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The Mediating Role of Coping Strategies on the Relationships Between Goal Motives and Affective and Cognitive Components of Subjective Well-Being

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Abstract Subjective well-being (SWB) comprises both a cognitive component or life satisfaction, and an affective component or predominance of positive over negative affect. Engaging in meaningful goals and using effective coping are two factors with great impact on the development of SWB. Self-Determination Theory (SDT) postulates that goal can be pursued through autonomous and controlled motives (AM and CM respectively). AM are based on personal interest, enjoyment, or perceived importance while CM are driven by internal or external pressures and contingencies related to social approval. Moreover, from SDT has been proposed that only the attainment of autonomously motivated goals raises well-being. The main objective of the current study was to analyse whether coping strategies mediated the relationship between goal motives and SWB. Two hundred and five people (120 male and 85 female) answered questionnaires to assess different variables of interest in group sessions. Path analysis showed that CM had direct and indirect effects on negative affect, and that the latter are through the use of avoidance coping strategies. CM had direct effect on life satisfaction, and AM had direct effect on positive and negative affect. We discussed that both well-being and mental health promotion programs should encourage people to pursue goals by autonomous motives, and help them to replace avoidant strategies by those aimed at problem solving. Likewise, we point out the convenience of assessing goal progress, analysing specific coping strategies developed for each goal, and studying separately the affective and cognitive components of SWB.

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1 Introduction

Subjective well-being (SWB; Diener et al. 2002) is so qualified to highlight that the effect that different factors have on the quality of life is largely determined by how individuals perceive and interpret their circumstances and experiences. SWB is defined as "a person's cognitive and affective evaluations of his or her life" (Diener et al. 2002, p. 63). The cognitive evaluations refer to what one thinks about his or her life satisfaction in global terms. The affect is considered positive or negative when the emotions experienced are pleasant or unpleasant respectively. Thus, a person who has a high level of life satisfaction, and who experiences a greater positive affect and little or less negative affect, would be deemed to have a high level of SWB.

Different studies have shown that some of the factors that have most effect on the development of SWB are the involvement in meaningful goals, the use of effective coping, and the disposition of social support (Diener et al. 1999; Lucas and Diener 2008; Lyubomirsky et al. 2005; Sheldon and Elliot 1999). Moreover, these factors are also the main variables that mediate the effect of other factor, such as traits, income or educational level, on SWB (Biswas-Diener et al. 2010; Deaton 2008; Diener et al. 1995, 1999; Steel et al. 2008).

With regard to goals, several studies have shown that goal progress and goal attainment are associated with well-being, in both student and adult samples and across a variety of domains (Amiot et al. 2004; Hortop et al. 2013; Sheldon and Elliot 1999; Smith et al. 2007, 2011). However, Sheldon and Elliot (1999) proposed that well-being derived of goal attainment is dependent upon the motives underlying goal striving.

According to Self Determination Theory (SDT; Ryan and Deci 2008) goal motives can be categorized, as a function of their degree of self-determination, in autonomous or self-determined (based on personal interest, enjoyment, or perceived importance) and controlled or non-self-determined (driven by internal or external pressures and contingencies related to social approval). Specifically, autonomous motives include pursuing a goal because the goal reflects one's values (*integrated*), and because of the inherent importance of the goal (*identified*). On the contrary, controlled motives for pursuing a goal include doing so because of shame, guilt, or other internal pressure such as contingent self-worth (*introjection*), and *external motivation*, which occurs when a goal is pursued because someone else wants it or because there are specific gains or losses (e.g., money or grades) associated with the outcome.

Specifically, Sheldon and Elliot (1999) proposed that only the attainment of autonomously motivated goals, as opposed to goals guided by controlled motives, raises well-being. In this regard, some studies have found that autonomous motivation is positively associated with SWB measures (Hortop et al. 2013; Miquelon and Vallerand 2006; Sheldon and Elliot 1999; Sheldon et al. 2004; Smith et al. 2011), while controlled motives are negatively related to positive affect (Miquelon and Vallerand 2006) and positively to negative affect (Amiot et al. 2004; Hortop et al. 2013). Indeed, most studies have focused on testing that improved well-being is derived from progress or attainment of goals that are pursued for autonomous motives (Amiot et al. 2004; Hortop et al. 2013; Sheldon and Elliot 1999; Smith et al. 2011). Moreover, the three studies conducted by Sheldon and colleagues (2004) found that the beneficial effect on well-being produced by the pursuit goals by autonomous motives was independent of the content of these goals.

As noted above, another factor that has a major impact on the development of well-being is coping, which has been defined as the cognitive and behavioral actions

individuals use in response to internal and external demands that exceed their resources (Lazarus and Folkman 1984).

The categorization of different types of coping strategies provides a continued debate in the coping literature. However, some coping categories, although labeled differently across conceptual models, have been proposed more systematically. One of these categories is that focused on problem solving, which includes both action-oriented (e.g., active coping) and cognitive decision-making (e.g., planning) types of coping strategies. Another type of coping strategies are those based on avoidance of the situation, or strategies employed in order to disengage oneself from the task and to focus on task-irrelevant cues. Strategies such as mental and behavioral disengagement, denial, and the use of alcohol or drugs would be included in this category.

It is necessary to note that regardless of the type of strategies that are used, coping always refers to efforts to manage adaptive demands and emotions that are generated, and therefore, coping can be seen as an integral feature of the emotional process (Lazarus 2006). In this way, problem solving coping has consistently and positively been associated with emotional well-being (Folkman and Moskowitz 2000; Stanton et al. 2007), while avoidance coping has systematically been related to greater negative affect (Litman and Lunsford 2009; Moskowitz et al. 2009).

Lazarus himself (1991) noted the possibility that coping actions may vary according to individuals' motivation in a particular context. Indeed, motivation and coping are inextricably linked because the way that people respond to difficulties not only depends on the appraisals made of such situations and resources to deal them, but also individuals' goals in those situations (Lazarus 2006).

Autonomous or self-determined motivation involves a sense of volition, agency, and empowerment, and therefore it would be expected to promote a greater engagement of the self, leading to the use of more active coping strategies. In contrast, and since controlled or non-self-determined motives are imposed either internally or externally, should not lead to an involvement, thus eliciting the use of more passive or avoidant coping processes (Ntoumanis et al. 2009).

Furthermore, the fact that goals guided by autonomous motives are connected with the values and interests of the people facilitates that the difficulties that arise can be perceived with minor threat, and therefore, with more sense of control (Gaudreau et al. 2012; Ntoumanis et al. 2014), which are appraisals associated with the use of coping strategies focused on problem solving. By contrast, controlled motives lead to perceive more threat and less control (Smith et al. 2011), which are appraisals related to the use of avoidance coping strategies.

Some studies seem to support the relationship between motivation and coping. Thus, in the sporting context, athletes assessed the motives that guided the sports-related goals they were trying to achieve, and the results revealed that the autonomous and controlled motives were positively related to the use of solving problems and avoidance coping respectively (Smith et al. 2011). In another study, in which the motives that guided a task consisting of pedalling on a cycle ergometer were assessed, identical relations between motives and coping were found (Ntoumanis et al. 2014). During a stressful sport competition, self-determination toward sport positively predicted the use of solving problem coping, while non-self-determined motivation predicted the use of avoidance strategies (Amiot et al. 2004). In the same way, research with undergraduate students, that assessed the motives that guided academic-related goals they were trying to achieve, has found the same pattern of relationships between motives and coping strategies (Gaudreau et al. 2012; Miquelon and Vallerand 2006).

As stated above, motivation and coping are closely linked. Specifically, autonomous and controlled motives are positively associated with the use of problem solving and avoidance coping strategies respectively. Moreover, coping and well-being also have strong relationships, so that problem solving and avoidance coping are positively linked to well-being and distress respectively. Therefore, it is possible that the coping strategies may mediate the relationship between motivation and well-being.

This study tests for the first time the mediating role of coping strategies between goal motives and SWB. Furthermore, we study personal goals without focusing on a specific context. To our knowledge, no studies have examined the relationship between the motives of these goals and coping strategies used to achieve them, since the few studies conducted have exclusively focused on academic (Gaudreau et al. 2012; Miquelon and Vallerand 2006), or sporting (Amiot et al. 2004; Ntoumanis et al. 2014; Smith et al. 2011) contexts. Moreover, we also separately study the affective and cognitive components of SWB, since although they are related, they are different. In fact, some authors defend the use of separate measures of the cognitive and the affective components of SWB, given they show a different associative pattern with different variables (Diener 2006; Schimmack et al. 2008). In this way, we can study how goal motives are related to different components of SWB, since studies to date, or have not measured life satisfaction (Amiot et al. 2004; Hortop et al. 2013; Miquelon and Vallerand 2006), or it has been included in an averaged measure with positive affect (as in Smith et al. 2011) or with positive and negative affect (as in Sheldon and Elliot 1999; Sheldon et al. 2004).

1.1 Objectives and Hypotheses

The main objective of the present study was to analyze the relationships among goal motives, coping strategies used to achieve these goals, and SWB. Specifically, we wanted to study whether coping strategies mediated the relationship between goal motives and the different components of SWB.

According to all evidence presented above, we hypothesize that autonomous motives would be positively related to positive affect, life satisfaction, and problem-solving coping strategies, and negatively associated with negative affect and avoidant coping strategies. We also hypothesize an opposite pattern of associations for the controlled motives. Moreover, problem-solving coping was hypothesized to be positively associated with positive affect and life satisfaction, and negatively related to negative affect, while the opposite pattern of relationships was hypothesized for avoidance coping. In addition, we hypothesize that problem solving and avoidance coping strategies will mediate the relationships between controlled and autonomous motives and the different components of SWB (life satisfaction, and positive and negative affect).

2 Method

2.1 Participants and Procedure

Participants were recruited among students of different courses of the Spanish National Open University (Universidad Nacional de Educación a Distancia: UNED), when they attended some campus classes. On the day the classes took place, when the students were in their respective classrooms, and just before the classes began the student were offered

the opportunity to participate in the study. Those who voluntarily agreed to participate in the study were asked to complete the questionnaires when the class finished. They answered these questionnaires on the same classrooms where they had previously attended their classes and all of them did it in the same day. The classroom size ranged from 35 to 40. Of the 225 students who were asked to participate, only 20 people declined to do so. Thus, the final sample consisted of 205 people (120 male and 85 female; mean age = 31.16; Standard Deviation = 10.14; ranging from 18 to 64: 31.22% from 18 to 30, 30.73% from 31 to 40, 26.83% from 41 to 50, and 11.22% from 51 to 64). Regarding job status, 76.1% were in employment at the time of data collection, 19.1% were unemployed, 2.4% were only students and 2% were retired. Most participants (82.4%) lived with his family, while only 17.6% lived alone. In relation to educational level attained, 13.7% had finished elementary school, 38% had finished high school, and 48.3% were holders of a university degree.

2.2 Measures

The participants answered the following questionnaires:

Motives were measured according to the procedure followed by Sheldon and Elliot (1998, 1999; Spanish version by Sanjuán and Ávila 2016). Participants were asked to expound three personal goals they were trying to achieve currently. Through 12 items (4 for each of the goals) with 7-point Likert scales, participants rated the degree to which they pursued each of their 3 goals for the external ("because of the external rewards such as money, grades, or status that the goal may produce"), introjected ("because you would feel ashamed, guilty, or anxious if you did not have this goal"), identified ("because you truly believe that is an important goal"), and intrinsic ("because of the enjoyment or stimulation that this goal would provide you") motives, being the "0" equal to "nothing" and "6" to "strongly".

This measure has been used in several previous studies (Ávila and Sanjuán in press; Sanjuán and Ávila 2016) with Spanish samples and factorial analyses conducted have yielded two factors. The first included the items corresponding to the external and introjected motives and the second included the items corresponding to the identified and intrinsic motives. However, to corroborate the construct validity of this measure, an exploratory factor analysis (Varimax rotation) was carried out with the current data. Bartlett's Test of Sphericity, which was statistically significant ($\chi^2 = 550.55$, $df = 66$, $p < 0.000$), and the Kaiser–Meyer–Olkin (KMO) measure of sampling adequacy, which exceeded the minimum requirement of 0.5 (KMO = 0.57), showed the suitability of data for factor analysis. In the same way, two factors, accounting for 38.52% of the variance, were obtained. In the first factor (eigenvalue = 2.71-accounted variance = 22.61%-factorial loads ranging from 0.61 to 0.70) are included the 6 items corresponding to external and introjected motives. In the second factor (eigenvalue = 1.91-accounted variance = 15.91%-factorial loads ranging from 0.31 to 0.74) are included the 6 items corresponding to identified and intrinsic motives. Therefore, two scores, corresponding to the controlled and autonomous motives, were calculated. Controlled motives score was obtained by averaging the scores given to items evaluating external and introjected motives, while autonomous motives score was obtained by averaging the scores given to items evaluating identified and intrinsic motives, with higher scores indicating more controlled or autonomous motives respectively. In the current sample alpha coefficient were 0.74 and 0.59 for controlled and autonomous motives respectively.

The factors obtained with the current data (controlled and autonomous motives) correspond to the two types of motivation that distinguishes the TAD (Ryan and Deci

2008), which is the theory that has been used as framework in the current study. Therefore, these motives are those employed in different studies (Miquelon and Vallerand 2006; Sheldon and Elliot 1998, 1999; Sheldon et al. 2004).

Coping Strategies were assessed using the Brief Coping Operations Preference Enquiry (B-COPE; Carver 1997; Spanish adaptation by Morán et al. 2010). This questionnaire measures 14 coping strategies using 28 items (2 for each of the strategies). Carver himself (1997) recommended selecting the subset of subscales that are most interesting for the objectives of the study. Therefore, in accordance with the purposes of current study, we only used 7 of the 14 strategies assessed by the questionnaire. Participants were asked an overall report on how often they used these different strategies to cope with the difficulties encountered in pursuing all the goals listed in 7-point Likert type scales ranging from "0" ("I haven't been doing this at all") to "6" ("I've been doing this a lot").

An exploratory factor analysis, with the same characteristics as the one conducted with motives questionnaire was carried out with items from the 7 selected subscales. Bartlett's Test of Sphericity was statistically significant ($\chi^2 = 202.97$, $df = 21$, $p < 0.000$) and KMO exceeded the minimum requirement (KMO = 0.63). Two factors, accounting for 52.21% of the variance, were obtained. In the first factor (eigenvalue = 2.09-accounted variance = 29.92%-factorial loads ranging from 0.46 to 0.75) were included the 10 items corresponding to venting, self-blame, denial, behavioural disengagement and substance use subscales. In the second factor (eigenvalue = 1.56-accounted variance = 22.29%-factorial loads ranging from 0.83 to 0.87) are included the 4 items corresponding to active coping and planning subscales. Two scores, labelled as avoidant and problem-solving coping respectively, were computed by averaging item scores corresponding to subscales which were included in each of those two factors. Higher scores indicate greater use of these different strategies. Alpha coefficients were 0.75 and 0.70 for avoidant and problem solving coping respectively.

The factors obtained in the current study correspond to those defined in coping literature (Skinner et al. 2003) and those obtained in different factorial studies with the Brief-COPE (Krägeloh 2011; Mohanraj et al. 2015).

Positive and Negative Affect was measured using the Positive Affect and Negative Affect Schedule (PANAS; Watson et al. 1988; Spanish adaptation by Sandin et al. 1999). This is a 20-item measure that evaluates 2 dimensions: positive affect (10 items) and negative affect (10 items). The response scale was a 7-point Likert-type. Respondents were asked to report how they usually felt. Positive and negative affect scores were computed by averaging items of positive or negative affect scales respectively. In the current sample, positive and negative affect scales reached alpha coefficients of 0.80 and 0.86 respectively.

The PANAS is a measure widely used to assess the emotional component of SWB (Miao et al. 2013; Solberg and Halvari 2009), which presents a two factors structure (Thompson 2007). In both the Spanish adaptation used (Sandin et al. 1999) and a later adaptation (López-Gómez et al. 2015) with student samples, exploratory and confirmatory factor analyses have also shown two factors that correspond to positive and negative affect. In addition, in all samples analyzed the alpha coefficients were around 0.90, indicating a good internal consistency of the two subscales.

Life satisfaction was evaluated with the Satisfaction with Life Scale (SWLS; Pavot and Diener 1993; Spanish adaptation by Vázquez et al. 2013). This is a 5-item measure of global life satisfaction, or a person's satisfaction with life as a whole, rather than any specific domain. Respondent are asked to rate the extent of their agreement to these items across a 7-point Likert-type scale ranging from 0 (strongly disagree) to 6 (strongly agree).

A score was computed by averaging the 5 items of scale. Higher scores on the SWLS reflect greater life satisfaction. Alpha coefficient in current sample was 0.86.

This scale is the most used in scientific studies to evaluate life satisfaction (Diener and Gonzalez 2011), and the adaptation with Spanish population (Vázquez et al. 2013) confirmed the one-factor structure of the scale and its high internal consistency ($\alpha = 0.88$).

2.3 Data Analyses

In order to check whether the categorical socio-demographic variables (gender, coexistence type, occupational status and educational level) had an effect on numeric psychological variables (controlled and autonomous motives, positive and negative affect, life satisfaction, problem solving and avoidant coping), t test (when 2 categories) or analyses of variance (when 3 categories) were conducted with socio-demographic characteristic as independent variable and with the psychological variables as dependent variables. To test whether age had any effect on psychological variables, Pearson correlations were calculated between them. In all the analyses p values less than 0.05 were considered.

To test the possibility that coping strategies could be the link between motives and different components of SWB, path analysis was conducted with AMOS software (Arbuckle 2011). The sample slightly exceeds the 200 cases required to carry out this type of analysis. In the same way, the sample size also allows exceeding the 20 cases per parameter needed (in particular there are 29 cases per variable) (Kline 2011).

The significance of direct, indirect and total effects was assessed using χ^2 tests (Kline 2011). Additionally, well-known and recommended goodness of fit indices were used to assess the model fit, such as the Comparative Fit Index (CFI), and Normed Fit Index (NFI), with values around 0.95 or greater indicating an adequate fit (Kline 2011). For the Root Mean Square Error of Approximation (RMSEA) and following the recommendation of Kenny et al. (2015) a confidence interval (CI) was computed. Ideally the lower value of the 90% CI includes or is very near zero (or no worse than 0.05) and the upper value is not very large or less than 0.08 (Byrne 2006; Kenny et al. 2015).

3 Results

As we can see in Table 1, none of the psychological variables was significantly affected by the socio-demographic variables, and therefore, these variables were not taken into account in subsequent analyses.

Descriptive statistics and Pearson correlations between analysed variables can be seen in Table 2.

As shown in Table 2, and focusing on the statistically significant correlations, autonomous motives are positively related to positive affect and life satisfaction, while controlled motives are positively associated with negative affect and avoidant coping and negatively related to life satisfaction. Moreover, problem-solving coping is positively related to positive affect and life satisfaction, while avoidant coping is positively related to negative affect and negatively associated with positive affect.

The model in which all the relationships postulated in the hypotheses were tested showed a good fit [χ^2 (1) = 2.26, $p = 0.13$; CFI = 0.99; NFI = 0.99; RMSEA = 0.07 (90% CI: 0.05–0.08)]. Standardized path coefficients for each parameter in the output path model can be seen in Table 3. Only significant relationships of model are graphically represented

Table 1 Results of the statistical analyses (correlations, *t*-tests or analyses of variance) to study the effect of the socio-demographic variables on the psychological variables

		Controlled motives	Autonomous motives	Negative affect	Positive affect	Life satisfaction	Problem solving coping	Avoidant coping
Age	*r*	0.08	−0.11	0.03	−0.10	−0.05	0.01	0.05
	p	0.24	0.11	0.69	0.17	0.43	0.83	0.43
Gender	Men [Mean (SD)]	2.24 (1.47)	4.43 (0.94)	1.82 (1.00)	4.27 (0.75)	3.96 (1.12)	4.53 (0.82)	1.48 (0.86)
	Women [Mean (SD)]	2.01 (1.37)	4.50 (0.94)	1.98 (1.03)	4.20 (0.76)	3.85 (1.25)	4.68 (0.79)	1.41 (0.89)
	t (*df*: 203)	1.13	−0.53	−1.06	0.54	0.67	−1.31	0.55
	p	0.26	0.59	0.29	0.59	0.50	0.19	0.58
Coexistence Type	Alone [Mean (SD)]	1.80 (1.10)	4.32 (1.01)	1.73 (0.76)	4.10 (0.75)	4.17 (0.98)	4.46(0.76)	1.29 (0.75)
	Accompanied [Mean (SD)]	2.03 (1.47)	4.49 (0.92)	1.92 (1.06)	4.27 (0.75)	3.86 (1.21)	4.62 (0.82)	1.48 (0.89)
	t (*df*: 203)	−1.26	−0.95	−1.04	−1.26	1.44	−1.01	−1.24
	p	0.22	0.34	0.30	0.21	0.15	0.31	0.22
Occupational status	Employees [Mean (SD)]	2.09 (1.40)	4.47 (0.96)	1.91 (0.95)	4.20 (0.70)	3.96 (1.14)	4.61 (0.76)	1.45 (0.86)
	Not employees [Mean (SD)]	2.33 (1.52)	4.62 (0.85)	2.01 (1.17)	4.35 (0.90)	3.78 (1.29)	4.53 (0.95)	1.45 (0.93)
	t (*df*: 203)	−1.03	−1.20	−1.25	−1.19	0.96	0.63	−0.02
	p	0.31	0.21	0.16	0.24	0.34	0.53	0.98
Educational Level	Elementary [Mean (SD)]	2.56 (1.60)	4.57 (0.92)	1.80 (1.21)	4.38 (0.88)	4.06 (1.22)	4.78 (0.99)	1.54 (0.88)
	Secondary [Mean (SD)]	2.15 (1.48)	4.56 (0.95)	1.96 (1.07)	4.34 (0.75)	3.82 (1.21)	4.56 (0.84)	1.52 (0.99)
	Higher [Mean (SD)]	2.15 (1.31)	4.35 (0.93)	1.85 (0.91)	4.19 (0.69)	3.95 (1.14)	4.55 (0.73)	1.37 (0.77)
	F (*df*: 2202)	2.07	1.24	0.40	1.91	0.51	0.95	0.79
	p	0.14	0.29	0.67	0.15	0.60	0.39	0.45

SD standard deviation

Table 2 Descriptive statistics and correlations among variables

	M	SD	1	2	3	4	5	6
1. Controlled motives	2.15	1.43	–					
2. Autonomous motives	4.46	0.9	0.02	–				
3. Negative affect	1.89	1.01	0.32***	0.08	–			
4. Positive affect	4.24	0.75	−0.11	0.22**	−0.11	–		
5. Life satisfaction	3.92	1.18	−0.20**	0.14*	−0.14*	0.40***	–	
6. Problem solving coping	4.59	0.81	−0.04	0.07	0.00	0.51***	0.26***	–
7. Avoidant coping	1.45	0.87	0.36***	−0.10	0.54***	−0.17*	−0.12	−0.09

***$p < 0.001$; **$p < 0.01$; *$p < 0.05$

Table 3 Standardized path coefficients for each parameter in the output path model

	β	p
Controlled motives → avoidant coping	0.36	0.001
Controlled motives → problem-solving coping	−0.04	0.57
Autonomous motives → avoidant coping	−0.11	0.10
Autonomous motives → problem-solving coping	0.07	0.31
Problem-solving coping → negative affect	0.05	0.43
Problem-solving coping → positive affect	0.49	0.001
Problem-solving coping → life satisfaction	0.24	0.001
Avoidant coping → negative affect	0.52	0.001
Avoidant coping → positive affect	−0.08	0.19
Avoidant coping → life satisfaction	−0.02	0.74
Controlled motives → negative affect	0.13	0.03
Controlled motives → positive affect	−0.07	0.29
Controlled motives → life satisfaction	−0.18	0.01
Autonomous motives → negative affect	−0.13	0.02
Autonomous motives → positive affect	0.18	0.003
Autonomous motives → life satisfaction	0.12	0.06

in Fig. 1, which shows that controlled motives have direct and indirect effects on negative affect, and that the latter are through the use of avoidance coping strategies. Controlled motives also have direct effect on life satisfaction. In addition, autonomous motives also have direct effect on positive and negative affect.

4 Discussion

The main objective of the current study was to analyse the relationships among motives underlying of personal goals, coping strategies used to achieve these goals and SWB. Specifically, we want to study whether coping strategies mediated the relationship between goal motives and the two components of SWB. Considering the significant relationships of structural model, and as hypothesized, we found that the more autonomous the motives that guide the pursuit of personal goals, the more positive affect and less negative affect are
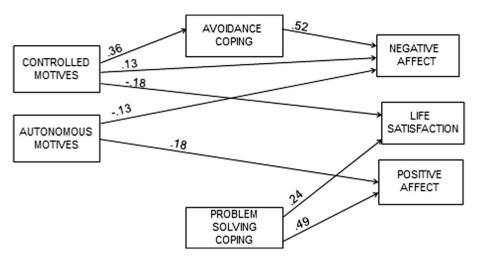
Fig. 1 Structural model with standardized path coefficients (ß) [all with *p* < 0.05]

reported. On the contrary, the more controlled the motives that guide the goals, the more negative affect and less life satisfaction are shown.

In previous studies conducted from this research context, life satisfaction, or had not been measured (Amiot et al. 2004; Hortop et al. 2013; Miquelon and Vallerand 2006) or had been included in a joint measure with the affective component of SWB (Sheldon and Elliot 1999; Sheldon et al. 2004; Smith et al. 2011). The results obtained (correlations and structural model) allow us to show for the first time that the autonomy of motives is positively related to both affective and cognitive components of SWB.

It should be noted that participants were asked to focus on goals they were trying to achieve; therefore the attainment of these goals is not what can explain their well-being. Although progress towards these goals has not been measured, and therefore its possible effect could not be controlled, the results suggest that, regardless of achieving goals, if goals are guided by autonomous motives are associated with more positive affect and life satisfaction.

Supporting the results obtained when the motives for goals in academic (Gaudreau et al. 2012) and sporting (Amiot et al. 2004; Ntoumanis et al. 2014; Smith et al. 2011) settings had been analysed, our results also show that the more controlled are the motives underlying personal goals, more avoidant coping is used. However, and contrary to expectations, our study found no relationship between autonomous motives and use of problem-solving strategies.

Most interesting are the results that show, for the first time, that avoidant coping partially mediate the relationship between controlled motives and negative affect. However, these coping strategies were not a mediating variable when positive affect and life satisfaction were considered. This differential pattern of results supports the importance of analysing separately the different components of SWB (Diener 2006; Schimmack et al. 2008).

The lack of relationship between autonomous motives and problem-solving coping strategies may be due to the fact that in this study we have evaluated three personal goals, which could be heterogeneous. When people pursue their goals for controlled motives they tend to use avoidance strategies, which basically imply that they don't perform (or avoid) certain behaviors in different situations. The not-doing something is the same in all

situations. Conversely, problem-solving strategies are developed according to the specific demands of the situation, and therefore, it is expected that the behaviour change depending on the goal that is being pursued. Therefore, the possible relationship between motives and task-oriented coping may not have emerged because of the heterogeneity of goals evaluated. We should note that previous studies, which have found a link between autonomous motives and problem-solving coping strategies, were based on the report of the coping strategies employed to specific tasks or goals of the same context. Thus, athletes reported coping strategies employed in a pedalling task (Ntoumanis et al. 2014), or in a real sports competition (Amiot et al. 2004). Other studies have evaluated the coping strategies developed to achieve a single academic goal (Gaudreau et al. 2012), or three goals, but the same academic (Miquelon and Vallerand 2006) or sporting (Smith et al. 2011) context.

Although health was defined more than 50 years ago as a state of complete physical, mental and social well-being and not merely the absence of disease (World Health Organization: WHO 1948), it was not until today that the promotion of well-being has been considered a health priority by different international organizations such as WHO (2013) or the European Commission (2010). From this perspective, understanding the factors that affect the well-being is essential to plan well-being promotion programs evidence-based. The results obtained in this study suggest that these programs should encourage people to pursue goals by autonomous motives, and help them to replace avoidant strategies by those aimed at problem solving.

This study was subject to some limitations that deserve mention. First, and as we have indicated, we have evaluated the coping strategies that people used to try to achieve the set of the three goals pursued. However, and for the sake of greater precision, the specific coping strategies employed for each goal or context separately should be measured. In addition, it would be desirable that other areas, beyond the academic and athletic, were analysed. Moreover, coping strategies based on the secondary control, such as acceptance or positive reappraisal, should also be included. These strategies are considered most adaptive when the primary control (solving the problem) is not possible, and are also positively related to emotional well-being (Folkman and Moskowitz 2000; Stanton et al. 2007). The study of these strategies would allow us to check whether they are relevant to cope with difficulties in achieving goals pursued by controlled motives.

Second, previous studies have shown the mediating role of coping between goal motives and goal progress (Amiot et al. 2004; Gaudreau et al. 2012; Ntoumanis et al. 2014; Smith et al. 2011), while in the current study we tested coping as mediator between goal motives and well-being. In subsequent studies, goal progress must also be evaluated. It seems more likely that goal progress to mediate between problem-solving coping strategies and well-being; however, in the case of avoidance strategies, it would be necessary to check whether the model with best fits is one that includes goal progress or one that directly links coping with well-being.

Third, we have carried out a cross-sectional study, however, longitudinal research designs are needed both to study the associations among autonomous and controlled goal motives, coping and well-being throughout the period of goal striving, and to prove causal directions between variables.

Fourth, although the questionnaires employed have been widely used in previous studies y and most have acceptable $(0.8 > \alpha \geq 0.7)$ or good $(0.9 > \alpha \geq 0.8)$ reliabilities (George and Mallery 2003), the autonomous motives subscale only reaches an alpha coefficient of 0.59. While there is some author who considers alpha to be equal to or greater than 0.50 sufficient (Nunnaly 1978), increasing this coefficient to levels that are at least acceptable to most experts (≥ 0.7) would be advisable. On the one hand, the number of items to evaluate

both types of motives is low, so to achieve higher reliabilities, increasing the number of items would be a good alternative. On the other hand, we do not have to forget that the alpha coefficient measures the internal consistency between the items, so this coefficient reflects the homogeneity of these. As we have indicated before, the goals from which the participants had to evaluate the underlying motives can be heterogeneous and, therefore, the responses given to the items as well. Therefore, another way to improve the reliability of this measure would be to evaluate the motives of goals of the same context.

Finally, in our study only questionnaires have been employed, however, they can be affected by social desirability or acquiescence, so in future studies combining the use of these self-reports with more objective measures would be desirable.

5 Conclusions

Despite the limitations previously stated, this study provides new data about the relationships among goal motives, coping, and affective and cognitive components of SWB. Specifically, it can be concluded that pursuing goals for autonomous motives is related to greater positive affect and life satisfaction, while pursuing them for controlled motives is associated with greater negative affect and lower life satisfaction. In addition, the use of avoidance coping partially mediates the relationship between controlled motives and the greater experience of negative affect. Moreover, the data suggest the importance of studying separately the affective and cognitive components of SWB, as well as the need to evaluate the specific coping strategies used to pursue each of the goals. Finally, and as a consequence of our findings, it would be advisable that well-being promotion programs encourage people to pursue goals by autonomous motives, and help them to replace avoidant strategies by those aimed at problem solving.

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