

Development and Validation of an Instrument Measuring the Coping Strategies in Situations of Stress

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Abstract—Stress causes deleterious effects to the physical, psychological and organizational levels, which highlight the need to use effective coping strategies to deal with it. Several coping models exist, but they don't integrate the different strategies in a coherent way nor do they take into account the new research on the emotional coping and acceptance of the stressful situation. To fill these gaps, an integrative model incorporating the main coping strategies was developed. This model arises from the review of the scientific literature on coping and from a qualitative study carried out among workers with low or high levels of stress, as well as from an analysis of clinical cases. The model allows one to understand under what circumstances the strategies are effective or ineffective and to learn how one might use them more wisely. It includes Specific Strategies in controllable situations (the Modification of the Situation and the Resignation-Disempowerment), Specific Strategies in non-controllable situations (Acceptance and Stubborn Relentlessness) as well as so-called General Strategies (Wellbeing and Avoidance). This study is intended to undertake and present the process of development and validation of an instrument to measure coping strategies based on this model. An initial pool of items has been generated from the conceptual definitions and three expert judges have validated the content. Of these, 18 items have been selected for a short form questionnaire. A sample of 300 students and employees from a Quebec university was used for the validation of the questionnaire. Concerning the reliability of the instrument, the indices observed following the inter-rater agreement (Krippendorff's alpha) and the calculation of the coefficients for internal consistency (Cronbach's alpha) are satisfactory. To evaluate the construct validity, a confirmatory factor analysis using MPlus supports the existence of a model with six factors. The results of this analysis suggest also that this configuration is superior to other alternative models. The correlations show that the factors are only loosely related to each other. Overall, the analyses carried out suggest that the instrument has good psychometric qualities and demonstrates the relevance of further work to establish predictive validity and reconfirm its structure. This instrument will help researchers and clinicians better understand and assess coping strategies to cope with stress and thus prevent mental health issues.

Keyword—Acceptance, coping strategies, measurement instrument, questionnaire, stress, validation process.

I. INTRODUCTION

A. Background

STRESS is a major issue today due to its adverse impact on individuals, organizations and society at large. Numerous

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studies [1]-[4] shed light on the diversity of coping strategies used by individuals to cope with a multitude of psycho-social stressors, and analyzed their effectiveness as well as the consequences for health [2]. This study takes stock of coping strategies and describes an integrated model of coping strategies. It then discusses the development and validation of a measurement instrument associated with this coping model.

Lazarus and Folkman [3] define coping as the set of constantly changing cognitive and behavioral efforts to manage specific internal and/or external requirements that are assessed by the individual as consuming or exceeding his or her resources. The transactional stress model proposed by these authors is based on a process involving reciprocal actions between an individual and his environment and allowing the implementation of coping strategies to control aversive situations or to reduce induced distress by these situations. The transactional stress model is often used to understand how people deal with difficult situations. Coping strategies identified by its authors include: 1) Problem-focused coping - aims to reduce the demands of the situation and/or increase one's own resources to better cope with it; 2) Emotion-focused coping attempts to regulate situation-induced emotional tension and 3) Social support coping - efforts to gain the sympathy and help of others.

In 2003, Skinner et al. [4] conducted a review of 100 existing coping measures, which allowed them to identify more than 400 ways to cope. The purpose of this colossal study was to propose a classification meeting the best criteria of scientificity. They conclude that the model of problem-focused and emotion-focused strategies is not ideal and recommend considering more elaborate models.

Hartmann [5] suggests that the traditional approach of emotional coping should be strongly reconsidered. She proposes to better take into account the strategies of emotional regulation and to dissociate the ineffective mental rumination from adaptive emotional coping. She describes new directions in the field of coping, including the role of positive effects, searching for meaning, personal change, positive reassessment, and acceptance. McCracken et al. [6] echo the same line and propose that, among other things, a better consideration of acceptance when control of the situation is absent.

B. Côté's Model of Coping Strategies

To respond to the recommendations and shortcomings identified by the authors mentioned above, Côté developed in 2013 [7] a new coping model. This results from an in-depth analysis of interviews with workers who have low or in the contrary high levels of stress [8] as well as clinical case

studies of people who have undergone psychotherapy. This model is congruent with the scientific knowledge on coping stated above. It helps to understand under what circumstances the strategies are effective or ineffective and to learn how to use them more wisely. It is applicable to all situations and all spheres of life.

The model is based on the premise that the effectiveness of coping depends on the controllability of the situation a person faces. Depending on whether the situation is controllable or not, four *Specific strategies* were identified. The *Modification of the Situation* and *Acceptance* are two effective strategies while *Resignation/Disempowerment* and *Stubborn Relentlessness* are two unsuitable and ineffective strategies.

If a situation is manageable and the person acts, his coping strategy is *Modification of the situation*. The person develops and uses his skills and resources to transform the situation or to cope with it with increased efficiency. The result is positive; he feels a sense of competence and satisfaction. On the other hand, if a person abdicates his power and embraces *Resignation* or *Disempowerment*, the outcome is ineffective and negative. Although it is possible to do something, the person remains passive and apathetic to the situation that inevitably will not change. The feelings arising from this strategy are mainly associated with depression.

Conversely, a person who refuses to accept a situation over which he cannot exercise control and who persists in wanting to change it is in a failing position, he then practices *Stubborn Relentlessly*. He acts but his action has no effect. He experiences a lot of frustration and anxiety. Often perfectionist or idealist, he feels he does not do enough. If he fights for a long period of time, he may end up exhausting himself.

Finally, the strategy of *Acceptance* is to accept to deal with a reality impossible to change. It does not mean that one has to agree, it is rather to mourn an unattainable ideal. There is an inner transformation and a cessation of actions to change what can no longer be, having previously done everything possible and realistic to do. The person feels serene, liberated and at peace.

In addition to these four *Specific Strategies* that form the heart of the model, two *General Coping Strategies*, *Wellbeing* and *Avoidance*, complete the model. They influence, positively or negatively, the ability of the individuals to cope with all situations. *Wellbeing* strategies are adapted and positive. They affect many aspects of the person: the soul, the heart, the head and the body. The feelings associated with these strategies include wellbeing and inner peace. *Avoidance* strategies are harmful to mental and physical health in all circumstances, especially when there are recurring difficulties. They appear clearly ineffective and inappropriate. Here, there is no transformation, neither inner nor outer. People are afraid to face the situation; they try not to think about what is wrong with their lives. They compensate for their pain with excessive pleasures, but the alleviation of suffering is ephemeral.

II. METHODOLOGY

In order to accompany Côté's coping strategies model [7], the development and validation of a measuring instrument

were carried out according to the general approach of the Classical Test Theory and were inspired by the validation process for a measuring instrument from DeVillis [9] and Hogan [10]. First, statements were written in French from the conceptual definitions of coping strategies as well as examples from interviews and clinical cases used for model development. The statements were submitted to a panel of three expert judges familiar with the model, which allowed the validity of content to be estimated. They made comments to enrich the instrument. The expert judges associated the statements with the various coping strategies. The inter-rater reliability of .74 was calculated using Krippendorff's alpha correlation coefficient and found to be satisfactory. A discussion resulted in consensus on all items in the questionnaire. A pilot study of 52 participants provided a qualitative assessment of the face validity of the instrument and the comments were used to finalize the details of the procedure. Eighteen items were selected for a short version of the questionnaire to be validated.

The questionnaire was administered to a sample of 300 French-speaking Canadian students and workers (mean age = 25.8, S.D. = 8.0, minimum = 18, maximum = 57), of which 76.7% were women and 23.3% men, mostly very educated (95% hold a college or university degree). The subjects were recruited from a French-speaking university located in Quebec. Confirmatory factor analyses performed with MPlus provided invaluable information on the construct validity of the questionnaire and the model associated with it with its six coping strategies.

III. RESULTS

The results in Table I present the different items of the questionnaire with means, standard deviations and loading for each of the items. These appear in English to facilitate readers' understanding but have been used in French for the validation of the measuring instrument. The internal consistency of each strategy is satisfactory with Cronbach's Alpha ranging from 0.69 to 0.80. Moreover, portions of variance extracted for each factor are higher than 61%.

The results in Table II strongly support the theoretical structure of the model with its six coping strategy factors. The CFI, TLI and RMSEA indices obtained with confirmatory factor analysis indicate that the data well represent the theoretical model. However, additional analyses were conducted to determine if alternative models could be retained: one-factor model, two-factor model (effective and ineffective strategies), and a five-factor model (merging two of the six strategies which are the most strongly correlated, *Wellbeing* and *Modification of the Situation*). Alternative models all give less interesting results.

The correlation coefficients between the six factors of the model indicate that strategies are weakly or moderately related (see Table III). As theoretically expected, effective strategies (*Wellbeing*, *Modification of the Situation*, and *Acceptance*) are positively correlated with each other and negatively correlated with ineffective strategies (*Avoidance*, *Resignation / Disempowerment*, and *Stubborn Relentlessness*).

TABLE I
 ITEMS AND FACTORS OF THE MEASURING INSTRUMENT

Items/Factors	M	ET	Load.
Factor 1 – Modification of the Situation ($\alpha = .77$)	3.77	.77	---
1.1 I am planning my time well in difficult situations	3.64	.95	.78
1.2 I organize well my tasks and my activities	3.84	.96	.76
1.3 I choose and manage my priorities well	3.82	.86	.51
Factor 2 – Acceptance ($\alpha = .75$)	3.58	.80	---
2.3 I focus on the positive aspects of situations rather than the negative aspects	3.53	1.07	.79
2.1 I accept to deal with reality as it is	3.72	.95	.68
2.2 I welcome the present moment even when I have no power over situations	3.50	.88	.61
Factor 3 – Resignation/Disempowerment ($\alpha = .80$)	1.70	.79	---
3.1 I prefer to let others find solutions because I do not have enough self-confidence	1.65	.97	.79
3.2 It suits me when others solve my problems	1.81	.98	.69
3.3 I give up easily in difficult situations	1.63	.87	.65
Factor 4 – Stubborn Relentlessness ($\alpha = .69$)	2.22	.87	---
4.1 I stubbornly want to change things I can not control	1.97	1.01	.81
4.2 I frustrate myself with things that go wrong in the world even if I have no power over the situation	2.33	1.21	.80
4.3 I frustrate myself when others are not as I would like them to be	2.37	1.12	.60
Factor 5 - Wellbeing ($\alpha = .71$)	3.60	.86	---
5.1 I have hobbies that allow me to flourish	3.62	1.10	.83
5.2 I balance my life well	3.53	0.93	.79
5.3 I surround myself with people who love me, accept me as I am and encourage me	4.18	.81	.37
Factor 6 - Avoidance ($\alpha = .78$)	1.79	.89	---
6.1 I surround myself with people to avoid thinking about my problems	1.74	1.08	.84
6.2 I do activities to keep my mind busy and not think about my problems (games of chance, bars, etc.)	1.69	1.06	.80
6.3 I keep myself very busy so I do not have time to think about my problems	1.93	1.07	.73

Notes. The items have been written and validated in French, the English version of the items is provided only to facilitate the understanding of the reader.

TABLE II
 CONFIRMATORY FACTOR ANALYSES

Models	χ^2	df	χ^2/df	CFI	TLI	RMSEA
1. Structure with a single latent factor	1076.87	136	7.92	.44	.37	.15
2. Structure with 2 latent factors (effective and ineffective strategies)	911.33	134	6.80	.54	.47	.14
3. Structure with 5 latent factors (merger of <i>Acceptance / Modification</i>)	308.71	125	2.47	.89	.87	.07
4. Structure with 6 latent factors (theoretical model supported)	208.27	120	1.74	.95	.93	.05

Notes. N (listwise) = 300; maximum likelihood analysis.

TABLE III
 CORRELATIONS BETWEEN DIFFERENT FACTORS OF THE MODEL

Factors	1	2	3	4	5	6
F1– Modification of the Situation	1.000					
F2 – Acceptance	.212*	1.000				
F3 – Resignation/Disempowerment	-.345**	-.399**	1.000			
F4 – Stubborn Relentlessness	-.158	-.542**	.314**	1.000		
F5 – Wellbeing	.282**	.601**	-.307**	-.303**	1.000	
F6 – Avoidance	-.168	-.165	.243**	.365**	.024	1.000

Notes. N (listwise) = 300; * $p < 0.01$, ** $p < .001$.

IV. CONCLUSION

Overall, the analyses suggest that the instrument for measuring coping strategies has good psychometric qualities in terms of the validity of content and structure as well as for the estimation of its reliability, in terms of homogeneity of factors. It is a very promising tool to support Côté's [7] theoretical model, which differs from other coping models in its ability to integrate the main coping strategies, to take into account the controllability of the situation and to include an effective strategy in uncontrollable situations. However, it is

important to continue the validation of the measuring instrument, in particular by using other samples to reconfirm its structure and establish its reliability using a test-retest. It would also be relevant to estimate its predictive validity, more specifically with mental health indicators, good or bad. In addition, its transcultural validation in English would make it possible to extend the use of the questionnaire to other populations. Thus, this instrument would prove very useful for researchers and clinicians working in the field of stress and coping.

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