Positive orientation: explorations on what is common to life satisfaction, self-esteem, and optimism

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SUMMARY. **Aim** – Literature documents that the judgments people hold about themselves, their life, and their future are important ingredients of their psychological functioning and well-being, and are commonly related to each other. **Methods** – We used confirmatory factor analysis (CFA) under the classical test theory, regression analysis, and a cross national design. **Results** – This study provides new findings attesting to the hypothesis that evaluations about oneself, one's life, and one's future rest on a common mode of viewing experiences which we named "Positive Orientation". **Conclusions** – Results from an Italian and a Canadian study are presented, attesting to a latent dimension that lies at the core of positive evaluations and that corroborates the utility of the new construct as a critical component of individuals' well-functioning.

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INTRODUCTION

The last decades have been characterized by a new or renewed interest on human strengths and positive features pervading the actual conceptualizations of human well-functioning as well as the clinical and research work aimed at investigating and promoting individual mental health. In 2004, the World Health Organization published a historic report on mental health promotion, proposing a conceptualization of mental health as not merely the absence of illness but as the presence of "a state of well-being in which the individual realizes his or her own abilities, can cope with the normal stresses of life, can work productively and fruitfully, and is able to make a contribution to his or her community" (World Health Organization, 2004, p. 12). The main novelty is the rejection of the traditional conceptualization of well-being and ill-being as the extremes of a continuum. As mental illness consists of specific symptoms of bad-functioning, mental health consists of its own proper symptoms of positive functioning. This calls for a strong commitment of both scholars and practitioners to the identification of adequate indicators of positive mental functioning or flourishing (Keyes, 2007) to serve in research studies as well as in the design and implementation of interventions.

Across the years several constructs have been proposed as appropriate and useful indicators of individual well-being. In this regard, the relevance of life satisfaction, self-esteem, and optimism has been largely documented.

Life satisfaction is commonly operationalized as an individual's overall positive evaluation of his or her life, and has been found to be associated with numer-

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ous positive outcomes including higher levels of physical health, greater use of positive coping strategies (Shiota, 2006), and a greater internal locus of control (Yeung & Chow, 2000). Self-esteem refers to the degree of global regard and acceptance that an individual has for himself/herself as a person (Harter, 1993). Similar to life satisfaction, self-esteem has proved to have a beneficial effect on various life circumstances and domains across the life-span (Emler, 2001): people with high levels of self-esteem are at lower risk for anxiety and depressive symptoms and have better physical and mental health outcomes (Baumaister, 1993); in pursuing their goals, they adopt more efficacious strategies, are less prone to give up in front of obstacles and adversities (Kernis, 2003), have more self-confidence and feel more control over life events (Tedeschi & Norman, 1985). Optimism corresponds to a general orientation toward the future in which one believes that good things will be plentiful and bad things scarce (Scheier & Carver, 1992). A solid literature shows a positive association between optimism and good physical health and longevity (Maruta *et al*., 2000; Scheier & Carver, 2001). In contrast, people who are doubtful about their future have been found to be more likely to try to push adversities away and to do things which provide temporary distractions rather than help to solve their problems (Ben-Zur *et al*., 2000).

Although various studies have documented the relatively high degree of inter-correlation among the three constructs (i.e. Bailey *et al*., 2007; Diener & Diener, 1995; Lucas *et al*., 1996; Schimmack & Diener, 2003), the literature predominantly focused to the unique role of each with respect to specific life contexts and outcomes.

We have recently proposed a multifaceted approach to the conceptualization of the cognitive component of well-being in which life satisfaction, self-esteem, and optimism represent indicators of a latent construct, named "Positive orientation" (Caprara *et al*., 2009a).[1] Differently from other conceptualizations, in this proposal positive orientation doesn't refer exclusively to a positive orientation toward the future (see Scheier & Carver, 1993), nor to a system of self-referent cognitions occurring automatically in people's experience (see Ingram *et al*., 1995). Positive orientation has been conceptualized as a general construct underlying three more specific constructs reflecting the propensity "to think" positively about various life domains pertaining to the self, life, and future (Alessandri *et al*., submitted for publication; Caprara & Steca, 2006a, b; Steca *et al*., 2009).

A twin study has explored together self-esteem, life satisfaction, and optimism, with the objective to unravel their common genetic and environmental architecture and to further clarify the high degree of phenotypic correlations (Caprara *et al*., 2009a). This study showed that a large amount of shared genetic factors are responsible for large components of phenotypic correlations. Indeed, the genetic correlation (that measures the extent to which two traits are affected by the same genes) is estimated at .80 for self-esteem and life satisfaction, .83 for self-esteem and optimism, and .87 for life satisfaction and optimism. These results attest, for the first time, that self-esteem, life satisfaction, and optimism share a large genetic core, as indicated by the substantial portion of variance explained by the common genetic factor affecting the three dimensions simultaneously.

In our view positive orientation may properly represent the proximal sufficient cause of a "syndrome of optimal functioning" and may act as a protective factor against mental illness, and in particular against depression, in accordance with cognitive theories that posit negative views of the self, the world, and the future as major component of depression (Beck, 1987; Clark *et al*., 1999).

AIMS

The goal of the present contribution is twofold. In study one, using a large Italian community sample, we examine whether a common latent dimension lies at the core of life satisfaction, self-esteem, and optimism. Then we examined whether this common dimension is associated to various measures of individuals' functioning, such as health, hedonic balance, quality of interpersonal relationships, and coping styles. In study two, we examine the generality of Italian findings to a different sample of youth in a different cultural context. More specifically, we examine the properties of positive orientation and its relations with various indicators of people's functioning using a community sample of Canadian adolescents.

[1]In previous studies (Caprara & Steca, 2005; 2006a, b) we named the common dimension underlying the three constructs, "positive thinking". However, we reasoned that term "thinking" may lead to place too much emphasis on cognitive components, underestimating other components of what life satisfaction, self-esteem and optimism have in common. Thus, in more recent studies (Caprara, et al. 2009a) we used the label Positive Orientation to describe the latent dimension representing what self-esteem. Life satisfaction and optimism have in common.

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STUDY 1

Methods

Participants

The participants in this study were 1,331 Italian adults (49% males). They represent a sample of convenience, recruited from a national survey study conducted by the "Inter-University Center for the Study of Prosocial and Antisocial Motivations". They were contacted by a group of trained researchers and completed the questionnaires at their home; they did not get paid for their participation.

The participants came from various Italian geographic areas and amply differed in age, as well as in demographic and socioeconomic background. In particular, their age ranged from 20 to 92, with a mean age of 48.95 (SD=18.09); 54% were married, whereas 46% were either unmarried, divorced, or widows/widowers. Finally, 34% of the participants had completed elementary or junior high school at the time of data collection, whereas the rest of the sample either completed high school (51%), or earned a University degree (15%).

Measures

Life Satisfaction (_=.87). Participants' life satisfaction was assessed using the 5-item set of the "Satisfaction with Life Scale" (Diener *et al*., 1985). For each item, participants rated the extent to which they felt generally satisfied with life on a 7-point rating scale (from 1=strongly disagree to 7=strongly agree). Life satisfaction sample item is: "In most ways, my life is close to my ideal".

Self-esteem (_=.76). Participants' self-esteem was assessed by seven items from the Rosenberg (1965) self-esteem scale (Marsh, 1996) on which the participants indicated the extent to which they felt they possessed good qualities, accepted their own characteristics, and achieved personal success or experienced failure. For each item, ratings were provided on a 4-point scale (from 1=strongly disagree to 4=strongly agree). A self-esteem sample item is: "I feel that I have a number of good qualities".

Optimism (_=.80). Optimism was assessed by using the 10-item set from the "Life Orientation Test", a valid measure that can distinguish people with high optimism from pessimists (Scheier & Carver, 1985). In particular, the 6 scale items (4 items were "filler") measured subjects' expectations about their future and their general sense of optimism. Participants provided their ratings using a 5-point scale ranging from 1 (strongly disagree) to 5 (strongly agree). A sample item for optimism is: "In uncertain times, I usually expect the best".

Health (_=.70). Participants evaluated their physical health status on a brief scale including 6 items measuring the frequency of health problems. Participants responded to these items on a five-point response scale ranging from 1 = "never in my life" to 5 = "more than fifteen times" during the past year. A sample item of the scale is, "I have been sick more than two days".

Hedonic balance. Subjects' hedonic balance was assessed using the PANAS (Watson *et al*., 1988), a 20-item scale developed to measure two higher-order dimensions of self-rated positive and negative affect. The "positive affect" section of the PANAS (_=.80) includes terms such as "active" and "attentive", whereas the "negative affect" section (_=.84) includes terms such as "afraid" and "hostile". Individuals reported the frequency to which they have generally experienced each term on a 5-point scale, from 1 (never/almost never) to 5 (always/almost always). Participants' rating data on their positive and negative affect were used to create a "hedonic balance" difference score by subtracting the negative affect score from the positive affect score. Thus, higher scores indicated a relatively greater tendency to experience positive affect.

The *perceived quality of interpersonal relationships* was measured by three new sets of items. The *perceived quality of family relationships* was measured using 9 (_=.86) items that measure participants' perceptions of their degree of closeness to and confidence in family members; a sample item is: "I talk about my feelings and worries with my family". *Perceived quality of relationship with partner* was measured using 9 items (_=.85) that measure participants' perceptions of the amount of support and respect they receive from their partner, as well as the quality of communication with him/her. "I talk to my partner when I have important decisions to make" is a sample item. Nine items (_=.88) measured *participants' perceptions of the quality of their friendships* namely, participants' perceptions of their degree of closeness to friends, their confidence in friends, and the amount of received support. A sample item is: "I talk about my feelings and worries with my friends". For each of the three sets of items, ratings were provided on a 5-point scale (1 = never to 5 = always).

Statistical Analyses

Confirmatory factor analysis was conducted using maximum likelihood estimation procedures from the

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M*plus* program (ML, Muthén & Muthén, 2006). For the evaluations of covariance structure models, we used the chi-square goodness of fit (which is actually a badness of fit index), supplemented by the RMSEA, the SRMR, the Tucker Lewis Fit index (TLI) and the Comparative Fit Indexes (CFI). SRMR is an absolute index of the discrepancy between reproduced and observed correlations. Hu & Bentler (1998; 1999) suggest a cut-off criterion of .08, with higher values indicating poorer fit to the empirical data, and values lower than .05 indicating an excellent fit. RMSEA is a measure of the discrepancy per degree of freedom for the model (Browne & Cudek, 1993). Values of the RMSEA lower than .05 indicate a close fit of the model to the empirical data, coefficients in the range of .05-.08 indicate a reasonable error of approximation, coefficients higher than .08 indicate poor fit (Browne & Cudek, 1993). The CFI (Bentler, 1990) assesses the reduction in misfit of a population target model relative to a population baseline model in which no-structure is specified (i.e., all correlations among variables are equal to zero). Values of at least .90 are considered as adequate for good models (Bentler & Bonnet, 1990). The Tucker Lewis fit index (Tucker & Lewis, 1973) is an incremental fit index useful for situations in which a parsimony-type index is needed to account for the number of estimated parameters in a model. Good-fitting models generally yield fit indexes of at least .90, that is, only a relatively small amount of variance remains unexplained by the model (Bentler & Bonnet, 1980; Bollen, 1989). Fit indices and the Akaikes Information Index (AIC; Akaike, 1973) were used to compare models. The minimum value of AIC suggests the best model.

Zero order and partial correlations with significance levels corrected by means of a Bonferroni approach were used for examining the predictive value of positive orientation and its lower order components.

RESULTS

Confirmatory Factor Analysis

Prior of the analysis we computed descriptive statistics for all items included in the model. These items revealed a reasonably normal distribution: the means of skewness and kurtosis were -.46 (SD=.23) and -.08 (SD=.87), respectively.

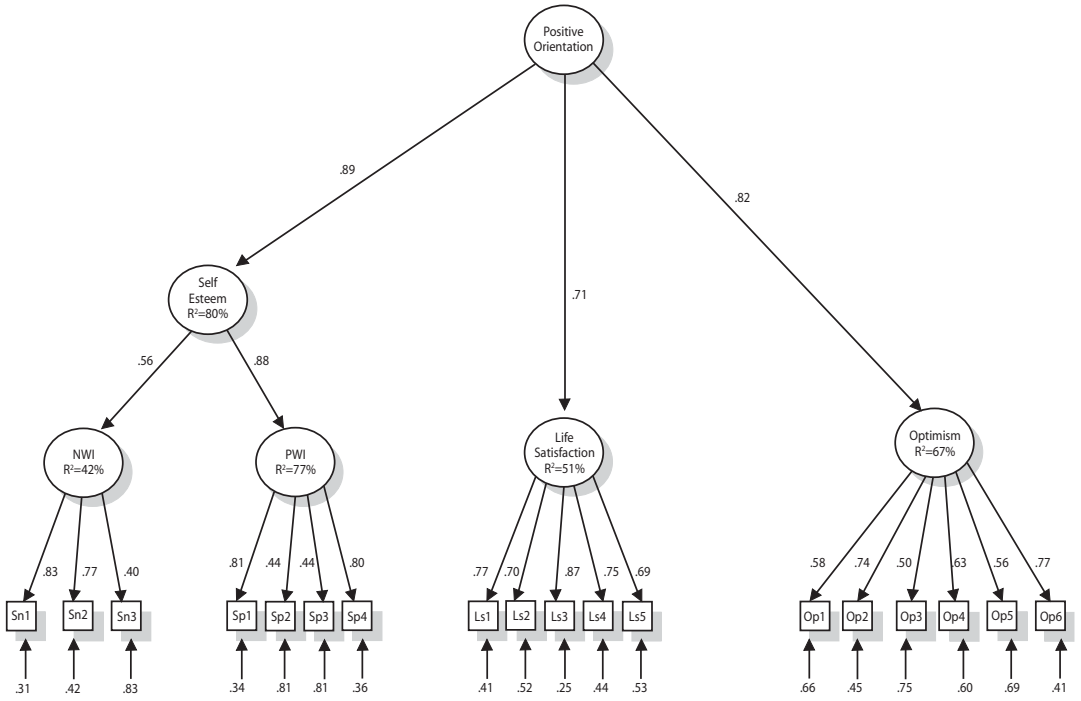


Figure 1 - *Factor analytic model for the Italian adults sample*.
NWI = negative worded items; PWI = positive worded items; Sn = Negative worded item from Self-esteem Scale; Sp = Positive worded item from Self-esteem Scale; Ls = item from Satisfaction with Life Scale; Op = item from Life Orientation Test.

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Figure 1 displays results of confirmatory factor analysis. Following previous studies and preliminary explorative factor analysis results (Marsh, 1996), we proposed a model that takes into account the impact of positive and negative item wording on the latent structure of the Rosenberg self-esteem scale.

As shown in the Figure, the 18 items of the life satisfaction, self-esteem, and optimism scales were modeled as loading on four different first order latent factors. The first two factors accounted respectively for method effect produced by items wording in the Rosenberg's self-esteem scale; the third factor was tapped by five items of the Satisfaction with Life Scale, whereas the fourth factor represented optimism, as measured by the Life Orientation Test. At level two, the self-esteem factor was tapped by the two first order factors associated with method effect. Finally, at the highest order level, a general latent factor accounted for the variance of self-esteem, life satisfaction, and optimism factors.

Item loadings were high and significant across the three scales, ranging from .40 (negative worded item 3 of the self-esteem scale) to .87 (item 3 of the life satisfaction scale). On the high order level, life satisfaction, self-esteem, and optimism showed high and significant positive loadings on positive orientation and their explained variances were uniformly high, equal to .71, .89, and .82 for the three scales, respectively. The fit indices of the model were satisfactory, indicating a good match between the conceptual model and the observed data: χ^2 (131) = 945,99 $p < .001$, a Tucker Lewis Index (*TLI*) of .90, a comparative fit index (*CFI*) of .91, a root-mean-square error of approximation (*RMSEA*) of .06 [.06, .07], a Standardized Root Mean Square of Residuals *SRMR* =.05, and an AIC of 47098.39.

Our proposed model was then compared with several alternative models. The unique model, hypothesizing that the 21 items of the three scales load onto a single factor [χ^2(1331,135) = 3296.41*, CFI =.65, TLI =.61, RMSEA =.13[.13-.14], SRMR=.09, AIC=49440.81]; the second was an orthogonal model hypothesizing that the 21 items load onto three independent factors [χ^2(1331,135) =2359.57*, CFI=.76, TLI=.72, RMSEA=.11[.12-.13], SRMR= 09, AIC = 49440.81]; the third was a model hypothesizing three correlated factors representing self-esteem, life satisfaction and optimism [χ^2(1331,132) =1399.63*, CFI=.86, TLI =.84, RMSEA = 09[.08-.09], SRMR=.06, AIC=47550.03], and the fourth was a model with the negative and positive self-worded item factors for self-esteem correlated and unrelated with others factors [χ^2(1331,134) = 1904.30*, CFI =.81, TLI=.78, RMSEA=.10[.10-.10], SRMR=.19, AIC= 48050.70]. Finally, there was evidence that the proposed model showed the best fit.

Correlations with Health, Hedonic Balance, and Quality of Interpersonal Relationships

As shown in Table I, the partial scores of life satisfaction, self-esteem, and optimism were poorly or negatively correlated with the various individual functioning indicators when positive orientation was kept under statistical control. In particular, most of the zero-order correlation coefficients between positive orientation and the various indicators of individual functioning were high and statistically significant, as well as being higher than the respective partial coefficients for life satisfaction, self-esteem, and optimism. The highest correlation coefficient was found between positive orientation and hedonic balance (r =.56), whereas the lowest was between positive orientation and the perceived quality of friendships (r =.11).

Table I – *Partial and zero-order correlations between life satisfaction, self-esteem, optimism, positive orientation and the constructs of interest. Italian adults sample.*

	Health	**Hedonic Balance**	**Quality of Family relationships**	**Quality of relationships with Partner**	**Quality of relationships with Friends**
Life Satisfaction	-.04	-.14**	.15**	.17**	.01
Self-esteem	.08	.13**	-.05	-.04	-.06
Optimism	-.04	-.01	-.09	-.11**	.06
Zero-order correlations					
Positive orientation	.29**	.56**	.25**	.32**	.11**

** p<.01 with Bonferroni correction

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STUDY 2

Methods

Participants

Participants were 236 Canadian adolescents (100 males and 136 females) with a mean age of 14.69 (SD=1.08), recruited through ads placed in local English newspapers and by posters placed throughout the greater Montreal area. This convenience sample was 78.7% Caucasian, 4.5% Black, 1.8% Hispanic, 1.4% Native, 0.5% Asian, and 13.1% Other; median family income ranged from Can$60,000 to Can$75,000.

Measures

Participants completed the three instruments described in Study 1 to assess life satisfaction, self-esteem, and optimism; the reliability coefficients were .86, .80, and .69, respectively. Adolescents' health, hedonic balance and perceived social support were assessed through the instruments described below.

Health (_=.76). Physical health was assessed using an 8-item self-report scale measuring the quality, frequency, and duration of health problems. Items were rated on a 5-point scale with higher scores indicating greater symptom severity. Total scores range from 0 to 40.

Hedonic balance. Participants' hedonic balance was assessed using the Positive and Negative Affect Scale for Children (Laurent *et al*., 1999), a 27-item self-report scale designed to assess negative and positive affect in children. The PANAS-C is composed of two subscales: positive affect (12 items; _=.87) and negative affect (15 items; _=.89). Items are rated on a 5-point scale with responses ranging from "not at all" to "extremely". Positive affect includes items such as "active" and "enthusiastic". Negative affect includes items such as "hostile" and "irritable". Reliability and validity of the scale is good, as reported by the authors. The hedonic balance metric was described in Study 1.

Perceived quality of social support. Social support as perceived by participants was assessed using "People in My Life" (Harter, 1986), a 24-item self-report scale measuring perceptions of social support and positive regard from others. Adolescents indicate the level of perceived support on a 4-point Likert-type scale. Items are equally divided into four subscales: parental support (_=.87), teacher support (_=.83), classmate support (_=.82), and close friend support (_=.87).

RESULTS

Confirmatory Factor Analysis

The means of items skewness and kurtosis were -.56 (SD=.39) and -.03 (SD=.74), respectively.

Results of the CFA confirmed the hypothesized factorial structure. Item loadings were high and significant across the three scales, ranging from .40 to .84. Life satisfaction, self-esteem, and optimism exhibited high and statistically significant positive loadings on positive orientation, while their explained variances were uniformly high (see Figure 2).

The model yielded a reasonable fit, indicating a good match between the conceptual model and the observed data: χ^2 (131)=232,.57 p < .001, TLI =.91, CFI =.92, RMSEA=.06 [.05, .07], and SRMR=.05.

As in study 1, our proposed model was also compared with the four alternative models presented in study 1The first was a unique model, hypothesizing that the 21 items of the three scales load onto a single factor [χ^2(1331,135) =428.02*, CFI=.77, TLI=.74, RMSEA= .10[.09-.11], SRMR=.08, AIC=9669.37]; the orthogonal model; [χ^2 (1331,135)= 410.30*, CFI = .78, TLI=.75, RMSEA =.10[.09-.11], SRMR=.21, AIC=9651.65]; the three correlated factors model [χ^2(1331,132) =244.40*, CFI=.91, TLI=.90, RMSEA=.06[.05-.08], SRMR= .06, AIC= 9491.75] and the model with the negative and positive self-worded item factors for self-esteem correlated and unrelated with others factors [χ^2(1331,134)=408.32*, CFI=.78, TLI=.75, RMSEA=.10[.09-.11], SRMR=.05, AIC= 9651.67]. Again, there was evidence that the proposed model showed the best fit.

Correlations with Health, Hedonic Balance, and Perceived Social Support

As shown in Table II, when statistically controlling for positive orientation, life satisfaction, self-esteem, and optimism were poorly and negatively correlated with the various individual functioning indicators. On the contrary, all zero-order correlations between positive orientation and the various individual functioning indicators were high and statistically significant, as well as exceeded the respective partial coefficients for life satisfaction, self-esteem, and optimism. The highest correlation coefficient was found between positive orientation and hedonic balance (r=.65), whereas the lowest was between positive orientation and perceived support from close friends (r =.26).

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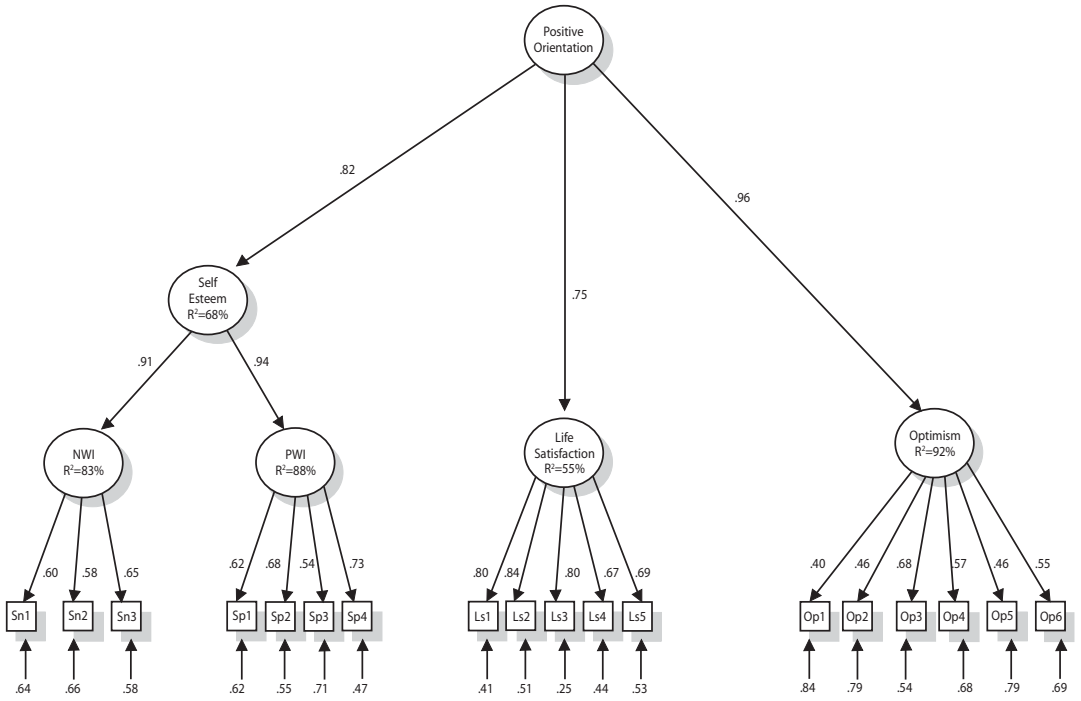


Figure 2 - *Factor analytic model for the Canadian adolescents sample*.
NWI = negative worded items; PWI = positive worded items; Sn = Negative worded item from Self-esteem Scale; Sp = Positive worded item from Self-esteem Scale; Ls = item from Satisfaction with Life Scale; Op = item from Life Orientation Test.

Table II – *Partial and zero-order correlations between life satisfaction, self-esteem, optimism, and the constructs of interest. Canadian adolescents sample*.

Partial correlations						
	Health	**Hedonic Balance**	**Social support from Parents**	**Social support from Classmates**	**Social support from Teachers**	**Social support from Friends**
Life Satisfaction	.10	.21**	.03	.03	-.09	.06
Self-esteem	-.05	.04	-.01	.14	.04	.08
Optimism	-.05	-.27**	-.02	-.18**	.06	-.14
Zero-order correlations						
Positive orientation	.54**	.65**	.49**	.48**	.32**	.26**

** p<.01 with Bonferroni correction

DISCUSSION

In accordance with previous studies (Alessandri *et al*., submitted for publication; Caprara & Steca, 2005, 2006a, b; Caprara *et al*., 2006; Steca *et al*., 2009), the current contribution presents news findings attesting to a latent dimension common to life satisfaction, self-esteem, and optimism. Results from the first study demonstrated that individuals' positive life- and self-evaluations and future expectations share a latent component that likely reflects a common mode of positively viewing life, oneself and expected experiences. In study two, results were replicated in a sample of middle adolescents living in a different cultural context, demonstrating the robustness of these findings.

Results from the Italian study attest to the value and utility of positive orientation as an adequate indicator of individual optimal functioning as it results positively associated with good physical health, high hedonic balance, and high perceived quality of interpersonal rela-

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tionships, especially with family members and partners. Life satisfaction, self-esteem, and optimism were only slightly correlated with the same variables subsequent to statistical control of shared variance. Likewise, in a different cultural context, study 2 showed that adolescents who reported higher levels of positive orientation also reported higher levels of physical health, hedonic balance, and perceived social support from parents, friends and teachers. Furthermore, the contribution of positive orientation was greater than the unique contributions of life satisfaction, self-esteem, and optimism, as in study 1.

Although one cannot overlook that life satisfaction, self-esteem and optimism may hold relevance in specific life's contingencies, above findings converge in pointing to positive orientation as a basic pre-disposition that may account for individuals' adjustment and achievements to a considerable extent. Thus one may wonder the extent to which and how any change can be pursued to promote a mode of viewing that significantly affect people experience. Likely interventions designed to nurture and to strengthen a positive view of oneself, life and the future, represent a major challenge for researchers, clinicians and health psychologists. The influential role of mastery experiences deserves particular attention.

In this regard, current findings attest to the contribution that self efficacy beliefs in dealing with affect and social relations may exert on strengthening positive orientation (Caprara, submitted for publication). The more people believe to handle their emotions and the more they believe to be able to handle their relations with others, the more they can preserve a positive evaluation of self, of life and of future.

Likely mastery experiences staying at the basis of self efficacy beliefs deserve particular attention to set the conditions that may turn genetic potentialities into proper functioning and thus to identifies prevention initiatives, diagnostic tools and treatment strategies aimed to promote individual flourishing (Caprara, *in press*; Ruggieri & Tansella, 2009).

Additional empirical work is needed to examine the impact of positive orientation mental health, in particular with regard to depression, that one may pose at the opposite in accordance with early clinical intuitions of Beck (1987; Clark *et al*., 1999).

Also future research should investigate the distinctive contribution to mental health of self esteem, life satisfaction and optimism over and above what they have in common, namely positive orientation. In this regard, self-esteem has been often associated with self-enhancement bias and narcissism (Baumaister *et al*., 2003; Krueger *et al*., 2008; Sakellaropoulo & Baldwin, 2007), and optimism has been associated with inaccurate risk appraisal (see Hoorens, 1994; McKenna, 1993; Taylor & Brown, 1994; Weinstein, 1980) and adoption of unsafe habits (Arnett, 2000; Gold, 2006).

Ultimately, future studies should investigate the extent to which different degrees of covariation among self-esteem, life satisfaction and future orientation may impact differently on adjustment and mental health.

Limitations of the current study should be acknowledged. First one will benefit from assessing self esteem, life satisfaction and optimism using multiple methods, like implicit measures, and informants, other than only self reports. Second one will benefit from assessing positive orientation in subjects carrying various kinds of mental disorders. Third future research should examine the generality of above findings to individuals from non-Western cultures.

REFERENCES

Akaike H. (1973). Information theory and an extension of the maximum likelihood principle. In *2nd International Symposium on Information Theory* (ed. B.N. Petrov and F. Csaki), pp. 261-281. Akademiai Kiado: Budapest.

Alessandri G., Caprara G.V. & Tisak, J. (submitted for publication). Assessing Positive Orientation.

Arnett J. (2000). Optimistic bias in adolescent and adult smokers. *Addictive Behaviors* 25, 625-632.

Bailey T.C., Eng W., Frisch M.B. & Snyder C.R. (2007). Hope and optimism as related to life satisfaction. *Journal of Positive Psychology* 2, 168-175.

Baumeister R.F. (1993) (Ed.). *Self-esteem: The Puzzle of Low Self-regard*. Plenum: New York.

Baumeister R.F., Campbell J.D., Krueger J.I. & Vohs K.D. (2003). Does high self-esteem cause better performance, interpersonal success, happiness, or healthier lifestyle? *Psychological Science in the Public Interest* 4, 1-44.

Beck A.T. (1987). Cognitive models of depression. *Journal of Cognitive Psychotherapy* 1, 5-37.

Bentler P. M. (1990). Comparative fit indexes in structural models. *Psychological Bulletin*, 107, 238-246.

Bentler P.M. & Bonnet D.G. (1980). Significance tests and goodness of fit in the analysis of covariance structures. *Psychological Bulletin* 88, 588-606.

Ben-Zur H., Rappaport B., Ammar R. & Uretzky G. (2000). Coping strategies, life style changes, and pessimism after open-hearth surgery. *Health, Society and Work* 25, 201-209.

Bollen K. A. (1989). *Structural Equations with Latent Variables*. John Wiley & Sons: New York.

Browne M.W. & Cudek R. (1993). Alternative ways of assessing model fit. In *Testing Structural Equation Models* (ed. K.A. Bollen and J.S. Long). Sage: Newbury Park, CA.

Caprara G.V. (in press). Advocating an agentic and potentialist view to health psychology. *Psychology and Health*.

Caprara G.V. & Steca P. (2005). Affective and social self-regulatory efficacy beliefs as determinants of positive thinking and happiness. *European Psychologist* 4, 275-286.

Caprara G.V. & Steca P. (2006a). The contribution of self-regulatory efficacy beliefs in managing affect and family relationships to positive thinking and hedonic balance. *Journal of Social and Clinical Psychology* 25, 601-625.

https://doi.org/10.1017/S1121189X00001615 Published online by Cambridge University Press

Caprara G.V. & Steca P. (2006b). Affective and interpersonal self-regulatory efficacy beliefs as determinants of subjective well-being. In *Dimensions of Well-being*. Research and Intervention (ed. A. Delle Fave), pp. 120-142. Franco Angeli: Milano.

Caprara G.V., Steca P., Gerbino M.G., Paciello M. & Vecchio G.M. (2006). Looking for adolescent's well being: self efficacy beliefs as determinants of positive thinking and happiness. *Epidemiologia e Psichiatria Sociale* 15, 30-43.

Caprara G.V, Fagnani C., Alessandri G., Steca P., Gigantesco A., Cavalli Sforza L.L. & Stazi M.A. (2009). Human optimal functioning: The genetics of positive orientation towards self, life, and the future. *Behaviour Genetics* 39, 277-284.

Caprara G.V., Alessandri G. & Barbaranelli C. (submitted for publication). Optimal functioning: The contribution of self efficacy beliefs to positive orientation.

Clark D.A., Beck A T. & Alford B.A. (1999). *Scientific Foundations of Cognitive Theory and Therapy of Depression*. John Wiley & Sons: New York.

Diener E. & Diener M. (1995). Cross-cultural correlates of life satisfaction and self-esteem. *Journal of Personality and Social Psychology* 68, 653-663.

Diener E., Emmons R.A., Larsen R.J. & Griffin S. (1985). The satisfaction with life scale. *Journal of Personality Assessment* 49, 71-75.

Emler N. (2001). *Self-esteem: The Costs and Consequences of Low Self-worth*. York: York, England.

Gold R.S. (2006). Unrealistic optimism about becoming infected with HIV: Different causes in different populations, *International Journal of STD and AIDS* 17, 196-199.

Harter S. (1986). *Manual for the Social Support Scale for Children*. Unpublished questionnaire. University of Denver: Denver.

Harter S. (1993). Causes and consequences of low self-esteem in children and adolescents. In *Self-esteem: The Puzzle of Low Self Regard* (ed. R. F. Baumeister), pp. 87-116. Plenum: New York.

Hoorens V. (1994). Unrealistic optimism in health and safety risk. In *Social Psychology and Health: European Perspectives* (ed. D. R. Rutter and L. Quine), pp. 153-174. Avebury/Ashgate Publishing: Brookfield, VT.

Hu L. & Bentler P.M. (1998). Fit indices in covariance structure modeling: Sensitivity to underparameterization model misspecification. *Psychological Methods* 3, 424-453.

Hu, L. & Bentler P.M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling* 6, 1-55.

Ingram R.E., Kendall P.C., Siegle G., Guarino J. & McLaughlin S.C. (1995). Psychometric properties of the positive automatic thoughts questionnaire. *Psychological Assessment* 7, 495-507.

Keyes C.L.M. (2007). Promoting and protecting mental health as flourishing. A complementary strategy for improving national mental health. *American Psychologist* 62, 95-108.

Kernis M.H. (2003). Toward a conceptualization of optimal self-esteem. *Psychological Inquiry* 14, 1-26.

Krueger J. L., Vohs K.D. & Baumeister R.F. (2008). Is allure of self-esteem a mirage after all? *American Psychologist* 63, 64-65.

Laurent J., Catanzaro S.J., Joiner T.E. Jr., Rudolph K.D., Potter K.I., Lambert S., Osborne L., & Gathright T. (1999). A measure of positive and negative affect for children: Scale development and preliminary validation. *Psychological Assessment* 11, 326-338.

Lucas R.E., Diener E. & Suh E.M. (1996). Discriminant validity of well-being measures. *Journal of Personality and Social Psychology* 71, 616-628.

Marsh H.W. (1996). Positive and negative global self-esteem: A substantively meaningful distinction or artifactors? *Journal of Personality and Social Psychology* 70, 810-819.

Maruta T., Colligan R.C., Malinchoc M. & Offord K.P. (2000). Optimists vs. pessimist: Survival rate medical patients over a 30-year period. *Mayo Clinic Proceedings* 75, 140-143.

McKenna F.P. (1993). It won't happen to me: *Unrealistic optimism* or illusion of control? *British Journal of Psychology* 84, 39-50

Muthén L.K. & Muthén B.O. (2006). *Mplus User's Guide*. Muthén & Muthé: Los Angeles.

Rosenberg M. (1965). *Society and the Adolescent Self-image*. Princeton University Press: Princeton, NJ.

Ruggeri M. & Tansella M. (2009). The interaction between genetics and epidemiology: the puzzle and its pieces. *Epidemilogia e Psichiatria Sociale* 18, 77-80.

Sakellaropoulo M. & Baldwin M.W. (2007). The hidden side of self-esteem: two dimension of implicit self-esteem and their relation to narcissistic reactions, *Journal of Experimental Social Psychology* 43, 995-1001.

Scheier M.F. & Carver C.S. (1985). Optimism, coping, and health: Assessment and implications of generalized outcome expectancies. *Health Psychology* 4, 219-247.

Scheier M.F. & Carver C.S. (1992). Effects of optimism on psychological and physical well-being: Theoretical overview and empirical update. *Cognitive Therapy and Research* 16, 201-228.

Scheier M.F. & Carver C.S. (1993). On the power of positive thinking: Benefits of being optimistic. *Current Directions in Psychological Science* 2, 26-30.

Scheier M.F. & Carver C.S. (2001). Adapting to cancer: The importance of hope and purpose. In *Psychosocial Interventions for Cancer* (ed. A. Baum and B.L. Andersen), pp. 15-36. American Psychological Association: Washington, DC.

Schimmack U. & Diener E. (2003). Predictive validity of explicit and implicit self-esteem for subjective well-being. *Journal of Research in Personality* 37, 100-106.

Shiota M.N. (2006). Silver linings and candles in the dark: Differences among positive coping strategies in predicting subjective well-being. *Emotion* 6, 335-339.

Steca P., Tramontano C. & Caprara G.V. (2009). Developmental pathways and correlates of positive thinking in the transition from adolescence to early adulthood. In *Understanding Positive Life. Research and Practice on Positive Psychology* (ed. T. Freire). Climepsi Editores: Lisboa.

Taylor S.E., & Brown J.D. (1994). "Illusions" of mental health do not explain positive illusions, *American Psychologist* 49, 972-973.

Tedeschi J.T. & Norman N. (1985). Social power, self-presentation, and the self. In *The Self and Social Life* (ed. B. R. Schlenker), pp. 293-322. McGraw-Hill, New York.

Tucker L.R. & Lewis C. (1973) A reliability coefficient for maximum likelihood factor analysis. *Psychometrika*, 38, 1-10

Watson D., Clark L.A., & Tellegen A. (1988). Development and validation of brief measures of positive and negative affect: The PANAS Scales. *Journal of Personality and Social Psychology* 54, 1063-1070.

Weinstein N. (1980). Unrealistic optimism about future life events. *Journal of Personality and Social Psychology* 39, 806-820.

World Health Organization (2004). *The World Health Report, 2004. Changing History*. WHO: Geneva.

Yeung A. & Chow C. (2000). Correlates of subjective well-being of Chinese Geneva elderly in Hong Kong. *Journal of Social Work Research and Evaluation* 1, 165-184.

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