

Coping with burnout: Analysis of linear, non-linear and interaction relationships

José A. García-Arroyo* and Amparo Osca

National Distance Education University (Spain).

Título: Lidando con el burnout: Análisis de relaciones lineales, no lineales y de interacción.

Resumen: Este estudio analiza la relación entre el afrontamiento centrado en la acción y en la emoción y las dimensiones del burnout (agotamiento emocional, cinismo y realización personal) comparando los modelos lineal, no-lineal y de interacción mediante análisis de regresión cuadrática. La muestra consistió en 202 profesores de universidad. Variables como el sexo o la edad no resultaron significativas al explicar la relación entre el afrontamiento y el burnout. Los resultados muestran relaciones significativas negativas entre el afrontamiento centrado en la emoción y el agotamiento y cinismo y positivas con la realización personal (modelo lineal). También muestran que niveles muy bajos o muy altos de afrontamiento centrado en la emoción disminuyen la realización personal de forma significativa (modelo no-lineal), y que el efecto combinado de estrategias de afrontamiento es significativo, de forma que cuando el uso de las estrategias enfocadas en la emoción es mayor que el de las enfocadas en la acción, el agotamiento aumenta y la realización personal disminuye. Estos resultados apoyan la idea de que para comprender la naturaleza flexible y adaptativa del afrontamiento y de que éste opera en un proceso combinado donde unas estrategias afectan a las otras, es de gran utilidad la aplicación de modelos no-lineales y de interacción. Finalmente, se discuten las implicaciones prácticas para futuras investigaciones y para los programas de prevención y de intervención sobre el burnout.

Palabras clave: Afrontamiento enfocado en la acción; afrontamiento enfocado en la emoción; burnout; relación lineal; relación no lineal; efecto de interacción.

Abstract: This study analyzes the relationship between action-focused coping, emotion-focused coping and burnout dimensions (emotional exhaustion, cynicism and personal accomplishment) by comparing linear, non-linear and interaction models using quadratic regression analysis. The sample consisted of 202 college professors. Variables such as gender or age were not significant when explaining the relationship between coping and burnout. The results show significant negative relationships between emotion-focused coping and exhaustion and cynicism, and positive relationships with personal accomplishment (linear model). They also show that very low or very high levels of emotion-focused coping diminish personal accomplishment significantly (non-linear model), and that the combined effect of strategies is significant, so that when the use of emotion-focused coping is greater than the use of action-focused coping, exhaustion increases and personal accomplishment decreases. These results support the idea that in order to better understand the flexible and adaptive nature of coping and that it operates in a combined process where one strategy affects the other, the application of non-linear and interaction models are very useful. Finally, we discuss the practical implications for future research and for prevention and intervention programs on burnout.

Key words: Action-focused coping; emotion-focused coping; burnout; linear relationship; non-linear relationship; interaction effect.

Introduction

One of the main efforts on burnout research has focused on discovering the nature of the association between this concept and other variables. For instance, in the last ten years the nineteen meta-analysis published on burnout have examined its antecedents and consequences (Lee, Lim, Yang, & Lee, 2011), gender differences (Purvanova, & Muros, 2010), job demands, resources, attitudes and personality factors related to burnout (Alarcon, 2011; 2009) among others. This huge amount of research suggests that researchers continue to be interested in the nature of burnout (Cox, Tisserand, & Taris, 2005), because it is an important consequence of stress at work related to health and performance and it appears to represent considerable economic, social and psychological costs to employees and employers (Shirom, 2005).

Burnout is a syndrome that arises when coping strategies fail and it consists of a response to prolonged exposure to chronic work environment stressors that negatively affects physical and psychological health of workers as well as their performance being the cause of dissatisfaction and in many cases producing the intention to quit (Huang, 2009). It has

also been considered as the result of unfulfilled expectations of the subject that will produce demotivation and mechanized behaviours (Manzano-García, & Ayala-Calvo, 2013). From a psychosocial perspective, burnout combines three dimensions as part of the same syndrome, but each can be studied separately (Schaufeli, Leiter, & Maslach, 2008). One dimension is emotional exhaustion (EE) and it consists of affective deterioration, not being able to give more of oneself on the affective level and exhaustion of energy and emotional resources. The second dimension involves negative attitudes and behaviours towards the beneficiaries of the service (depersonalization) or toward the work itself (cynicism) (C). It is a kind of coping with EE. The third dimension, lack of personal accomplishment (PA), implies cognitive deterioration, the loss of the illusion about the work, the loss of the professional sense, and tendency to evaluate negatively. As a consequence, workers are dissatisfied with themselves and with their professional results. This three-dimension structure has been discussed by some authors such as Demerouti, Bakker, Vardaku, and Kantas (2002) or Halbesleben and Demerouti (2005) who defended a two dimension structure or such as Kristensen, Borritz, Villadsen, and Christensen (2005), Pines and Aronson (1981), and Shirom and Melamed (2005) who proposed a single dimension, that is exhaustion. Although the debate on the number of dimensions has not yet been settled, it seems clearer to accept that burnout has an emotional component, that is exhaustion as a reaction to

*** Correspondence address [Dirección para correspondencia]:**

José A. García-Arroyo. Departamento de Psicología Social. Facultad de Psicología. Universidad Nacional de Educación a Distancia, UNED.
C/ Juan del Rosal, 10, 28040, Madrid (Spain).
E-mail: joseantoniogarciaarroyo@gmail.com

stress, and an attitudinal component: cynicism as coping with exhaustion, and low personal accomplishment as a negative attitude toward oneself in relation to work performance, and also a coping strategy to face emotional exhaustion but in this case associated with low self-esteem (Buunk, & Schaufeli, 1993).

In addition following Lazarus and Folkman (1984), coping mechanisms are the behavioural and cognitive efforts made to manage, reduce or tolerate the internal and external demands generated by stressful events. According to these authors, there are two basic types of coping strategies. One, called direct or action-focused coping, aims at changing the situation, trying to modify the source of stress, focused on the solution of the problem. The other is called indirect or emotion-focused coping and it is addressed to regulate the emotional response generated by the source of stress, or to avoid the problem by taking refuge in other activities of distraction or seeking social support. Examples for action-focused coping are: trying to control the situation or problem, finding and evaluating alternatives to solve it, taking into account cost-benefit, modify pressures, procedures or resources or reduce the participation of the self. Examples for emotion-focused coping are avoidance, distancing, doing positive comparisons, to seek refuge in hobbies, in religion, to seek someone company or social support. This categorization of coping strategies can be very useful but when analyzing the findings related to coping it is important not forget the complexity of the concept, the multiple ways it can be conceptualised and measured (Dewe & Trenberth, 2004) and the need to adjust coping strategies to the stressor or situation characteristics where it takes place (Shimazu & Kosugi, 2003). Not considering these important characteristics can lead to inconsistent results from one study to another.

Direct relationships between coping strategies and burnout symptoms have been widely studied. Literature has found that coping has a direct influence on the consequences of burnout. In a meta-analysis with 36 studies Shin, Park, Ying, Kim, Noh and Lee (2014) found that active or action-focused coping strategies were negatively related to EE and C and positively to PA, while evasive or emotion-focused coping strategies were positively associated with EE and C and negatively with PA. Others authors (Carson, Tsouloupas, & Barber, 2012) also found that C was related to both active and evasive strategies. These results suggest that there is a direct relationship between coping strategies and burnout. Other studies (Guerrero, 2003) found that different grades of burnout (high, medium and low) were associated with different coping strategies.

On the other hand interaction relationships have also been analyzed. Some studies have found that coping may moderate the relationship between stress and burnout (Abbas & Roger, 2013), although others studies did not find this effect (Rick & Guppy, 1994). Coping may also mediate the relationship between some antecedents as social support or personal variables and burnout (Lewin & Sager, 2008, Nizielski, Hallum, Schütz, & Lopes, 2013; Raedeke, & Smith,

2004). Even more, the interdependency between coping strategies has been explored. Some studies have shown that it is appropriate to combine coping strategies, both active as well as evasive, because it is presumed that coping will be more efficacious when active and evasive are combined together (Fortes-Ferreira, Peiró, González-Morales, & Martin, 2006; Shimazu & Kosugi, 2003). For instance, Koeske, Kirk, and Koeske (1993) pointed that evasive coping seem to be beneficial only if active strategies are also used. Similarly, Lazarus (2000) explained that in order to better understand how coping works, we must study coping strategies in a combined process, examining how they operates and affects each other, because of their flexibility and adaptive nature. In this way, some studies with double interactions show that it is positive to combine the action-focused coping and the emotion-focused coping strategies. For example Fortes-Ferreira et al. (2006) found that the interaction between action-focused coping and emotion-focused coping predicts psychological distress and psychosomatic complaints, so that coping strategies seem to better predict wellbeing when action-focused coping is high and emotion-focused coping is low. Similarly Shimazu and Kosugi (2003) found that evasive coping may assist action-focused coping to reduce source of the problems thereby indirectly minimize psychological distress. These results suggest that coping strategies have a combined effect.

Usually significant associations between these variables have been assumed as linear (Rydstedt, Ferrie, & Head, 2006). However, there are hints of non-linear explanations that can be more appropriate. In some cases, too low or too high levels in some personal or work conditions may be more detrimental than moderate levels (De Jonge, Reuvers, Houtman, Bongers, & Kompier, 2000; Warr, 1990). According to the vitamin model proposed by Warr in 1987, working environment influences mental health in a similar way that vitamins do on physical health. Vitamins have different effects on physical health, so vitamins C and E improve health, while an excess of vitamins D and A will have negative consequences. Moving this idea into the workplace, Warr (2013) identifies twelve characteristics of work that can influence the psychological health of workers. These characteristics are divided into two groups according to their linear or curvilinear effect. Thus, physical security, salary, career development, equity, valued social position and supervisor support are linearly related to psychological health as vitamins C and E are with physical health. This implies that the more these characteristics increase, the more psychological health will be, until they reach a point where there will be no more significant effects even if they keep on growing. The other six characteristics (opportunity for control, opportunity for use and acquisition of skills, externally generated goals, variety, clarity of environment and contact with others) display an inverted U-shaped curvilinear relationship. This means that these characteristics improve psychological wellness until they reach a point where psychological health begins to decline.

From the empirical point of view, some authors have found evidence that supports the curvilinear explanation of some stressors in relation to outcome variables. For example Noblet, Rodwell and Allisey (2009) and Warr (1990) found that job satisfaction has a significant curvilinear inverted U-shaped relationship with job demands. In the same way, Yankelevich, Broadfoot, Gillespie, Gillespie and Guidroz (2012) examined the nonlinear relationships between a general measure of stress at work and two outcomes, intention to quit and job satisfaction, finding evidence for an explanation of the curvilinear behaviour of these variables. Similarly Pisanti, Gagliardi, Razzino and Bertini (2003) found that job demands, including role stress, were curvilinearly associated with both EE and somatic symptoms (headaches, body discomfort) in a sample of high school teachers. But they did not find this relationship with regard to C and PA.

Despite these findings, other investigations failed to find curvilinear relations between stressors and outcome variables (Parkes, 1991). In the face of these inconsistencies Preston (2013) gave an explanation based on the transactional model of Lazarus and Folkman (1984) and the contributions of Cavanaugh, Boswell, Roehling and Boudreau (2000). According to the transactional model, experiences of stress are totally contingent because they provoke different answers in each subject depending on how each one evaluates the stress and the resources that has to cope with it. Moreover, Cavanaugh, et al. (2000) explained that the stressors at work could behave as enhancers or as barriers depending on the subjective response of each subject. The same stressor could be considered as an enhancer by one person and as a barrier by another, and even the same person might assess the stressor as a threat, a barrier, a challenge or an enhancer depending on their intensity. Therefore, coping strategies will depend on how each individual values the stressful experiences.

There are hardly any studies that analyze the curvilinear behaviour of coping strategies. We have found some examples of non-linear relationships between coping and stress. For instance, Anderson (1976) analyzed the relationship between the level of stress and the use of coping strategies. He found that active coping strategies follow an inverted U-behaviour such that when stress levels are moderate active strategies are used more than when stress levels are too low or too high. As stress increases, active strategies are less used and more emotional strategies are practiced, and these have a linear behaviour. On the other hand Weiss, Duke, and Sullivan (2014) analyzed the behaviour of evasive coping strategies in situations of drug use problems. They found that evasive coping is an adaptive strategy and it had a U-shaped behaviour such that when drug use problems were higher the use of evasive coping strategies was either non-existent or very numerous, but when drug use problems were lower the use of evasive coping strategies was moderate. But we have not found any study that analyzes nonlinear relationships between coping and burnout, or any of its dimensions.

The present study

This paper aims to contribute to the literature on coping and burnout. It analyzes the linear, non-linear and interaction relationships between active-focused coping, emotion-focused coping and the three dimensions of burnout (emotional exhaustion, cynicism and personal accomplishment). Although there is strong support for the direct effects of coping on burnout (Shin et al., 2014), the adaptive nature of coping suggests that its relation to burnout is much more complicated involving non-linear relationships. At the same time, the interaction hypothesis (action-focused coping x evasive-focused coping) indicates that the influence of active coping is highly dependent on evasive coping (Fortes-Ferreira et al., 2006).

Concerning the direct relationship between coping strategies and burnout we propose the following hypothesis:

Hypothesis 1: Action-focused coping will relate negatively to EE and C and positively to PA.

Hypothesis 2: Emotion-focused coping will relate positively to EE and C and negatively to PA.

In relation to the combined effect of coping, we propose the following hypotheses about interaction relationships between coping strategies and burnout:

Hypothesis 3: The interaction between action-focused coping and emotion-focused coping, will have a combined effect, so that EE and C will decrease and PA will increase when action-focused coping is high and emotion-focused coping is low.

Finally, related to the non-linear effects and considering the scarcity of literature about curvilinear relationships we propose the following exploratory hypotheses:

Hypothesis 4: Action-focused coping will have a curvilinear behaviour so that high levels of action-focused coping will correspond to moderate levels of burnout (all three dimensions) while low action-focused coping levels will be consistent with very low or very high levels of EE, C, and PA.

Hypothesis 5: Emotion-focused coping will bear a curvilinear behaviour so that moderate levels of emotion-focused coping will be associated with low levels of EE and C and high PA, and low or high levels of emotion-focused coping will be associated to high level of EE and C and low PA.

Previous research (Noblet, Rodwell, & Allisey, 2009) has shown that comparing direct, indirect and interaction effects can help clarify the relationships between variables. We therefore hope that the results of this study will help us to better understand the relationship between coping and burnout. These findings can also be a good guide when designing health intervention programs focused on the development of coping strategies.

It is also worth noting that we present the results of one sample of university teachers from Ecuador. In Latin America and especially in Ecuador, the relationship between coping and burnout has hardly been studied. We have only found a study from Ecuador (Ilaja, & Reyes, 2016) that analyzed the mediating effect of health and emotional intelli-

gence between stress and burnout in a sample of 60 teachers. Analyzing coping and burnout in Latin American countries whose cultural values are different from North American or European countries (Hofstede, 2001) helps to better understand the adaptive nature of coping and the importance of context.

Method

Participants

The sample is made up of 202 university teachers. The 73% are men. The mean age is 46.53 years ($SD = 12.52$, range 22-73). 61% are married, and 58% have children. Regarding their academic level: 3% are doctors, 72% have master studies and 25% have bachelor studies. 59% work in public universities and 41% in private universities. The tenure mean as university teacher is 12.58 years ($SD = 11.49$). All participants work full time and have a stable contract. The teaching areas cover a wide range of specialties from management and marketing to political sciences, biology or philological studies and languages, among others.

Measures

To measure burnout the Spanish translation by Gil-Monte (2002) of the Maslach Burnout Inventory General Survey, MBI-GS (Schaufeli, Leiter, Maslach and Jackson, 1996) was used. Among the available versions of the scale, the MBI-GS was developed to measure the three dimensions of burnout regardless of the type of work. Its application in samples of university teachers has shown adequate reliability and a good fit to the data (for example see Tomás, De los Santos, Alonso-Andrés, & Fernández, 2016) and it is more parsimonious because it has a smaller number of items for each subscale. Moreover, it does not focus as much on the asymmetrical relationship between the teacher and the student (as it occurs with MBI-Educators Survey), but also on the relation of the person to his work, and therefore assesses attitudes towards one's own work (Díaz, & Gómez, 2016). This scale has 16 items that are distributed in three dimensions: EE (5 items, $\alpha = .87$), cynicism (5 items, $\alpha = .66$) and personal accomplishment (6 items, $\alpha = .78$). Responses are measured on a seven-level frequency scale ranging from 0 = "Never" to 6 = "Everyday".

To measure coping, the Occupational Stress Indicator (OSI) (Cooper, Sloan, & Williams, 1988) were used. The original OSI factor structure for coping is ambiguous with six dimensions in its original form (Evers, Frese, & Cooper, 2000). Nevertheless, previous research (Lyne, Barret, Williams, & Coaley, 2000; Steiler & Paty, 2009) have carried out exploratory factor analysis finding a parsimonious two-factor solution leading "to a first factor, centred on the problem and a second factor centred on emotion" (Steiler & Paty, 2009, p.116), "with items about seeking social support and having interests outside of work" (Lyne et al., 2000, p. 208).

Therefore, we operationalized coping measure in two dimensions: action-focused coping with 6 items ($\alpha = .71$; example item: "Coping with problems as they occur") and emotion-focused coping with 7 items ($\alpha = .70$; example item "Postpone the problem and park it", "When I have problems, I discuss them with my partner or my friends"). The selection of items was made on the basis of expert judgment, keeping in mind the Steiler and Paty, (2009) factorial solution of two factors and the concept validity of action-focused coping and palliative coping (Lazarus & Folkman, 1984; Dewe, 1989). This procedure has been used in a similar way in previous research (Fortes-Ferreira et al. 2006). A confirmatory factor analysis confirms an adequate overall fit of the two-factors model (goodness of fit index = .93; adjusted goodness of fit index = .91; root mean square error of approximation = .07). Responses are measured in a six level scale that asks how often different strategies are used ranging from 1 = "I never use it" to 6 = "I use it very frequently".

Procedure

To select the sample we use the incidental method. We sent a letter to 20 deans from public and private colleges in the city of Guayaquil (Ecuador) explaining the purpose of the investigation and inviting teachers of those colleges to voluntarily participate in the study. The questionnaire was individually administered not affecting the teachers' work-day. We explained the instructions to properly fill the questionnaire before teachers completed it. We also informed that data collected has research purposes only. Additionally, confidentiality and ethical data treatment was guaranteed.

243 questionnaires were collected but we had to discard 41 because they were not completely filled, with a response tax of 83%.

Data Analysis

To test the hypothesis concerning the linear relationship between the variables (H1 and H2), a correlation analysis was performed. In order to test the non-linear relationships and the interaction effects (H3 to H5), three hierarchical quadratic regression analyses were conducted, where each dimension of burnout entered in the model as a criterion variable. To reduce problems of multicollinearity the predictor variables were centred before being introduced into the equation as recommended by Cohen, Cohen, West and Aiken (2003). In the first step of the equation gender and age were introduced to control the effects of these demographic variables. In the second step of the equation the coping variables, action-focused coping and emotion-focused coping, were introduced. In the third step we introduced the squared coping to test the quadratic effect, and in the fourth step we introduced the interaction between action and emotion coping to prove the combined effect.

Results

We first performed a one-way ANOVA with socio-demographic variables type of university (public vs. private), marital status (single vs. married) and academic degree

(bachelor, master and doctor). None of these variables resulted significant for any dimension of burnout (results are detailed in table 1). Therefore, these variables were excluded from the rest of analyzes.

Table 1. ANOVA results for socio-demographic variables.

	N	Emotional Exhaustion			Cynicism			Personal Accomplishment		
		Mean (Sd)	<i>F</i> (<i>df</i>)	<i>Sig.</i>	Mean (Sd)	<i>F</i> (<i>df</i>)	<i>Sig.</i>	Mean (Sd)	<i>F</i> (<i>df</i>)	<i>Sig.</i>
TU Public	118	1.90 (1.42)	0.22	.64	1.35 (1.03)	2.12	.15	5.14 (0.94)	1.36	.2
Private	84	1.96 (1.35)	(1,200)		1.56 (1.14)	(1,200)		4.97 (1.07)	(1,200)	
MS Single	80	1.74 (1.32)	2.39	.12	1.30 (1.11)	0.14	.87	5.12 (0.99)	2.83	.06
Married	122	2.05 (1.43)	(1,200)		1.54 (1.05)	(1,200)		5.04 (0.99)	(1,200)	
Bachelor	49	2.04 (1.60)	1.50	.22	1.53 (1.00)	0.56	.64	5.15 (1.00)	1.08	.36
AD Master	146	1.91 (1.34)	(1, 199)		1.41 (1.09)	(1,199)		5.07 (0.97)	(1,199)	
Doctor	7	1.63 (0.94)	1.46 (1.45)					4.57 (1.42)		

Note. TU = Type of university, MS = Marital status, AD = Academic degree, Sd = standard deviation, *df* = degrees of freedom.

Table 2 shows the descriptive statistics, means and standard deviations. It also shows the correlation between the study variables. It can be observed that action-focused coping correlates negatively with EE and with C, although only significantly with C ($r = -.16, p = .02$) and positive and significantly with PA ($r = .22, p = .002$). Emotion-focused

coping correlates significantly with the three dimensions of burnout in the unexpected direction, $r = -.17, p = .01$ for EE; $r = -.35, p < .01$ for C; and $r = .61, p < .01$ for PA. These results lead us to accept partially hypothesis 1 and to reject totally hypothesis 2.

Table 2. Descriptive statistic and bivariate correlations.

	Scale	Mean	SD	1	2	3	4
1 Action-focused coping	1-6	4.99	0.65				
2 Emotion-focused coping	1-6	3.77	0.84	.22**			
3 Emotional Exhaustion	0-6	1.93	1.39	-.13	-.17*		
4 Cynicism	0-6	1.44	1.08	-.16*	-.35**	.30**	
5 Personal Accomplishment	0-6	5.07	0.99	.22**	.61**	-.17*	-.29**

* $p < .05$, ** $p < .01$

Table 3 shows the results of the regression equations concerning non-linear and interactions effects. There is no evidence to prove the curvilinear relationship between action-focused coping and burnout dimensions, so we reject hypothesis 4. In this case the linear explanation is more suitable. There is not enough evidence to say that emotion-focused coping bears a curvilinear behaviour regarding EE and C. But it is enough evidence to accept a curvilinear relationship between emotion-focused coping and PA ($\Delta R^2 = .13, p < .001, F(6,195) = 34.47, p < .001, \beta = -.36, p < .001$),

so that higher levels of PA are achieved when the use of emotion-focused coping is moderate, but when these strategies are used too little or too much, PA decreases. These results allow us to partially accept hypothesis 5. The graphical U-inverted representation of this curvilinear relation is shown in figure 1. As we have hypothesised, we have higher PA levels when emotion-focused coping strategies are used moderately, but when the use of these strategies is very low or very high PA is significantly lower.

Table 3. Hierarchical quadratic regression analysis of coping mechanisms and burnout.

	Emotional Exhaustion	Cynicism	Personal Accomplishment
Step 1: R ² =	.005	.010	.009
Gender	-0.03	-0.10	0.03
Age	0.06	0.01	-0.08
Step 2: ΔR ² =	.035*	.12***	.375***
Gender	-0.01	-0.05	-0.07
Age	0.04	-0.03	-0.02
Action-focused coping	-0.10	-0.09	0.09
Emotion-focused coping	-0.14*	-0.32***	0.60***
Step 3: ΔR ² =	.003	.014	.131***
Gender	-0.02	-0.04	-0.02
Age	0.04	-0.03	-0.02
Action-focused coping	-0.09	-0.14	0.13*
Emotion-focused coping	-0.14	-0.34***	0.61***
Action-focused coping ²	0.04	-0.13	-0.04
Emotion-focused coping ²	0.04	-0.01	-0.36***
Step 4: ΔR ² =	.020*	.014	.013*
Gender	-0.03	-0.04	-0.02
Age	0.04	-0.03	-0.03
Action-focused coping	-0.05	-0.11	0.09
Emotion-focused coping	-0.20*	-0.38***	0.65***
Action-focused coping ²	-0.02	-0.18*	0.01
Emotion-focused coping ²	-0.02	-0.05	-0.32***
Action x emotion	0.18*	0.15	-0.14*

* $p < .05$, *** $p < .001$

Note: Gender was coded 1 for men and 2 for women.

Action-focused coping and emotion-focused coping were mean centred before entered in the equation (Cohen, Cohen, West, & Aiken, 2003). Action-focused coping² and emotion-focused coping² are squared.

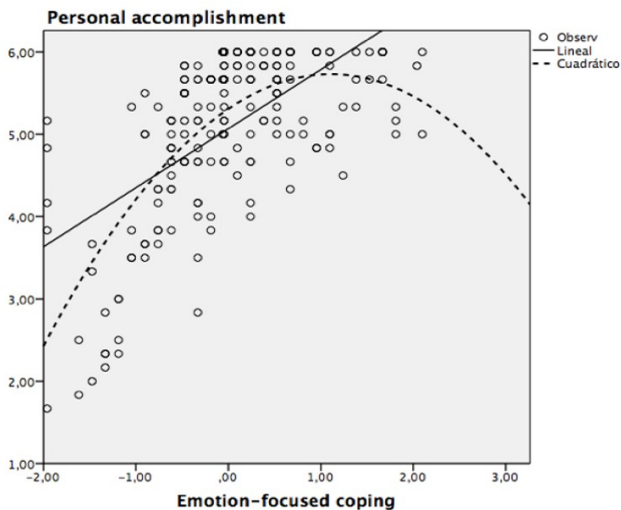


Figure 1. The scatterplot shows the graphical representation of curvilinear relationship between emotion-focused coping and personal accomplishment.

The combined action of active and emotion coping was significant for EE ($\beta = .18, p < .04$) and for PA ($\beta = -.141, p < .02$). Figure 2 shows the combined action of coping strategies with respect to EE in such a way that high emotion-focused coping predicts higher EE than low emotion-focused coping whether action-focused coping is high or low. In other words, regardless of the amount of action-focused coping, high emotion-focused coping always predicts more EE than low emotion-focused coping.

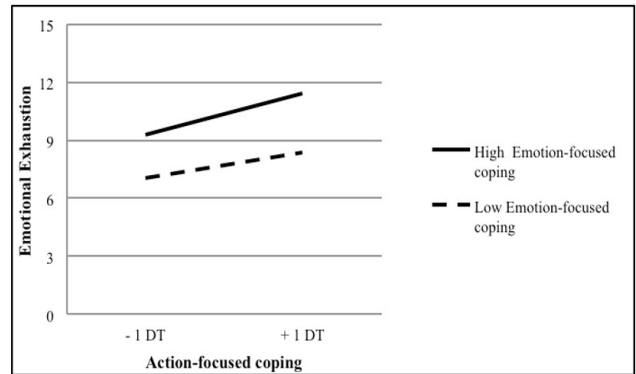


Figure 2. When combining high action-focused coping and high emotion-focused coping, emotional exhaustion increases significantly ($\beta = .179, p = .04$).

Figure 3 shows the effect of the combined action and emotion focused coping strategies on PA. In this case, there are hardly any differences in PA when action-focused coping is low, however when action-focused coping is high and so is the emotion-focused coping their PA decrease. These results do not allow us to accept hypothesis 3.

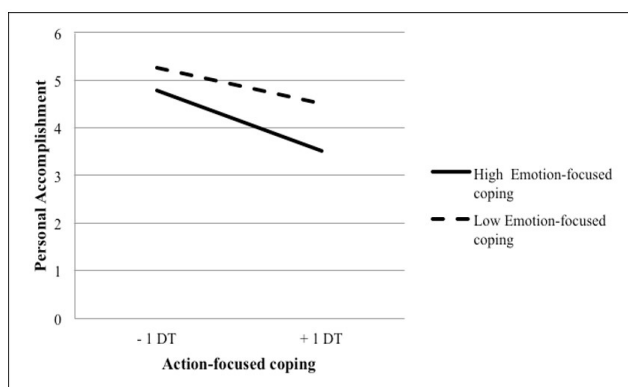


Figure 3. Personal accomplishment significantly decreases when combining high emotional-focused coping with high action-focused coping ($\beta = -.141$, $p < .02$).

Discussion

In this paper we have analyzed the linear, non-linear and interaction relationships between coping strategies (action-focused and emotion-focused) and burnout. The proposed hypotheses 1 and 2 tested direct or linear relations. The results shown that coping strategies have direct effect on the burnout but in the case of emotion-focused coping the association points the unexpected direction. According to the literature, emotion-focused coping predicts burnout and it is positively related to EE and C and negatively related to PA (Shin et al., 2014). In our study, associations between emotion-focused coping and burnout dimensions are significant but in the opposite direction. This may be due to two reasons: First, as explained above the emotion-focused coping sub-scale referred to avoidance but including items that emphasize social support (Steiler & Paty, 2009), and as the meta-analysis by Kay-Eccles (2012) has reported an adequate level of social support is a resource that reduces EE and C and enhances PA. This suggest that it is important not forget the complexity of the concept and how the multiple ways it can be conceptualised and measured (Dewe & Trenberth, 2004) can lead to variable results between studies. Secondly, an explanation from the cultural point of view is possible. The sample is taken from teachers in Ecuador, a country that according to Hofstede (2001) has very low levels of individualism and, on the contrary, very high levels of collectivism. In collectivist societies individuals expect their peers or members of a group to care for each other as part of a common loyalty. People are born into groups, such as the family, and belong to them finding security and protection and in return they share and defend the beliefs and the unity of the group. By contrast, in individualistic countries each individual is expected to be concerned only with himself or with people very close to him, such as the family. In relation to burnout it would be expected that the higher collectivism, the lower EE and C and the higher PA because social support between individuals is also higher. By contrast, it would be expected that the greater individualism the greater EE be-

cause of the competitiveness between individuals is higher, and also the greater C, because it is easier for an individual to be away from others because of higher independence. In a similar way, another example of the importance of cultural differences between individualist and collectivist countries can be seen in explaining the inconsistent results concerning to the behaviour of the evasive coping between Fortes-Ferreira, et al. (2006) and Shimazu and Kosugi (2003). In Fortes-Ferreira's study, with a sample from Spain, a country that scores higher than Japan in individualism, emotion-focused coping is associated with low levels of wellbeing. Whereas in Simazu and Kosugi's study, emotion-focused coping is associated with high levels of wellbeing in a sample from Japan that scores higher in collectivism than Spain.

Concerning to curvilinear behaviour, only emotion-focused coping strategies were significant in relation to PA, predicting 13% of the explained variance of this variable. Based on these results we reject hypothesis 4 and accept partially hypothesis 5. In line with explained before, emotion-focused coping has a high social support component and this has helpful effects by increasing PA levels until it reaches the point where too much emotion-focused coping begins to have harmful effects and PA decreases. This findings are similar to those by Wais et al. (2014) who suggests that evasive coping is an adaptive strategy and it had a curvilinear behaviour such that when the use of evasive coping strategies was either non-existent or very numerous, wellness was lower, but when the use of evasive coping strategies was in a moderate level, wellness was higher. The underlying conclusion is that action-focused coping has a direct beneficial effect on health until it reaches a point where it no longer produces any significant effect, like certain vitamins or certain job characteristics according to Warr's model (2013), meanwhile emotion-focused coping is helpful until it reaches a point where its effects begin to be harmful.

In this line of argument, hypothesis 3 posed the combined relationship between action and emotion focused coping strategies and their effects on burnout suggesting that the best situation for wellness, i.e. low EE and C and high PA, is produced when action-focused coping is high and emotion-focused coping is low. Our results do not allow us to support this hypothesis. For both EE and PA the interaction was significant, although the increase in the variance explained is small. According to our results, EE increases and PA decreases when emotion-focused coping is high. In both cases the level of action-focused coping hardly affects the variation. Combining action and emotion coping strategies has significant effects as pointed out by Fortes-Ferreira et al. (2006), and by Shimazu and Kosugi (2003), but it should be noted that excessive use of emotion-focused coping might end up cancelling the beneficial effects of action-focused coping. That is, although action-focused coping strategies, pointed directly on the problem or stressor, have good results to combat the sources of stress, however the prolonged use of these strategies can cause great deterioration on the subject so that the combined use of action and emotion

strategies can help the subject recover from that worsening. However, if the use of emotion-focused coping is high, its beneficial effects of balance would be changed into detrimental. In addition, we must take into account cultural influence in the sense explained above, and how for some cultures, as in our case, the most direct coping may not be the best strategy. It seems clear that these two types of coping strategies never act independently of one without the other, but in a combined and adaptive way (Lazarus, 2000; Wais et al., 2014).

The three types of relationships (linear, non-linear and interaction) contribute in the explanation of burnout although not significantly in all cases. However, we must consider that the linear or direct effect explained the highest percentage of variance of EE, C and PA. Curvilinear effect only explained significantly PA but considering that research on the curvilinear effects is scarce we think that it is an interesting result and worthy of further investigation. Finally, interaction effects explained a significant proportion of variance of EE and PA. Regarding these effects of interaction, literature has mainly focused on the role of coping as a moderator between a stressor and an outcome, and not on the combined or conjunct effects between action and emotion coping strategies. So more research is needed to confirm our results.

From the applied point of view our results suggest that combining the two types of coping strategies can be beneficial to combat burnout. This should be taken into account in individual and group behaviour. Intervention programs should consider the joint effect of coping strategies. These programs should mainly promote the use of active strategies, but not forgetting the evasive ones. On the other hand, intervention programs should take into account the environmental and working conditions of each occupation as well as organizational culture and cultural values of each country, since evasive behaviours, such as social support or avoidance, may produce very good results in some cultures. It would also be important to consider the possible non-linear effect of coping strategies. Although more research is needed to better understand this type of relationship of coping on the dimensions of burnout, it should be considered that the total absence or excessive use of certain strategies, such as those focused on emotion could be detrimental. That is why the dynamic and adaptive nature of coping must be taken into account. Finally, it should not be forgotten that human behaviour is a complex reality that can be approached and understood from different perspectives.

Limitations

Although our results are quite interesting however we must consider some limitations of the study. First, from the transactional theory coping is the result of a valuation that the subject performs when faced with a stimulus that considers as a potential threat (Lazarus, 2000). That is to say, this model proposes some antecedent variables, that are the

stressors, some intermediate variables, that moderate, these can be the coping strategies, and some consequent variables, for example the burnout. However, in our study we have considered the coping strategies as antecedent variables. Although methodologically there is no problem in analyzing the relationship between coping and burnout, it would be interesting to include antecedent variables in future research. Due to the adaptive nature of coping, it can be assumed that the behaviour of action and emotion-focused coping strategies will be different depending on the stressor. Second, other limitation is that the sample only includes university teachers from a single country and therefore, due to cultural differences between countries, our results cannot be generalized to countries with different cultural values. Taking into account that culture determines our way of conceiving things as well as our behaviours (Hofstede, 2001) it would be important to carry out studies that consider samples of different cultures, both organizationally and at the country level. In spite of this limitation we consider that our study is pioneering and it opens the way in the research on burnout and coping in Latin America and specifically in Ecuador, country where this phenomenon has not been studied. Third, we believe that one limitation of our study is its cross-sectional design. Considering the dynamic and adaptive nature of the coping, it would be very interesting to analyze in future studies its behaviour over time through a longitudinal design. Fourth, another limitation may be the use of self-report questionnaires for data collection. Although the use of this type of questionnaires has been criticized, self-report questionnaires are widely used in behavioural research and are accepted as long as they guarantee minimum psychometric standards of reliability and validity (Fernández-Ballesteros, 2004; Lazarus, 2000; Spector, 1994).

Finally, the reliability of the scale of C is moderate ($\alpha = .66$) according to Nunnally and Bernstein (1994). However the meta-analysis by Wheeler, Vassar, Worley, and Barnes (2011) examined 84 studies finding that this scale shows reliability ranging from .50 to .91, and this variation may depend on whether the questionnaire was the English version or a foreign-language translation. Translated questionnaires (36 studies) showed lower reliability with a confidence interval ranging between .65 and .71. In this sense, our level of reliability can be considered as acceptable.

Conclusion

Comparing the linear, non-linear and interactions effects may help clarify the relationships between coping and burnout. The main explanation is given by the linear effect, specifically, action-focused coping strategies are direct or linear negative related to EE and C and positive to PA. Nevertheless emotion-focused coping may have non-linear behaviours and become harmful if they are used too little or too much. In addition the excess of emotion-focused coping can eliminate the positive effects of action-focused coping, when both strategies are combined. In all these relationships it is

important to consider the influence of the specific cultural values of each organization or each country. All of these evi-

dences suggest the importance of researchers continuing to investigate the behaviour of coping strategies.

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