insufficient, stress results (Hobfoll, 1989). Applied to burnout, the COR model suggests that when resources are sufficient enough to meet the continuing work demands, they can act as protective factors against burnout (Lee & Ashforth, 1996). However, when employees' resources are either threatened (e.g., fear of job loss), lost (e.g., the actual loss of a job), or the employee is unable to gain back the lost resources, then burnout emerges (Freedy & Hobfoll, 1994).

Two types of resources were proposed by Hobfoll (1988), the work-related (e.g., support from workers) and the non-work-related social resources (e.g., intimacy with spouse/partner). The latter can broaden the availability of one's resources either by replacing or by enhancing them (Hobfoll, 1988). Nevertheless, when job demands are high, these non-work-related social resources can be lost and thus, result in burnout (Hobfoll, 2001). The COR model argues that the loss of resources is more important than the gain of resources; and the loss of a resource in one domain will lead to the loss of a resource in another domain (Hobfoll, 1989), creating a spill-over effect. When employees, for instance, are faced with high work demands, they will focus their (mental and physical) energy in coping with these demands possibly leading to a further loss of the available resources. When the employee's key resources become exhausted (i.e., burned-out), this might result in an inability to manage family demands; prompting a conflict between work and family as both domains demand energy re- sources in order to plan and perform strategies for balancing the two domains. Hence, this process, where the exhausted employee is unable to effectively cope in both work and family life, intensifies their already fragile mental health and eventually leads to the development of mental health problems.

The COR burnout model has received empirical support from previous research. In more particular, studies have shown the negative impact of burnout in family life as burned-out employees try to balance between work and family (Raja et al., 2018). Studies more focused towards the examination of social support have indicated the significant mediating effects of perceived support in the relationship between occupational stress and depression (Chen et al., 2020; Wu et al., 2011) and occupational stress and anxiety (Chen et al., 2020). In view of these observations, we understand both the effects of burnout on employees' family life and the effects of perceived support on mental health. Notwithstanding, the investigation of the mediating role of

perceived family in the burnout-depression and burnout-anxiety relationships is still lacking.

Apart from its potential mediating role, perceived family support can also moderate (buffer) the effects of burnout on employees' mental health. According to the stress-buffering hypothesis (Cohen & McKay, 1984), individuals' perceived availability of support can protect them from the adverse effects of stress on both physical and mental health, as support can relieve the mental and physical strain caused by stress (Dias et al., 2015). Although several studies have supported the stress-buffering hypothesis (Baek et al., 2014; Ho et al., 2014), others failed to observe any buffering effects of social support on the negative impact of stress on depression (Brandstetter et al., 2017; Cheng et al., 2020). Moreover, to the authors' knowledge, so far there are not any studies examining the buffering effects of perceived family support in the relationship between burnout and mental health. Hence, drawing upon the stress-buffering hypothesis, the effects of burnout on depression and anxiety might be exacerbated by the presence of low perceived family support.

## Objectives

The main goal of the present study was to delineate the burnout-depression and burnout-anxiety relationships. An additional aim was to examine the mediating and moderating effects of perceived family support on the two relationships. Figures 1 and 2 show the conceptual models where burnout is the main predictor, perceived family support is the moderator/mediator, and depression and anxiety are the outcomes. The development of the conceptual models was based on the descriptions provided by Hayes (2017). As burnout is not an unitary concept but instead it is a three-dimensional model consisting of three basic concepts, that is, exhaustion, cynicism, and personal efficacy (Maslach & Leiter, 2016), each dimension was examined separately in different mediation and moderation models. All study variables were measured at two different time points.

## Hypotheses of the Study

Drawing upon the reciprocal effects model, the COR model and the stress-buffering hypothesis the following hypotheses were formulated. First, all three burnout subscales will be reciprocally associated with both depression and anxiety over time but their

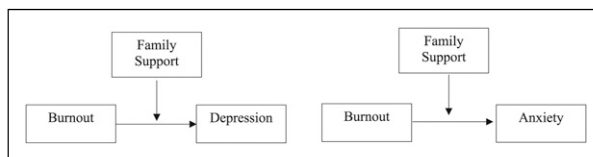


Figure 1. The conceptual moderation model of the research.

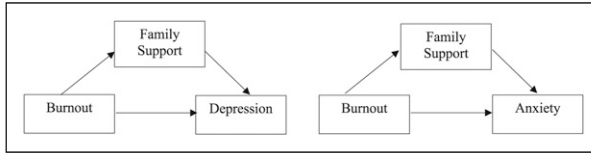


Figure 2. The conceptual mediation model of the research.

associations will be moderate, suggesting the distinctives of burnout from depression and anxiety. A second hypothesis is that perceived family support will mediate the relationship between the three burnout subscales and depression, and anxiety. Lastly, a third hypothesis is that the greater levels of perceived family support will moderate the burnout-depression and burnout-anxiety relationships.

## Materials and Methods

### *Ethics*

The researchers' university institution does not have an Institutional Review Board; therefore, the ethical procedures according to the declaration of Helsinki when conducting research with human participants during all phases of present study were followed. All participants agreed and signed an informed consent form for voluntary participation prior to their participation in the research.

### *Participants and Procedure*

The present study is part of a broader longitudinal study focused on the association between burnout and cognitive functioning and the moderating role of depression, anxiety, and perceived family support. The participants were Greek employees of the general working population. In order to increase the sample size, the snowball sampling method was used (Hendricks et al., 1992). The sample size at Time one was 104 employees.

All assessments were performed individually with each participant by a trained psychologist. Every session lasted approximately 60 minutes without taking any breaks. Since the participants were actively working, all assessments were performed at a time and place (either at the researchers' university or their workplace) of their convenience. At the second time of the assessment, all baseline participants were contacted by phone and were asked if they would like to participate in the follow-up examination; 72 of them agreed to participate. General rules concerning proper time intervals in longitudinal studies do not exist (Taris & Kompier, 2014). However, both short and long time intervals reduce the possibilities of identifying the effects of the independent to the depended variable (Taris & Kompier, 2014). Thus, we decided to examine the participants within an 8-month period interval, and after the baseline assessment was completed.



With respect to participants' family status, 76 (73.1%) and 55 (76.4%) of the total sample reported living with someone else at Time 1 (T1) and Time 2 (T2), respectively.

### *Assessment Tools*

*Burnout.* Burnout was measured by administering the Maslach Burnout Inventory-General Survey (MBI-GS) (Maslach et al., 1996). The MBI-GS is comprised of 16 items in a Likert-type scale asking how often employees experience certain difficulties. All responses range from 0 "never" to 6 "every day." The items are divided in three subscales; exhaustion, cynicism and personal efficacy. All three subscales exhibited reliabilities above 0.70. Specifically, Cronbach's alphas were  $\alpha_{t1} = 0.90$  and  $\alpha_{t2} = 0.92$  for exhaustion;  $\alpha_{t1} = 0.71$  and  $\alpha_{t2} = 0.79$  for cynicism; and  $\alpha_{t1} = 0.84$  and  $\alpha_{t2} = 0.85$  for personal efficacy.

*Depression and Anxiety.* Depression and anxiety feelings were assessed with the Hospital Anxiety and Depression Scale (HADS) (Zigmond & Snaith, 1983) which can be used in both hospital settings and healthy populations (Crawford et al., 2001). The scale consists of 14 items scored as two 7-item subscales which measure for anxiety and depression. Each item is presented as a symptom (e.g., "I feel as if I am slowed down") and is scored on a response-scale. The individuals need to select one of the four alternative options presented to them ranging from 0 to 3. Scores  $\geq 8$  and  $\geq 11$  indicate potential and definite cases, respectively (Zigmond & Snaith, 1983). Cronbach's alphas were  $\alpha_{t1} = 0.74$  and  $\alpha_{t2} = 0.79$  for depression and  $\alpha_{t1} = 0.84$  and  $\alpha_{t2} = 0.83$  for anxiety.

*Family Support.* Perceived family support was measured with the Julkunen Family Support Scale (Julkunen & Greenglass, 1989). The Family Support Scale (FSS) consists of 13 items rated on a 5-point Likert-type scale ranging from 1 "I disagree a lot" to 5 "I agree a lot." The scale assesses the subjective feelings of how individuals perceive the support they receive from the person(s) they live with (e.g., "There is no benefit in speaking about your daily difficulties at home"); scores  $>37$  suggest high sense of perceived family support. Cronbach's alpha for the FSS was  $\alpha_{t1} = 0.81$  and  $\alpha_{t2} = 0.80$ .

### *Statistical Analysis*

All analyses were performed in SPSS (v.21) and PROCESS (v.3.5) (Hayes, 2017). Pearson's correlations were conducted for investigating any possible correlations among the studied variables. Correlation analysis was performed for all participants at T1 and T2. Multiple mediation and moderation models were performed for examining potential interactions and both direct and indirect effects among all variables. A 5.000 bootstrap sample was used and the mediation and moderation effects were determined

to a 95% confidence interval. Considering that we tapped into the reciprocal effects model, the three burnout dimensions, depression and anxiety were defined both as independent and dependent variables in different models.

Mediation effects were examined first. Mediation analysis is used to identify and describe the association between the independent (X) and the dependent variable (Y) which can be influenced via a third variable, that is, the mediator (M) (MacKinnon et al., 2012). In the present study, the PROCESS model four was used for examining the mediation effects of perceived family support in the burnout-depression and burnout-anxiety relationships. Second, the moderation effects were examined. Moderation analysis is used to explore if the direction and/or strength of the relationship between the predictor (X) and the outcome variable (Y) is affected by a third variable, that is, the moderator (W) (Cohen et al., 2013). Specifically, the PROCESS model one was used. Initially we centered the predictor, and the moderator (i.e., perceived family support) and then we created the interaction term. This approach helps to improve the interpretation of the regression coefficients (Fairchild & MacKinnon, 2009). The conditioning interaction effects were examined at one standard deviation (SD) above the mean, at the mean and one SD below the mean. The *Johnson–Neyman* method was selected for acquiring a zone of significance for the moderator.

Considering the multiple analyses that were conducted and for the purpose of reducing the risk of making Type I errors, the *p* values were adjusted using the Benjamini–Hochberg method (Benjamini & Hochberg, 1995). After the application of the Benjamini–Hochberg correction, none of the observed significant associations (original *p* value <.05) were indicated as non-significant.

Due to sampling variations on both time points (some participants were living alone at T1 but they were living with someone else at T2 and vice versa) and that PROCESS includes only complete data for both measurements from the 104 participants at T1 and the 72 participants at T2, 52 participants in total were included in the mediation/moderation analyses models (see Figure 3). Post-hoc G\*Power analysis with a large effect size revealed a sufficient sample size to identify at least medium effects with a statistical power >0.90 (Faul et al., 2009). As the FSS does not focus solely on family members rather it measures a person's subjective feelings regarding the support they receive from the person(s) they live with, in this study we included participants who were currently living with someone else at the time of the assessments (i.e., spouses, parents, grandparents, siblings, and roommates).

## Results

### *Descriptive Characteristics*

The sample size at T1 consisted of a total of 104 employees. After an 8-month period we conducted a follow-up examination where a total of 72 participants participated resulting to a 36.3% drop rate. All variables were assessed at T1 and T2. See Table 1 for details regarding participants' characteristics at both time points.

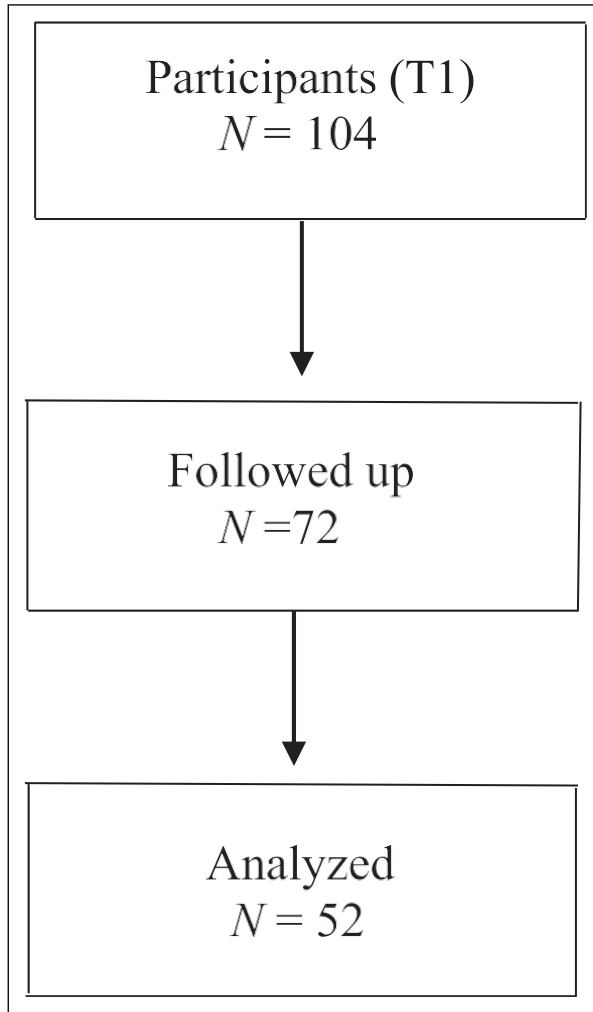


Figure 3. Flowchart of study participants.

With respect to any differences between participants who dropped out and the participants who continued with the study, we compared their mean scores on the three MBI-GS subscales and the total scores of the HADS and FSS scales via paired-samples t-test. The follow-up sample did not differ from the initial sample in most studied variables except from the cynicism subscale mean score ( $t = -2.25, p < .05$ ) which was higher at T2 participants ( $M = 2.54, SD = 1.45$ ) compared to the T1 participants ( $M = 2.16, SD = 1.32$ ). [Table 2](#) shows the correlations among the studied variables separately at T1 and T2.

Table 1. Demographic characteristics of the participants at T1 ( $N=104$ ) and T2 ( $N=72$ ).

Characteristic	T1	T2
Age (mean, <i>SD</i> )	40.40 (10.06)	39.80 (9.80)
Years of education (mean, <i>SD</i> )	16.82 (1.39)	16.88 (1.37)
Years of working experience (mean, <i>SD</i> )	15.20 (8.67)	15.97 (10.64)
	<i>N</i> (%)	<i>N</i> (%)
Children		
Yes/No	40/64(38.5/61.5)	28/44(38.9/61.1)
Sector		
Public	62 (59.6)	44 (61.1)
Private	42 (40.4)	28 (38.9)
2 <sup>nd</sup> occupation	22 (21.1)	17 (23.6)
Males/Females	24/80(23.1/76.9)	16/56 (22.2/77.8)
Family status		
Cohabiting	8 (7.7)	8 (11.1)
Married	47 (45.2)	31 (43.1)
In a relationship	1 (1)	—
Separated	4 (3.8)	4 (5.6)
Divorced	3 (2.9)	—
Single	41 (39.4)	29 (40.3)
HADS-depression $\geq 8$ ( <i>N</i> , mean, <i>SD</i> )	17 (10.70, 2.49)	19 (9.73, 1.79)
HADS-anxiety $\geq 8$ ( <i>N</i> , mean, <i>SD</i> )	39 (10.25, 2.44)	23 (10.34, 2.22)

Table 2. Means (*M*), Standard Deviations (*SD*) and correlations between MBI subscales, HADS and FSS.

Variables	1	2	3	4	5	6	<i>M</i>	<i>SD</i>
1.EX	—	.56**	-.03	.50**	.57**	-.22	2.88	1.56
2.CY	.42**	—	-.12	.36**	.39**	-.24	2.54	1.45
3.PE	-.09	-.31**	—	-.16	-.09	.04	5.04	.85
4.HADS-D	.41**	.45**	-.33	—	.85**	-.44**	5.08	3.38
5.HADS-A	.41**	.45**	-.25	.80**	—	-.35**	6.12	3.69
6.FSS	-.24*	-.30**	.16	-.42**	-.37*	—	51.40	8.82
<i>M</i>	2.89	2.08	5.05	5.02	6.33	51.40		
<i>SD</i>	1.54	1.30	.96	3.24	3.82	8.88		

Note. EX=Exhaustion, CY=Cynicism, PE=Personal Efficacy, HADS-D=Hospital Anxiety and Depression Scale-Depression, HADS-A = Hospital Anxiety and Depression Scale-Anxiety, FSS = Family Support Scale, \*\* $p < 0.01$  level (2-tailed), \* $p \leq 0.05$  level (2-tailed), Entries below the diagonal represent results at T1; entries above the diagonal represent results at T2.

### Mediation Analysis

Family support was examined as a mediator in the relationship among the three MBI-GS subscales, depression and anxiety. Mediation analysis results indicated that anxiety T1 had a direct effect on exhaustion T2 ( $\beta = .16$ , 95% CI [.03, .29],  $p < .05$ ) while it did not have any significant direct effects on cynicism T2 and personal efficacy T2 ( $p$ 's  $> .05$ ). Regarding depression at T1, we found direct effects of depression on cynicism T2 ( $\beta = .13$ , 95% CI [.00, .25],  $p < .05$ ) and exhaustion T2 ( $\beta = .17$ , 95% CI [.03, .31],  $p < .05$ ), but not on personal efficacy. When we examined for reciprocal effects, we found direct effects of exhaustion T1 ( $\beta = 1.15$ , 95% CI [.55, 1.76],  $p < .01$ ) and cynicism T1 ( $\beta = 1.26$ , 95% CI [.51, 2.02],  $p < .01$ ) on anxiety T2. With respect to depression, direct effects of exhaustion T1 ( $\beta = .94$ , 95% CI [.36, 1.52],  $p < .01$ ) and cynicism T1 ( $\beta = .91$ , 95% CI [.18, 1.65],  $p < .01$ ) on depression at T2 were found. Exhaustion T1 also had direct effects on family support T2 ( $\beta = -1.65$ , 95% CI [-3.20, .10],  $p < .05$ ). Regarding the examined 12 mediating models, none of them indicated any significant indirect effects of family support in the relationship between the three MBI subscales on T1 and depression and anxiety at T2, and vice versa.

### Moderation Analysis

Perceived family support was examined as a moderator of the association between the three MBI-GS subscales, depression and anxiety. According to the results, perceived family support was a significant moderator of the relationship between depression at T1 and exhaustion at T2 ( $\beta = .008$ , 95% CI [.007, .016],  $t = 2.16$ ,  $p < .05$ ), indicating that there is a significant interaction between depression T1 and perceived family support T1 in the relationship between depression and exhaustion (see Table 3). Specifically, when perceived family support is low there is not a significant association between depression T1 and exhaustion T2 ( $\beta = .076$ , 95% CI [-.017, .170],  $t = .161$ ,  $p = .109$ ). However, at the mean value of perceived family support there is a significant and positive relationship between depression T1 and exhaustion T2 ( $\beta = .141$ , 95% CI [.064, .218],  $t = 3.64$ ,  $p = .000$ ). At the high levels of perceived family support there is

Table 3. Moderation effect of Family Support at T1 on the Exhaustion T2 and Depression T1 relationship ( $N = 52$ ).

	<i>B</i>	<i>SE B</i>	<i>t</i>	<i>P</i>
Constant	5.77 [2.51, 9.03]	1.64	3.51	<.01
Exhaustion T2 (centered)	-0.29 [-0.70, 0.10]	0.20	-1.45	= 0.14
Family support T1 (centered)	-0.06 [-0.12, .00]	0.03	-2.24	= .027
Exhaustion T1 x Family support T2	0.00 [0.07, 0.16]	0.00	2.16	= .032

Note.  $R^2 = .17$ .

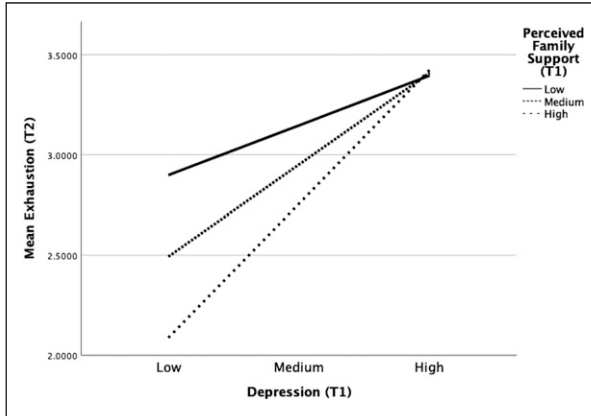


Figure 4. Moderation effect of family support (FSS) at T1 on the relationship of depression (T1) on exhaustion (T2) ( $N = 52$ ).

also a significant and positive relationship between depression T1 and exhaustion T2 ( $\beta = .206$ , 95% CI [.105, .306],  $t = 4.08$ ,  $p = .000$ ) (see Figure 4). According to the Johnson–Neyman technique, the score of 45.1930 on the family support scale can be regarded as a point of transition between a statistically significant and a non-significant effect of depression on exhaustion. No other significant moderating effects were observed.

## Discussion

The present study examined at two different time points the distinctiveness and longitudinal associations between burnout–depression, and burnout and anxiety; and the role of family support as a potential exploratory mechanism of the burnout–depression and burnout–anxiety relationships. Our initial hypothesis was that all three burnout dimensions would be reciprocally but moderately associated with both depression and anxiety over time, suggesting the differentiation of burnout from depression and anxiety. Second, we argued that perceived family support would mediate the association between burnout and depression, and burnout and anxiety. Lastly, we hypothesized that the greater levels of perceived family support would moderate the burnout–depression and burnout–anxiety relationships.

Our hypotheses were partially supported as the results showed that two burnout dimensions (i.e., exhaustion and cynicism) were positively related to depression and anxiety. These findings are in agreement with previous studies that have reported positive associations between burnout and depression (Bianchi & Laurent, 2015) and burnout and anxiety (Ding et al., 2014); results that suggest potential comorbidity of burnout with the two psychological phenomena. Indeed, it is possible for employees

who have received a depression and/or anxiety diagnosis to suffer from burnout as well (Maske et al., 2016).

Further investigation of the two relationships revealed that the two burnout dimensions were predictors of both depression and anxiety, indicating causality. These observations are in accordance with previous studies which have shown that burnout can be a risk-factor for depression onset and as burnout grows stronger it eventually leads to depression (Kaschka et al., 2011). These findings support the notion that burnout is an antecedent of depression and anxiety. However, the investigation of reciprocal effects confuted the concept of burnout as an antecedent of the two mental health issues. Particularly, present results showed that depression predicted both exhaustion and cynicism while anxiety predicted exhaustion, but not cynicism. These observations suggest a bidirectional relationship between certain burnout aspects and depression, and anxiety, and are partially in agreement with the study of Ahola and Hakanen (2007) and Tóth-Király et al. (2020) who also reported reciprocal relationships between burnout and depression.

All in all, the above findings support the reciprocal effects model which assumes that both burnout and depression act as a predictor and as an outcome of one another and they also suggest that this model applies to the relationship between burnout and anxiety. However, reciprocal effects were observed only between the exhaustion dimension and anxiety. As cynicism is considered a coping mechanism (Brandes & Das, 2006) and it has been suggested to be a helpful way for expressing feelings of frustration (Meyerson, 1990), the current findings could reflect the employees' efforts to distance themselves from their work performance while at the same they try to cope with the stress they experience resulting to greater anxiety feelings.

With respect to the bidirectional associations observed there are several possible reasons that could explain them. Specifically, concerning the burnout-depression relationship, it is possible that depressed individuals have fewer resources that could help them cope with job demands making them more susceptible to burnout (De Lange \* et al., 2004). In the context of theoretical terms, these findings are in accordance with the COR (Hobfoll, 1989) and the JDR-M (Demerouti et al., 2001) models which posit that burnout spillovers from the work context to a more generalized context affecting employees' personal lives. The discrepancy between work demands and the available resources leads to a loss of energy and psychological resources (Hobfoll, 1989). The limited resources cannot be allocated anymore to other life domains which ultimately precipitates depression. Similarly, depression can lead to a depletion of the psychological resources resulting in difficulties to cope with the work demands and thus giving rise to burnout. Another plausible explanation for the reversed effect (i.e., depression as a predictor of burnout) could be the fact that depressed employees perceive and assess working conditions more negatively comparing to the non-depressed ones (De Lange \* et al., 2004). Hence, possibly the depressed employees perceive working conditions in view of their mental health and as a consequence, they report higher burnout feelings. The reciprocal associations between exhaustion and anxiety could be interpreted by the two anxiety characteristics; state and trait anxiety (Spielberger, 1966). State anxiety

refers to a person's reaction against a stressful situation. That is, the constant stressful situations that an employee encounters lead to exhaustion and eventually spillover outside the working environment resulting in a generalized anxiety state. Trait anxiety is a stable personality characteristic. Employees who are anxiety-prone might perceive situations in their working environment more stressful comparing to the employees who do not possess this trait, resulting eventually to exhaustion. Hence, the reciprocal association between exhaustion and anxiety could be explained by an interaction between the stressful environments in which the employees are working to and their personality characteristics; a process which eventually leads to burnout. These findings emphasize the role of anxiety as a contributor to burnout onset and particularly to exhaustion. Although in the present study we did not measure for state and trait anxiety, previous studies have provided evidence regarding the significance of the two anxiety characteristics in exhaustion (Turnipseed, 1998). The limited number of studies exploring anxiety as a contributing factor in the development of burnout does not allow for a firm causality establishment, thus, additional research work is deemed necessary. It is noteworthy that the path of exhaustion and cynicism leading to depression and anxiety was stronger comparing to the paths where depression and anxiety were set as predictors suggesting that burnout could be a stage leading to depression and or anxiety. It is also of note that in a longitudinal study where the reciprocal relationship between burnout and depression was investigated within a 7-year time period it was reported that burnout was a predictor of depression and not vice versa (Hakanen & Schaufeli, 2012), indicating that burnout is a prodromal stage of depression. Our results add to the literature regarding the relationship between burnout and depression, and burnout and anxiety and whether they are different or same constructs. In a recent meta-analysis (Koutsimani et al., 2019) it was reported that both burnout and depression and burnout and anxiety although they share similar characteristics, they are different concepts. Present findings also support this notion as, although we found significant associations among these variables, their effect sizes were mainly moderate suggesting that they do not overlap with each other.

Another goal of this study was to investigate whether perceived family support affects the burnout-depression and burnout-anxiety relationships. The work-family conflict models propose that the conflict between these two domains arise due to an incompatibility of the engagement in the demands of each domain while this conflict can affect the quality of the working and family life (Burke, 1988). Indeed, more recent studies have shown that when work interferes with family this leads to burnout (Gupta & Srivastava, 2020), whereas others suggest that individuals who receive greater support from their friends and family members exhibit less psychological and health problems including burnout, depression, and anxiety (Gündüz et al., 2019).

Current results showed that perceived family support at the first time of assessment was negatively correlated with cynicism and depression at the second time of assessment. Moreover, baseline exhaustion, cynicism, depression, and anxiety were negatively associated with family support at T2. These results suggest that low levels of perceived family support are associated with higher levels of burnout, depression, and



anxiety. This result is in accordance with other studies that have reported negative associations of perceived family support with depression (Bratis et al., 2009), burnout (Tselebis et al., 2008), and anxiety (White et al., 1998); regarding the latter relationship we were not able to locate other similar studies indicating a lack of studies in this research area.

Contrary to our expectations, we did not find any mediation effects of perceived family support in the burnout-depression and burnout-anxiety relationships. This result is partially in accordance with the study of Hakanen and Schaufeli (2012) who did not find any indications that overall life satisfaction (e.g., marital relationships) affects work-related well-being. Moreover, Viswesvaran et al. (1999) in their meta-analysis did not find evidence for any mediational effects of social support on work stress. These results could possibly suggest that non-work factors might be less important than the work-related ones. Nevertheless, in their study Chen et al. (2020) showed that social support mediated the association between job stress and depression and anxiety. However, since there is a lack of studies focusing on the mediating effects of family support in the burnout-depression and burnout-anxiety relationships more relevant research is of importance in order to gain a clearer picture for these two relationships.

A surprising finding was observed when we examined the potential moderating role of perceived family support in the depression-exhaustion relationship. Specifically, a reversed moderation effect was found according to which at medium and high levels of perceived family support, the association between depression and exhaustion is also higher, whereas when perceived family support is low there are not any significant interactions between depression and exhaustion. To our knowledge, a minority of studies have reported similar observations. Kaufmann and Beehr (1986), for instance, found that high social support levels strengthened the relationship between stressors and job strain instead of reducing it. According to the authors, some reasons that could possibly explain such an unexpected finding are that support sources are irrespective of the stress sources (Blau, 1981). If, for instance, a family member who is causing stress approaches the exhausted employee for offering support, this support could be experienced as stressful. Indeed, Deelstra et al. (2003) showed that imposed support leads to negative reactions and these negative reactions are moderated by the magnitude of the employees' need for support. Thus, even though providing social and/or family support to a distressed individual, typically, it can be beneficial, it is not necessarily going to be perceived as such (Deelstra et al., 2003).

Family support is not a one-way street as it requires active participation (spend time with family members, communication, etc.), increasing a person's obligations. Thereby, it is possible that depressed individuals are not able to meet with the family demands as they lack the proper psychological resources. Although family members might offer their support, the inability to successfully fulfill one's role as a part of a family might itself constitute a source of stress which eventually affects the person's functioning in other life domains (e.g., workplace). Altogether, family support can turn into an emotional burden to those individuals who suffer from mental health problems such as depression, as it requires from the individuals to expend more of their already

limited resources. This process might result in a further reduction of the resources that an individual can allocate to their work, resulting in exhaustion.

Although we controlled for false recovery rate nevertheless, we should not ignore the possibility that this result could be a chance finding due to sampling variability or it may reflect a Type I error because of our relatively small size (Skelly, 2011). Moreover, as we only examined for perceived family support, we cannot know if another confounding (work or non-work-related) variable could underlie the relationship between depression and exhaustion. Nevertheless, when such unexpected results are observed this could implicate that a common theoretical interpretation for the effects of social/family support on stress is not necessarily always accurate (Kaufmann & Beehr, 1986). Overall, our results do not support the stress-buffering hypothesis (Cohen, 1984) which posits that social support mitigates the stress effects on mental health and are in contrast with other studies that found that social support was a significant moderator of the burnout-anxiety relationship (Zhang et al., 2020). Similarly, in their meta-analysis Viswesvaran et al. (1999) observed that the presence of social support (e.g., co-workers, family, and friends) on one's environment alleviates the strength of job strain (e.g., burnout, job dissatisfaction, and work overload). Interestingly, the researchers also found that social support was not deployed by the employees' when they felt stressed. That is, stressed employees did not seek for support in order to alleviate their feelings of stress. A result possibly reflecting individuals' reluctance on receiving support when they are distressed. This observation also supports the notion that perceived support can act as a stressor when an individual is psychologically unwell.

Our study contributes in five ways to the existing literature. First, we examined the temporal relationship between burnout and depression, and burnout and anxiety during an 8-month follow-up period. Second, we also investigated for potential temporal associations of perceived family support with burnout, depression and anxiety. Third, we showed that, although related, burnout, depression and anxiety are different constructs. Fourth, we studied for possible mediation effects of perceived family support in the burnout-depression and burnout-anxiety relationships. Fifth, we examined perceived family support as a moderator between burnout and depression and burnout and anxiety and we observed that perceived family support strengthened the relationship between depression and exhaustion. The absence of mediation and moderation (in part) effects of perceived family support could suggest that job experiences have a crucial role in the employees' mental health while non-work factors might be less important than the work-related ones.

### *Limitations*

Our study has several limitations. First, the sample size was relatively small, thus, making it more susceptible in Type I errors. Studies with larger sample sizes could provide more robust results. Second, the examination of most studied variables relied solely in self-report questionnaires which includes the risk of common method variance (Richardson et al., 2009). However, subjective assessment of work characteristics has

been found to be more highly associated with mental health than objective assessment (Spector, 1992). A third limitation was that we did not examine any other work and non-work-related factors that could influence the burnout-depression and burnout-anxiety relationships. Therefore, we cannot know whether other factors could affect the results. Future studies would benefit from measuring a wider range of factors that could potentially underlie the burnout-depression and burnout-anxiety relationships (work-related social support, friends' support, personality characteristics, coping styles, etc.). Fourth, while we examined temporally the assessed variables our study is not able to infer causality among the studied relationships. Fifth, the time interval between the two measurements was relatively short. Even though shorter time intervals can detect the rate of mood fluctuations (i.e., how quickly a person's feelings change), longer time intervals and multiple waves of data would be more suitable to fully appreciate the developmental processes of the studied relationships. Lastly, chance capitalization is always an issue when one examines multiple associations. Thus, it is possible statistically significant results could be due to chance. However, a significant strength of our study was the fact that we assessed cognitive functioning with an exhaustive clinical interview (average time = 60 minutes), which makes common method variance less likely.

## Conclusions

Our results show the practical implications when experts examine employees who report depressive and/or anxiety feelings, and how they should take into consideration the similarities of these three psychological phenomena as this might result in false diagnosis, such as diagnosing an employee with depression while in fact they suffer from burnout, and consequently lead to false treatments. The current findings also emphasize the practical and scientific implications of perceived family support on the development of mental health issues. The most critical practical implication concerns that mental health experts need to consider the significance of family support against the development of psychological problems and encourage the strengthening of the family bonds. However, they also need to evaluate individuals' current mental state and bear in mind that imposing support to an already distressed person could result in an opposite from the desired result. Scientifically, present results underscore the significance for a further exploration of the common theoretical frameworks and the need to include a broader perspective on the effects of social support on mental health by taking into consideration those situations that can influence the direction of the—commonly accepted beneficial—effects of perceived support.

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