BART SOENENS AND MAARTEN VANSTEENKISTE *Ghent University*

ELINE SIERENS *Katholieke Universiteit Leuven**

How Are Parental Psychological Control and Autonomy-Support Related? A Cluster-Analytic Approach

This study addresses the hypothesis that the relationship between parental psychological control and autonomy-support depends on how autonomy-support is conceptualized, that is, in terms of promotion of independence or in terms of promotion of volitional functioning. Questionnaires tapping into psychological control and these two types of autonomy-support were administered to a sample of 495 emerging adults. Cluster analysis revealed that, whereas parental promotion of independence may or may not co-occur with psychological control, high parental promotion of volitional functioning systematically goes together with low psychological control and vice versa. Differences between clusters in terms of adjustment were mainly driven by differences in psychological control and promotion of volitional functioning and to a lesser extent by differences in promotion of independence.

Department of Developmental, Social, and Personality Psychology, Henri Dunantlaan 2, B-9000 Ghent, Belgium (Bart.Soenens@ugent.be).

*Center for Development Psychology, Tiensestraat 102, B-3000 Leuven, Belgium. Tel.: +32 16 325884.

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In current socialization theory and research, there is general consensus that autonomy-supportive parenting yields numerous benefits for adolescents' and emerging adults' adjustment (Grolnick, Deci, & Ryan, 1997). Conversely, there is substantial agreement among scholars that controlling, pressuring, and manipulative parenting undermines adjustment and well-being (Barber & Harmon, 2002). It is striking, however, that the constructs of autonomy-supportive and controlling parenting have been studied in relative isolation from one another. Consequently, little research has addressed the question of how autonomy-supportive and psychologically controlling parenting are related. Moreover, the few studies that explicitly examined the relation between parental autonomy-support and parental control have obtained divergent results.

This study aims to shed light on the relation between perceived parental autonomy-support and psychological control by differentiating between two conceptualizations of parental autonomy-support, that is, Promotion of Independence (PI) and Promotion of Volitional Functioning (PVF; Soenens et al., 2007). To examine the relationship between these two types of autonomy-support and psychological control, we adopt a person-centered approach (i.e., cluster analysis), which allows us to examine how perceptions of these two types of autonomy-support naturally co-occur with perceived parental psychological control. A second aim of this study is to examine

differences among these parenting constellations in terms of emerging adults' well-being. We addressed our study aims in a sample of emerging adults (aged 18–25 years) because emerging adulthood represents a life period where individuals increasingly display independent functioning (Arnett, 2000). This development is reflected both in behavioral changes (e.g., transitioning from semi-autonomous living during the college years to fully independent living) and in socio-emotional changes (e.g., developing a clear sense of identity). Given that processes of individuation and identity exploration are highly salient during emerging adulthood (perhaps even more so than during adolescence; Arnett), it is of particular importance to examine how parents can either support or hinder adaptive development during this life period.

Psychologically Controlling Versus Autonomy-Supportive Parenting

Early research mapping the domain of parenting described parental autonomy-support and control as opposite ends on a single continuum. In a large-scale factor analysis, Schaefer (1965) discovered a factor defined by parental behaviors such as "intrusiveness," "possessiveness," and "control through guilt." Although this factor was only characterized by negative loadings of controlling behaviors (and not by positive loadings of autonomy-supportive behaviors), Schaefer labeled this factor as "Psychological Autonomy versus Psychological Control," thus assuming that psychological control and autonomy-support are opposite constructs.

The construct of psychological control has been intensively studied in recent socialization research. Barber (1996) defined psychological control as a negative, insidious type of control characteristic of parents who engage in pressuring tactics such as guilt induction, instilling of anxiety, and love withdrawal. Research has convincingly shown that psychologically controlling parenting predicts maladaptive outcomes in adolescents and emerging adults (Barber & Harmon, 2002). This recent research on psychological control typically adopts Schaefer's (1965) view of the relation between autonomy-supportive and controlling parenting as being opposite constructs. Accordingly, in some studies a measure of psychological control was reverse scored to form a measure of parental autonomy (Gray & Steinberg, 1999).

Recently, Barber, Bean, and Erickson (2002) called for an explicit examination of the relation between psychological control and autonomy-support, and Silk, Morris, Kanaya, and Steinberg (2003) were among the first to heed this call. They developed a scale assessing "autonomy-granting" (e.g., "My parents keep pushing me to think independently") and administered this scale to a large sample of middle adolescents, along with a measure of psychological control. Confirmatory factor analysis showed that the items tapping autonomy-granting and psychological control loaded on different factors that were weakly correlated, $r = -.18$. Interestingly, this low correlation suggests that parental autonomy-support and psychological control represent quasi-orthogonal dimensions. Such a conclusion differs radically from Schaefer's (1965) original assumption that both dimensions form opposite ends on a single continuum.

Herein, we argue that Silk et al.'s (2003) measure taps into one specific conceptualization of parental autonomy-support, that is, a conceptualization in terms of the Promotion of Independence (Soenens et al., 2007). Parental autonomy-support can, however, also be defined in a different way, that is, in terms of the Promotion of Volitional Functioning, a conceptualization that fits with self-determination theory's (Deci & Ryan, 2000) view of autonomy. We suggest that the latter conceptualization of autonomy-support implies quite a different relation with psychological control than a conceptualization in terms of independence.

Distinguishing Among Types of Autonomy-Support

Silk et al.'s (2003) measure of autonomy-granting is rooted in separation-individuation theory (Blos, 1979) and is based on the premise that adolescents need to distance themselves from their parents, develop an independent view, and make decisions on their own (i.e., without their parents' assistance). According to Arnett (2000), this development toward independence would be particularly salient during late adolescence and emerging adulthood. Because this development represents a hallmark of mature functioning within separation-individuation theory (Blos; Steinberg, 1989), it is considered important for parents to encourage their children's independent functioning. In line with this, Silk et al.'s measure essentially taps parents' promotion of independent expression

and decision making. The opposite of PI is parental promotion of dependence, in which case children would be allowed or encouraged to rely on their parents. In the Silk et al. study, PI was found to correlate positively with adolescents' well-being.

Conceptualizations of autonomy as independence are highly prevalent in developmental psychology. Within self-determination theory, however, autonomy is defined in a qualitatively different fashion, that is, as the degree to which behaviors are enacted with a sense of volition. Highly autonomous or self-determined individuals fully endorse the actions in which they engage and stand behind their actions. They are authentic and self-governing because they base their actions on awareness of personal interests and abiding values and goals. In self-determination theory, the opposite of autonomy is not dependence but heteronomy, that is, the feeling of being controlled in one's actions by external forces or by internal compulsions (Deci & Ryan, 2000).

In line with a definition of autonomy as volitional functioning, autonomy-supportive parenting has been defined as the Promotion of Volitional Functioning (Soenens et al., 2007). PVF is characteristic of parents who encourage their children to behave on the basis of self-endorsed interests (Ryan, Deci, Grolnick, & La Guardia, 2006). Specifically, parents high on PVF would, as much as possible, take their children's perspective (i.e., empathy), allow meaningful choices, and provide a reasonable rationale when choice is limited (i.e., induction; Grolnick et al., 1997). Abundant research has shown that PVF is related to positive developmental outcomes among children, adolescents, and emerging adults, including school adjustment and general well-being (Grolnick, Ryan, & Deci, 1991; Ng, Kenney-Benson, & Pomerantz, 2004). These positive outcomes would occur because children of parents high on PVF would develop more self-determined functioning (Grolnick et al., 1997). They would regulate their behaviors on the basis of self-endorsed motives rather than on the basis of external demands or internal pressures. Consistent with this hypothesis, studies have shown that PVF is positively related to self-determination in multiple life domains and that self-determination serves a mediating role in associations between PVF and adjustment (Grolnick et al., 1997).

Importantly, self-determination theory differentiates autonomy as self-determination from autonomy as independence. According to Ryan et al. (2006), people can be autonomously independent or they can be forced into independence. For instance, an emerging adult who freely chooses his college major without asking for parental assistance and who feels that this choice reflects his personal interests is acting independently in a volitional fashion. Conversely, an emerging adult whose parents refuse to assist their son in deciding on a college major has no other option but to make an independent decision. To the extent that the latter emerging adult would actually want his parents to provide some assistance, he is unwillingly forced to make an independent decision, such that he is unlikely to experience feelings of psychological freedom and volition.

As a further illustration of the distinction between volitional functioning and independence, take the example of an emerging adult who decides to move out of the parental home to live independently. As such, this decision is an expression of independent functioning because it involves at least some distancing from the parents. This independent functioning does not necessarily entail volitional functioning, however. When the decision to leave the parental home is a personal choice that the emerging adult fully endorses, this decision is made in a volitional fashion. In contrast, when this decision would be made because the parents pressured their child to move out of the house or because the emerging adult would feel ashamed about living with his parents at his age, the decision to live independently cannot be said to be made in a volitional fashion. Rather, the emerging adult would behave independently for controlling or pressuring reasons.

Similarly, parents' promotion of independence can be clearly distinguished from the extent to which parents promote volitional functioning. Whereas parents high on PI primarily want their children to make decisions on their own (i.e., without parental assistance), parents high on PVF primarily want their children to make choices and decisions that reflect their children's personal values and interests. PVF does not necessarily imply that an emerging adult needs to make decisions without parental assistance. Instead, to the extent that he or she asks for parental advice and guidance, parents high on PVF may actively assist their child in discovering and exploring his or her true interests, which enables the emerging adult to act in a volitional fashion.

Consistent with the idea that PI and PVF represent two qualitatively different ways of conceptualizing parental autonomy-support, Soenens

et al. (2007) found in a series of studies that assessments of perceived PI and PVF are distinct factors. Furthermore, both types of autonomy-support were found to be positively related to adolescents' and emerging adults' adjustment at the correlational level, but only PVF yielded unique positive effects on well-being when both types of autonomy-support were predicting adjustment. These findings suggest that whether or not parents promote independence is less essential for adolescents' and emerging adults' well-being than the extent to which they do so in a volitional manner (i.e., by being empathic and providing choices).

Psychological Control, PI, and PVF

We propose that the distinction between PI and PVF helps to shed light on the relation between autonomy-supportive and controlling parenting. Self-determination theory takes a clear conceptual stance regarding this relation, positing that both parenting dimensions are largely incompatible (Grolnick, 2003). Psychologically controlling parents are primarily oriented toward their position in the parent-child relationship and toward their own norms, goals, and aspirations (Barber et al., 2002). This focus on parents' own agenda would inhibit parental attunement to the needs and interests of their children and is, as such, antithetical to the empathic qualities that characterize parents high on PVF (Grolnick). Further, through the use of insidious and manipulative tactics, psychologically controlling parents pressure their children to feel, think, and act in certain ways. This feature of controlling parenting is clearly also antithetical to parental PVF, where parents encourage their children to behave on the basis of self-endorsed motives. The hypothesis that PVF and psychological control are highly incompatible dimensions has been confirmed, with studies typically obtaining strong negative correlations between both dimensions, ranging between −.50 and −.75 (Ng et al., 2004; Skinner, Johnson, & Snyder, 2005; Vansteenkiste, Zhou, Lens, & Soenens, 2005).

In contrast, when defined as PI, we suggest that autonomy-support is likely to be relatively orthogonal to psychologically controlling parenting. This is because, as noted above, parents can pressure their children to act independently or can volitionally allow them to act independently. In line with this idea and as noted earlier, Silk et al. (2003) found that parental PI and psychological control were relatively orthogonal (see also Soenens et al., 2007, Study 1). Soenens et al. (2007) measured both types of perceived autonomy-support and psychological control and examined the relationship between these three constructs. It was found that PI had a smaller correlation with psychological control than PVF. Moreover, when controlling for the variance shared by PI and PVF, PI was no longer related to psychological control. In contrast, PVF still showed a strong negative correlation with psychological control. Together, these findings suggest that whereas PI is relatively orthogonal to psychological control, PVF is quite incompatible with psychological control.

The Present Study

The general aim of this study was to examine the co-occurrence of PI, PVF, and psychological control in emerging adults' perceptions of their parents. In doing so, we used a person-oriented approach (i.e., cluster analysis) rather than the more commonly used variable-oriented approach. We adopted this approach because it allows for a more fine-grained analysis of the naturally occurring patterns of these perceived parenting dimensions in families. For instance, although the strong negative correlations obtained between PVF and psychological control suggest that both dimensions are, on average, incompatible (and thus do not co-occur), it remains to be examined whether *all* parents are high on PVF and low on psychological control and vice versa.

We formulated the following hypotheses. If PVF and psychological control represent highly incompatible dimensions, as claimed in self-determination theory, it can be expected that high or low levels of both dimensions do not co-occur within a particular parenting cluster. In other words, parents would be perceived as either (a) high on PVF and low on psychological control or (b) low on PVF and high on psychological control (Hypothesis 1). In contrast, the low to modest negative association between PI and psychological control suggests that parents high on PI may or may not be perceived as psychologically controlling. In other words, at least two groups (clusters) of parents high on PI can be expected: (a) parents high on PI, low on psychological control, and high on PVF and (b) parents high on PI, high on psychological control, and low on PVF. Similarly, if PI and psychological control are indeed relatively orthogonal, we can also anticipate two groups of parents low on PI: (c) parents

low on PI, low on psychological control, and high on PVF and (d) parents low on PI, high on psychological control, and low on PVF (Hypothesis 2).

Guided by the assumption that PVF and psychological control are highly incompatible parenting dimensions, some studies have used a composite score for PVF versus psychological control, which is computed by reverse-scoring the psychological control items and averaging them with the PVF items (Vansteenkiste et al., 2005). In this study, we examine whether such an approach is justified by exploring whether a cluster analysis on three parenting dimensions (i.e., PI, PVF, and psychological control) yields similar results as a cluster analysis on two parenting dimensions (i.e., PI and a composite score of PVF vs. psychological control). We hypothesize that both analyses would result in similar solutions (Hypothesis 3).

In addition to examining whether these four theoretically anticipated profiles of perceived parenting would emerge in a cluster analysis, we compared emerging adults from the clusters obtained in terms of adjustment and well-being. Given that the majority of emerging adults in Western Europe and North America follow higher education after high school (Arnett, 2000), adjustment was operationalized in this study as the extent to which emerging adults adapt to the college context, both in terms of social and academic adjustment (Baker & Siryk, 1984). In addition, we administered two more general indicators of emerging adults' well-being, that is, self-esteem and depressive symptoms. In light of the findings by Soenens et al. (2007) that only PVF explained unique variance in the well-being outcomes, we anticipated that differences in well-being would primarily show up between clusters that differ in terms of perceived PVF versus psychological control rather than between clusters that differ in terms of perceived PI (Hypothesis 4).

METHOD

Participants and Procedure

Participants were 495 undergraduate students in educational sciences (31%) and law (69%) from a Belgian university. Participants' age ranged from 17 to 25 years with a mean age of 19.30 years ($SD = 0.95$). The sample was 74% female. Participation was voluntary and questionnaires were administered in the context of an introductory course on psychology. Less than 2% of the students who were invited to participate refused to do so. All participants were Dutch speaking and of Belgian nationality. Anonymity was guaranteed. Of the participants, 83% came from intact, two-parent families, 13% had divorced parents, and 4% of the participants had one deceased parent. Part of these data were reported by Soenens et al. (2007, Study 2).

Measures

Unless indicated otherwise, the items of all questionnaires in this study were rated on a 5-point Likert-type scale ranging from 1 (*totally disagree*) to 5 (*totally agree*). All parenting items were rated for parents in general rather than for mothers and fathers separately. This procedure is informed by previous findings that relations between psychological control and the two types of autonomy-support do not differ by parental gender (Soenens et al., 2007).

Psychological control. Psychological control was assessed using the eight-item Psychological Control Scale – Youth Self-Report (PCS-YSR; Barber, 1996; e.g., "My mother/father is less friendly to me if I don't see things like she/he does"). This scale has been widely used and validated in developmental research (Barber). It has been shown that the Dutch version of this scale is correlated in theoretically predicted ways with the parenting dimensions of support and behavioral control and that there is significant convergence ($rs > .30$) between parent-reported and child-reported scores on this scale (Soenens, Vansteenkiste, Duriez, & Goossens, 2006). Cronbach's alpha in this study was .81.

Promotion of independence and promotion of volitional functioning. Participants were administered an eight-item PI scale (e.g., "My mother/father encourages me to be independent from her/him") and a six-item PVF scale (e.g., "My mother/father lets me make my own plans for things I want to do"). Both scales were adapted by Soenens et al. (2007) from existing measures. The PI scale mainly consists of items developed by Silk et al. (2003). Soenens et al. (2007) deleted two items from this scale (one for theoretical reasons and the other for empirical reasons) and added two other items directly tapping parental

encouragement of independence. The PVF scale is a shortened version of the "Autonomy-Support" scale from Grolnick et al.'s (1991) Perceptions of Parents Scale (POPS). Soenens et al. (2007) performed a content analysis showing that raters could reliably distinguish between the items tapping PI and PVF. Both exploratory and confirmatory factor analyses further confirmed the distinction between PI and PVF. This study used the same PI and PVF scales as Soenens et al. (2007), with one exception. We deleted one item from the PVF scale because this item ("My parents insist upon doing things their way") has to be reverse-scored to compute an index of PVF and, thus, taps controlling parenting. As it is the explicit aim of this study to examine the relation between autonomy-supportive and controlling parenting and this negative correlation between PVF and psychological control might be artificially inflated by item overlap, this item tapping control was removed. Cronbach's alpha was .64 for the PI scale and .80 for the PVF scale.

Well-being. Three measures were administered to tap four dimensions of adolescents' psychosocial well-being (i.e., depressive symptoms, self-esteem, academic adjustment, and social adjustment). First, participants were administered the Center for Epidemiologic Studies Depression Scale (CES-D; Radloff, 1977), which measures depressive symptoms in the general population. A brief 12-item version of the original 20-item CES-D was developed and validated by Roberts and Sobhan (1992), who found a correlation of .96 between the brief and the full version of the CES-D. Participants indicated how often they experienced 12 depressive symptoms during the past week on a 4-point scale ranging from 0 (*rarely or none of the time*) to 3 (*most or all of the time*). Cronbach's alpha was .79.

Second, participants were administered Rosenberg's (1965) 10-item self-esteem scale (e.g., "In general I am happy with myself"), which measures global feelings of self-worth. Cronbach's alpha was .90. Third, participants filled out a 20-item version of the Student Adaptation to College Questionnaire (SACQ; Baker & Siryk, 1984), which taps students' adjustment to college. Beyers and Goossens (2002) developed and validated a Dutch translation of the SACQ. They also provided shortened scales that are equally reliable as the original scales and that correlate higher than .90 with the original scales. In this study, we administered two subscales of the shortened Dutch SACQ, that is, Academic Adjustment (e.g., "I have been keeping up to date on my academic work") and Social Adjustment (e.g., "I am meeting as many people and making as many friends as I would like at college"). Cronbach's alpha was .86 for Academic Adjustment and .85 for Social Adjustment.

Results

Confirmatory Factor Analysis on the Items Tapping Psychological Control, PI, and PVF

Prior to performing cluster analysis, we examined whether perceived parental psychological control, PI, and PVF represent distinct constructs. This was deemed important because, in case the items of two dimensions (e.g., PVF and psychological control) would be better represented by a single factor rather than by two separate factors, it would not be useful to proceed with a cluster analysis on these separate dimensions. A Confirmatory Factor Analysis (CFA) was performed on the 21 parenting items in this study. CFA was conducted using Lisrel 8.50 with Maximum Likelihood Estimation (Jöreskog & Sörbom, 1993). To evaluate the goodness of fit of the factor structure, the Standardized Root Mean Square Residual (SRMR) and the Root Mean Squared Error of Approximation (RMSEA) were selected. According to Hu and Bentler (1999), the combined cutoff values of .09 for SRMR and .06 for RMSEA indicate a good model fit. In addition, we also inspected the Comparative Fit Index (CFI) with values of .95 or above indicating good fit. To compare models, χ^2 difference tests were used. A comparison was made between a three-factor model (distinguishing between psychological control, PI, and PVF) and three alternative two-factor models, that is, (a) a model combining psychological control and PI, (b) a model combining psychological control and PVF, and (c), a model combining PI and PVF. The three-factor solution, $\chi^2(186) = 475.06$, RMSEA = .06, SRMR = .07, CFI = .95, was favored over each of the two-factor solutions in terms of χ^2 difference, $\Delta\chi^2 = 262.73$, $df = 2$, $p < .001$; $\Delta\chi^2 = 313.88$, $df = 2$, $p < .001$; and $\Delta\chi^2 = 248.81$, $df = 2$, $p < .001$, for the three alternative models, respectively. In addition, although the alternative models did not differ strongly from the three-factor model in terms of SRMR (with

values around .07), they did provide a worse fit than the three-factor model in terms of CFI (all values $< .92$) and RMSEA (all values $> .08$). In the three-factor model all items had significant loadings ($ps < .001$) on their corresponding factor.

Descriptive Statistics and Correlations

To examine gender differences and differences between types of education (educational sciences vs. law school), a multivariate analysis of variance (MANOVA) was conducted with gender and type of education as independent variables and each of the study variables as dependent variables. No significant overall effect of type of education was obtained, Wilk's lambda $= .99$; $F(7, 465) = 0.89$, $p > .05$, $\eta^2 = .01$. Gender had a significant multivariate effect on the study variables, Wilk's lambda $= 0.92$, $F(7, 465) = 5.56$, $p < .01$, $\eta^2 = .08$. Univariate ANOVA's indicated that female participants reported lower self-esteem ($M = 3.09$, $SD = 0.48$) and higher academic adjustment ($M = 3.30$, $SD = 0.71$) than male participants ($M = 3.24$, $SD = 0.49$ and $M = 3.06$, $SD = 0.72$, respectively), $F(1, 471) = 9.10$, $p < .01$ and $F(1, 471) = 10.53$, $p < .01$, respectively.

Means, standard deviations, and correlations between the study variables can be found in Table 1. PI and PVF were moderately positively correlated and both were negatively correlated with psychological control. A test for within-sample differences between correlations, however, showed that the negative correlation between PVF and psychological control was more pronounced than the correlation between PI and psychological control ($z = -6.73$, $p < .001$). Moreover, semi-partial correlations between PI, PVF, and psychological control were calculated to control for the variance shared by PI and PVF. Whereas the correlation between PVF and psychological control remained significant and negative ($r = -.52$, $p < .001$), the correlation between PI and psychological control was no longer significant ($r = -.09$, $p > .05$). PVF thus appeared to be more incompatible with psychological control than PI. Note that these correlations, which were obtained on the Study 2 data of the Soenens et al. (2007) study (but have not been reported before), are in line with the findings reported in Study 1 of the Soenens et al. (2007) study.

Psychological control was positively related to depressive symptoms and negatively to self-esteem and academic and social adjustment. PVF showed exactly the opposite pattern of correlations with the outcome variables. PI was positively related to two of the outcome variables, that is, self-esteem and social adjustment.

Cluster Analysis on Three Parenting Dimensions (PI, PVF, and Psychological Control)

Cluster analysis was performed on psychological control, PI, and PVF following a two-step procedure (Gore, 2000). Prior to the cluster analysis, scores on the three parenting variables were standardized to ensure that differences in variability in the scales would not influence the classification obtained. Moreover, we carefully inspected our data for univariate and multivariate outliers and removed these outliers from the sample. Univariate outliers were defined as those participants who scored higher than 3 *SD* above or below the mean. Multivariate outliers were identified using the Mahalanobis distance measure. In total, 8 participants were removed, resulting in a final sample of 487 participants.

Table 1. *Means, Standard Deviations, and Correlations Among Study Variables*

	M	*SD*	1	2	3	4	5	6
1. Psychological Control	2.04	0.66						
2. Promoting Independence	3.31	0.53	−.32**					
3. Promoting Volitional Functioning	4.04	0.63	−.61**	.39**				
4. Depressive Symptoms	0.78	0.48	.39**	−.10	−.28**			
5. Self-Esteem	3.10	0.51	−.31**	.18*	.25**	−.60**		
6. Academic Adjustment	3.23	0.72	−.32**	.10	.21**	−.43**	.33**	
7. Social Adjustment	3.64	0.70	−.23**	.21**	.21**	−.46**	.45**	.36**

*$p < .01$. **$p < .001$.

In the first step of the cluster analysis, Ward's hierarchical clustering procedure was applied. This procedure combines the two most similar clusters in terms of their squared Euclidian distance, starting with clusters that contain only one participant. We considered two- to five-cluster solutions and inspected the percentage of variance explained in the three parenting variables in each solution. One commonly used criterion in selecting the number of clusters is that the cluster solution explains at least 50% of the variance in each of the defining variables (Milligan & Cooper, 1985). Only the four- and the five-cluster solutions met this criterion and were considered for further analysis.

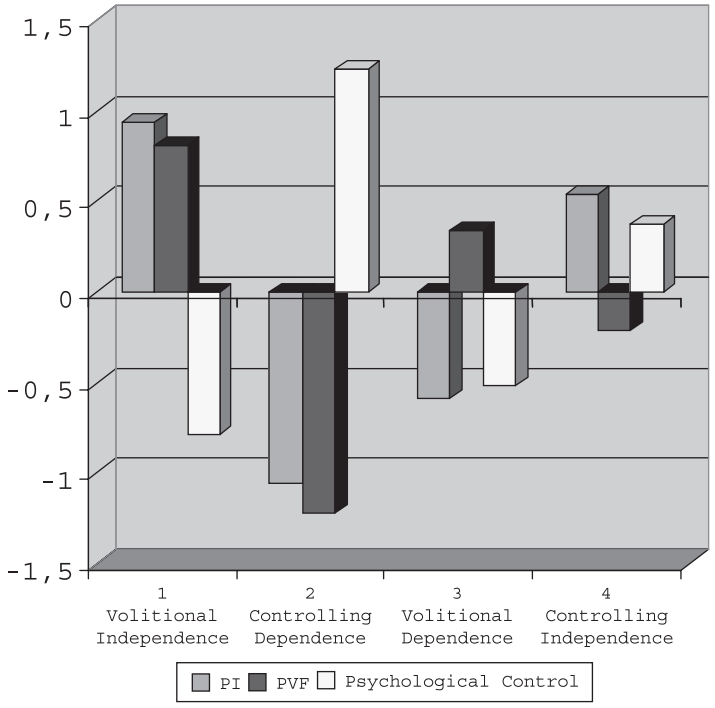
In the second step, the cluster centers derived from Ward's method were used as the initial cluster centers for a nonhierarchical *k*-means clustering procedure. This procedure was applied to the four- and the five-cluster analysis. In each analysis, all participants were assigned to the most similar cluster on the basis of their Euclidian distance from the initial cluster centers. Subsequently, new cluster centers were computed and used as new initial cluster centers for the next step in an iterative procedure until the largest change in any cluster center was less than 2% of the minimum distance between the initial centers.

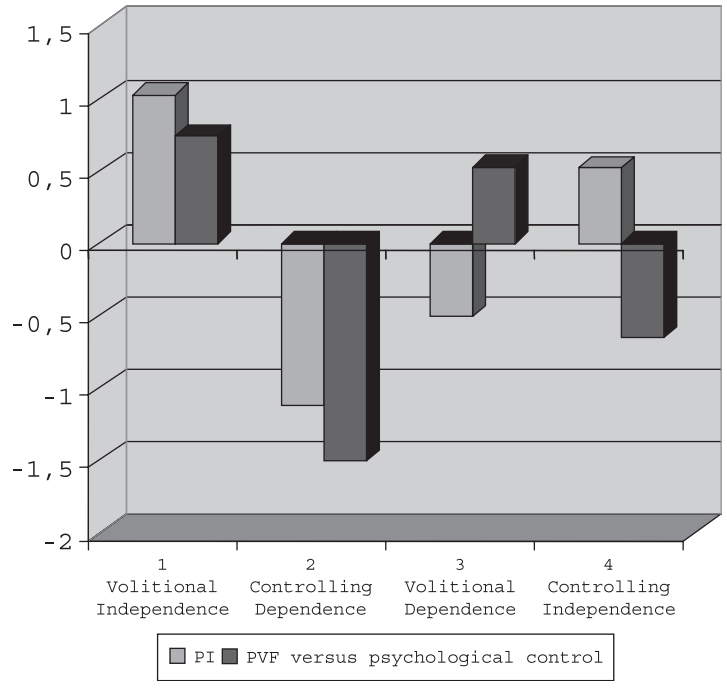
To decide between the four- and five-cluster solutions, a double-split cross-validation procedure was used for each solution (Breckenridge, 2000). The sample was randomly split into halves (Subsamples A and B). The full two-step procedure (Ward, followed by *k*-means) was applied to each half. The two solutions were then compared for agreement as follows. The participants of each half of the sample were assigned to new clusters on the basis of their Euclidean distances to the cluster centers of the other half of the sample (SPSS procedure QUICK CLUSTER, option CLASSIFY). These new clusters were then compared for agreement with the original cluster by means of Cohen's kappa (κ). The two resulting kappa's were averaged. An agreement of at least .60 was considered acceptable (Breckenridge, 2000). The cluster solution with the highest kappa is preferred because this solution is more stable and replicable. The four-cluster solution was found to be more stable ($\kappa = .67$) than the five-cluster solution ($\kappa = .44$). As a result, the four-cluster solution was preferred above the five-cluster solution and is depicted in Figure 1 (upper panel). The *y*-axis in Figure 1 represents *z* scores. These *z* scores, which represent the distances between the cluster means and the total sample standardized mean, in standard deviation units, can be interpreted as effect sizes. Analogous to Cohen's (1988) *d*, 0.2 *SD* is a small effect, 0.5 *SD* is a medium or moderate effect, and 0.8 *SD* is a large effect.

Cluster 1 ($n = 124$, 25%) consisted of participants who perceived their parents as high on PI ($z = 0.93$), high on PVF ($z = 0.81$), and low on psychological control ($z = -0.78$). This cluster will be referred to as *Volitional Independence* because parents were perceived as promoting independence in a volitional, noncontrolling fashion. Cluster 2 ($n = 75$, 15%) consisted of participants who perceived their parents as low on PI ($z = -1.05$), low on PVF ($z = -1.21$), and high on psychological control ($z = 1.23$). This cluster will be referred to as *Controlling Dependence* because parents were perceived as discouraging independence in a controlling, nonvolitional fashion. Cluster 3 ($n = 154$, 32%) consisted of participants who perceived their parents as low on PI ($z = -0.58$), relatively high on PVF ($z = 0.34$), and low on psychological control ($z = -0.51$). This cluster will be referred to as *Volitional Dependence* because parents were perceived as allowing dependence in a noncontrolling and relatively volitional fashion. Finally, Cluster 4 ($n = 134$, 28%) consisted of participants who perceived their parents as high on PI ($z = 0.54$), relatively low on PVF ($z = -0.21$), and high on psychological control ($z = 0.38$). This cluster will be referred to as *Controlling Independence* because parents were perceived as encouraging independence in a nonvolitional, controlling fashion. No significant differences were found between the clusters in terms of gender distribution, $\chi^2(3) = 5.75$, $p > .05$ and age, $F(3, 474) = 0.85$, $p > .05$.

The results of this cluster analysis confirmed the idea that perceived parental PI can occur either in a controlling or noncontrolling fashion. Although both Cluster 1 (Volitional Independence) and Cluster 4 (Controlling Independence) were characterized by high levels of PI, they showed strongly opposing levels of parental psychological control, with Cluster 1 showing high levels of parental control and Cluster 4 showing low levels of parental control and high levels of parental PVF. Conversely, a lack of parental PI, which supposedly involves that parents encourage or allow dependence, can also go hand in

FIGURE 1. *Z* SCORES FOR PI, PVF, AND PSYCHOLOGICAL CONTROL IN THE FOUR-CLUSTER SOLUTION (UPPER PANEL) AND *Z* SCORES FOR PI AND PVF VERSUS PSYCHOLOGICAL CONTROL IN THE FOUR-CLUSTER SOLUTION (LOWER PANEL).





hand with either high or low levels of perceived psychological control. Although both Cluster 2 (Controlling Dependence) and Cluster 3 (Volitional Dependence) were low on PI, Cluster 2 was characterized by high levels of parental control and Cluster 3 was characterized by low levels of parental control. In sum, whether parents were perceived to promote independence was largely orthogonal from the extent to which parents were perceived as controlling.

Quite a different picture emerged when considering the relation between PVF and psychological control within each of these profiles. As illustrated in the upper panel of Figure 1, scores for PVF and psychological control were in opposite directions within each of the four clusters. In other words, if scores on PVF were relatively high, scores on psychological control were relatively low, and vice versa. Together, these findings confirmed the idea that perceived PVF and psychological control are incompatible parenting dimensions that are unlikely to co-occur within one parenting profile (Hypothesis 1), whereas PI and psychological control are relatively orthogonal dimensions that can co-occur within parenting profiles (Hypothesis 2).

Cluster Analysis on Two Parenting Dimensions (PI, and PVF vs. Psychological Control)

To further examine whether PVF and psychological control are relatively incompatible dimensions, we repeated the two-step cluster procedure, thereby using PI and a composite score for PVF versus psychological control as constituting clustering dimensions. A PVF versus psychological control scale was created by reverse coding and averaging the psychological control items with the PVF items. This resulted in a scale with good internal consistency ($\alpha = .86$). Higher scores on this scale indicate that parents are perceived as promoting volitional functioning and as noncontrolling. If the approach of subtracting psychological control scores from PVF scores is justified, a similar set of clusters should appear as in the cluster analysis involving PI and the separate dimensions of PVF and psychological control (Hypothesis 3). We aimed to directly examine the overlap in the obtained cluster solutions by cross-tabulating the findings of both cluster solutions.

Ward's hierarchical clustering procedure on the two parenting dimensions again suggested a four- or a five-cluster solution, as only these solutions explained more than 50% of the variance in PI and PVF versus psychological control. After optimizing both solutions by means of the *k*-means procedure, it was again found that the four-cluster solution was more replicable ($\kappa = .71$) than the five-cluster solution ($\kappa = .65$). The final four-cluster solution is depicted in the lower panel of Figure 1. Again, no significant differences were found between the clusters in terms of gender distribution, $\chi^2(3) = 2.92$, $p > .05$, and age of the participants, $F(3, 474) = 0.45$, $p > .05$.

The interpretation of the clusters based on two parenting dimensions is quite similar to that of the cluster analysis based on three parenting dimensions. As in the first cluster analysis, a Volitional Independence cluster (Cluster 1; $n = 128$, 26%) emerged, consisting of participants who perceived their parents as high on PI ($z = 1.03$) and high on PVF versus psychological control ($z = 0.74$). Further, a Controlling Dependence cluster (Cluster 2; $n = 75$, 16%) was found, consisting of participants who perceived their parents as low on PI ($z = -1.13$) and low on PVF versus psychological control ($z = -1.51$). A Volitional Dependence cluster (Cluster 3; $n = 171$, 35%) was found, consisting of participants who perceived their parents as low on PI ($z = -0.51$) and high on PVF versus psychological control ($z = 0.53$). Finally, a Controlling Independence cluster (Cluster 4; $n = 113$, 23%) consisted of participants who perceived their parents as high on PI ($z = 0.52$) and low on PVF versus psychological control ($z = -0.65$).

To formally examine the degree of convergence between the cluster solutions obtained on the basis of three dimensions and two dimensions, the classification results of the two solutions were cross-tabulated. The mean percentage of agreement between the two classifications was 90%. Moreover, Cohen's κ was .85 ($p < .001$), indicating strong convergence between the two solutions. This high level of convergence between the cluster solutions (a) further testified to the stability and replicability of a four-cluster solution and (b) provided evidence for the fact that PVF and psychological control are quite incompatible parenting dimensions. Using the separate dimensions of PI, PVF, and psychological control as clustering dimensions resulted in similar results as when using PI and a composite score of PVF versus psychological control as clustering dimensions. These findings thus provided clear support for Hypothesis 3.

Relations Between Cluster Membership and Well-Being

To test Hypothesis 4, which deals with well-being differences between the clusters, a MANOVA was performed with gender and cluster membership as independent variables and with the four adjustment measures as dependent variables. This analysis was first performed for the four-cluster solution based on the three parenting dimensions. Both gender, Wilk's lambda = 0.93, $F(4, 464) = 8.73$, $p < .01$, $\eta^2 = .07$, and cluster membership, Wilk's lambda = 0.90, $F(12, 1228) = 4.21$, $p < .01$, $\eta^2 = .04$, had a significant multivariate effect on the adjustment variables. The interaction between gender and cluster membership was not significant, Wilk's lambda = 0.95, $F(12, 1228) = 1.97$, $p > .01$, $\eta^2 = .02$.

The means of the well-being measures within each of the clusters, along with the *F* values and the effect sizes of univariate ANOVAs for each of the well-being measures, are in the upper panel of Table 2. As expected, post hoc Tukey comparisons indicated that the Volitional Independence cluster and the Volitional Dependence did not differ in terms of adjustment, with one exception: Scores for social adjustment were higher in the Volitional Independence cluster compared to the Volitional Dependence cluster. Similarly, no significant differences were found between the Controlling Independence cluster and the Controlling Dependence cluster. More important, as shown in Table 2, there was a clear tendency for individuals in the two controlling clusters to report lower adjustment compared to individuals in the two volitional clusters. There were two exceptions to this tendency: First, the Volitional Dependence cluster did not differ from the two controlling clusters in terms of social adjustment. Second, the self-esteem and academic adjustment scores for the Volitional Dependence cluster fell in between the scores for the Volitional Independence cluster and those for the Controlling Independence cluster, without differing significantly from both groups. The latter findings may be due to the fact that the Volitional Independence cluster and the Volitional Dependence cluster not only differed in terms of PI scores but also in terms of PVF scores (which were higher in the Volitional Independence cluster) and in terms of psychological control scores (which were lower in the Volitional Independence cluster). Accordingly, the fact that the Volitional Independence cluster was, relative to the Volitional Dependence cluster, more strongly differentiated from the Controlling Independence cluster seemed to be due to the fact that the Volitional Independence cluster was characterized by higher levels of PVF and lower levels of psychological control than the Volitional Dependence cluster.

The MANOVA was repeated for the cluster solution based on two parenting dimensions (PI and PVF vs. psychological control). Again, significant multivariate effects were found for gender, Wilk's lambda = 0.93, $F(4, 464) = 8.73$, $p < .01$, $\eta^2 = .07$, and cluster membership, Wilk's lambda = 0.89, $F(12, 1228) =$

Table 2. *Means of the Adjustment Variables by Cluster*

	Cluster 1: Volitional Independence	Cluster 2: Controlling Dependence	Cluster 3: Volitional Dependence	Cluster 4: Controlling Independence	$F(3, 477)$	η^2
Cluster Solution Based on Three Dimensions (PI, PVF, and Psychological Control)						
Depressive Symptoms	$0.63\ (0.40)_a$	$1.00\ (0.47)_b$	$0.67\ (0.44)_a$	$0.86\ (0.48)_b$	11.56**	.07
Self-esteem	$3.26\ (0.48)_a$	$2.93\ (0.54)_c$	$3.15\ (0.44)_{ab}$	$3.08\ (0.48)_{bc}$	8.01**	.05
Academic Adjustment	$3.47\ (0.66)_a$	$2.98\ (0.74)_c$	$3.28\ (0.67)_{ab}$	$3.12\ (0.71)_{bc}$	8.18**	.05
Social Adjustment	$3.90\ (0.66)_a$	$3.41\ (0.77)_b$	$3.61\ (0.64)_b$	$3.60\ (0.67)_b$	4.99*	.03
Cluster Solution Based on Two Dimensions (PI and PVF Versus Psychological Control)						
Depressive Symptoms	$0.66\ (0.42)_a$	$0.97\ (0.47)_b$	$0.66\ (0.44)_a$	$0.90\ (0.46)_b$	13.86**	.08
Self-Esteem	$3.25\ (0.50)_a$	$2.92\ (0.51)_c$	$3.17\ (0.44)_{ab}$	$3.06\ (0.48)_{bc}$	8.48**	.05
Academic Adjustment	$3.42\ (0.66)_a$	$3.00\ (0.73)_b$	$3.34\ (0.68)_a$	$3.04\ (0.72)_b$	10.03**	.06
Social Adjustment	$3.88\ (0.61)_a$	$3.40\ (0.77)_b$	$3.62\ (0.69)_b$	$3.60\ (0.64)_b$	8.65**	.05

Note: Means in the same row that do not share subscripts differ at $p < .05$ in the Tukey honestly significant difference comparison.

*$p < .01$. **$p < .001$.

4.43, $p < .01$, $\eta^2 = .04$, but no significant interaction, Wilk's lambda = 0.95, $F(12, 1228) = 2.09$, $p > .01$, $\eta^2 = .02$. The means on the adjustment variables within each of the clusters are in the lower panel of Table 2. As can be seen in Table 2, the pattern of results was very analogous to the results obtained with the cluster analysis on three parenting dimensions. Participants in the Volitional Independence and in the Volitional Dependence clusters tended to report higher well-being scores compared to those in the Controlling Independence cluster and in the Controlling Dependence cluster. Again, social adjustment was an exception to this tendency, as participants in the Volitional Dependence cluster obtained scores that did not differ from those in the two controlling clusters.

Discussion

Parental autonomy-support and psychological control are two of the most intensively studied parenting dimensions in current socialization research. Although plenty of research has substantiated their effects on adolescents' and emerging adults' functioning, the relation between both parenting constructs has remained largely unexplored. This study attempted to provide a detailed picture of the relation between perceived autonomy-supportive and controlling parenting (a) by relying on a recently introduced distinction between two qualitatively different ways of conceptualizing the construct of autonomy-support (Soenens et al., 2007) and (b) by adopting a person-oriented approach to examine naturally occurring patterns of autonomy-support and psychological control. The findings of the present study show that person-oriented analyses such as cluster analysis can meaningfully contribute to extant knowledge of the structure of the parenting domain.

Number and Type of Clusters

The main finding in this study is that the relation between perceived parental psychological control and autonomy-support depends on how autonomy-support is conceptualized. Parental promotion of independence may or may not co-occur with psychological control, a finding that is consistent with earlier studies showing low correlations between PI and psychological control (Silk et al., 2003). The results of the present cluster-analyses add to the Silk et al. study by showing that there exist two types of parents high on PI, that is, parents who are perceived as noncontrolling and parents who are perceived as controlling. The former group of parents, which was labeled the Volitional Independence cluster, was perceived as allowing the child to make decisions independent from parents; moreover, this independent functioning was allowed in a volitional way. Most likely, emerging adults in this cluster have a genuine desire to act more independently and their parents display sufficient understanding of this urge for independence. They are likely to have confidence in their children's ability to act independently in a responsible manner and, therefore, might provide their children with opportunities and choices to develop their own point of view and to make their own decisions.

Importantly, not all parents encourage independence in a noncontrolling fashion, as reflected in the finding that emerging adults in the Controlling Independence cluster perceived their parents as high on both PI and psychological control. Most likely, these parents are perceived as encouraging independence in a pressuring way. These parents would not allow their children to be dependent, even when children actively seek parental guidance. Instead, they would induce guilt and blame their children for being immature and childish when children request parental support. As a consequence, emerging adults in this cluster experience their parents' promotion of independence as an obligation rather than as a choice.

Conversely, the cluster-analytic results show that a lack of parental PI can also occur within a controlling or a noncontrolling parenting environment. Emerging adults in the Controlling Dependence cluster viewed their parents as lacking in PI and high on psychological control. Most likely, these parents are experienced as keeping their child within close physical and emotional boundaries, thereby taking an overprotective stance, infantilizing their children, and restricting expression of independent thought and behavior (Barber & Harmon, 2002). To the extent that an emerging adult does not respect the enmeshed interpersonal boundaries defined by the parents (e.g., by relying on peers for advice), parents would induce guilt and pressure the child, for instance, by blaming the child for not being loyal to the parents (Barber & Buehler, 1996). It seems likely that this type of parenting behavior is rooted in a separation-anxious parental orientation (Soenens et al., 2006).

Not all promotion of dependence occurs in a pressuring fashion, however, as evidenced by the existence of a Volitional Dependence cluster. Emerging adults in this cluster seemed to perceive their parents as allowing dependency without implementing psychologically controlling tactics. These emerging adults may have a genuine need for parental guidance when making decisions and may perceive their parents as meeting this need for guidance in an empathic and thoughtful manner. Parents would allow their child's dependence and refrain from intrusive tactics because the child freely chooses to ask for his or her parents' advice and support and, as such, fully stands behinds his or her reliance on the parents. The description of this cluster of parents is consistent with the concept of emotional reliance (Ryan, La Guardia, Solky-Butzel, Chirkov, & Kim, 2005), as it pertains to individuals' willing and personally endorsed reliance on others for emotional support.

Whereas psychological control and PI seem to represent rather independent dimensions, psychological control appears to be quite incompatible with perceived parental promotion of volitional functioning. In each of the four clusters described in the preceding paragraphs, scores for psychological control and PVF were in opposite directions. That is, if psychological control was high, then PVF was low and vice versa. This finding is in line with previous studies showing strong negative correlations between psychological control and PVF as well as with predictions derived from self-determination theory (Grolnick, 2003). PVF is characteristic of parents who take their children's perspective, provide choices when possible, and give a meaningful rationale when choice is constrained. As a consequence of PVF, children would experience a sense of psychological freedom within the parent-child relationship and would regulate their behavior on the basis of self-endorsed and volitional motives (Deci & Ryan, 2000; Soenens et al., 2007). Within self-determination theory, psychological control is viewed as essentially antithetical to PVF because psychologically controlling parents ignore the child's perspective and pressure the child through insidious tactics to comply with the parents' standards and expectations. Thus, within self-determination theory, the opposite of PVF is not dependency but heteronomy or the feeling of being controlled and pushed around in one's actions and decisions.

Adjustment Effects

When comparing emerging adults in each of the clusters in terms of adjustment, it was found that those in the two volitional clusters fared generally better than those in the two controlling clusters. In contrast, whether or not parents were perceived as promoting independence appeared to be less important for emerging adults' well-being. For instance, no significant differences were observed between the Controlling Independence cluster and the Controlling Dependence cluster. Thus, at similar levels of controlling parenting, parental promotion of independence did not seem to matter for emerging adults' adjustment. Similarly, the Volitional Independence cluster generally did not differ from the Volitional Dependence cluster in terms of adjustment.

There was one exception to the general pattern of results, as emerging adults in the Volitional Dependence cluster scored equally high on social adjustment compared to those in the two controlling clusters. Instead, emerging adults in the Volitional Independence cluster obtained higher scores for social adjustment compared to each of the three other clusters. This finding suggests that, apart from high levels of PVF and low levels of psychological control, some degree of promotion of independence might help to foster social adjustment. This seems logical, given that at least some parent-child distance is necessary for children to become engaged in interpersonal relationships outside the family, particularly during emerging adulthood, a life period characterized by normative increases in exploration and independence (Arnett, 2000). Importantly, an exploration of the social world only seems to foster social competence when parental promotion of independence is combined with high levels of PVF and low levels of psychological control. More research is needed to explore this interaction between PI, PVF, and psychological control in relation to social adjustment.

In general, the findings obtained in this study lend further support for the idea that parental PVF and psychological control are more essential ingredients of a need-supportive and adaptive parenting style than PI (Ryan et al., 2006; Soenens et al., 2007). Whether or not emerging adults perceive their parents as promoting independence was less strongly related to adjustment than whether they perceive their parents as encouraging volitional functioning and as refraining from psychologically controlling parenting tactics.

Implications for the Conceptualization of Psychological Control

In our view, the emergence of the Controlling Independence cluster and the Volitional Dependence cluster has important implications for the conceptualization of parental psychological control. Psychological control is sometimes described by scholars as an *inherently* dependency-promoting parental strategy. Barber and Harmon (2002, p. 24), for instance, suggested that psychologically controlling behaviors "encourage dependency and inhibit individuation." Contrary to the notion that psychological control represents, by definition, a dependency-promoting parenting strategy, the current findings show that parents can also be perceived as using intrusive and psychologically controlling tactics to enforce premature or undesired independence. Moreover, dependency is not necessarily fostered in a psychologically controlling way, as in some families dependency was found to go hand in hand with low perceived parental psychological control. For these reasons, we argue that the defining feature of a psychologically controlling parenting style is the use of *controlling and pressuring* tactics (e.g., shaming, guilt-induction, love withdrawal), rather than the promotion of dependency. For the same reason, we believe that constructs such as overprotection (Parker, 1983) and enmeshment (Barber & Buehler, 1996) are conceptually related to yet distinct from psychological control. Overprotective parents are parents who promote dependency in a pressuring, possibly psychologically controlling fashion. It would be wrong, however, to equate psychological control with overprotection given that parents may also use psychological control as a means to enforce independence rather than dependence.

Another observation with implications for the conceptualization of psychological control is that high (or low) levels of psychological control and high (or low) levels of PVF, respectively, never co-occurred within a particular parenting profile. This suggests that perceived controlling parenting is, by definition, antithetical to perceived PVF. Furthermore, cluster analysis on two dimensions of parenting, in which case PVF versus psychological control were combined into a single dimension, yielded essentially the same results as a cluster analysis on PI and separate scores for PVF and psychological control. It seems more parsimonious, therefore, to calculate a PVF versus psychological control score, as has been done in previous research (Vansteenkiste et al., 2005) than to study the effects of PVF and psychological control as separate parenting dimensions. Given these findings, one may even wonder whether it is still worthwhile to study the specific effects of psychological control apart from PVF. We believe it is because the correlation between psychological control and PVF is not perfectly negative, suggesting that they are not perfectly opposite to one another. One possible explanation is for this lack of a perfectly negative correlation is that psychological control represents only one type of parental pressure. Parental psychological control pertains to a set of insidious, relatively covert, and manipulative tactics that primarily pressure a child *from within* (Vansteenkiste, Simons, et al., 2005). Children with representations of their parents as psychologically controlling would be particularly driven by an urge to lessen feelings of guilt, shame, and self-derogation (Soenens et al., 2006). Besides psychological control, however, there are other ways in which parents can pressure their children. Specifically, parents may use relatively more blatant, harsh, and overt tactics such as verbal hostility and physical punishment. Within self-determination theory, these tactics are referred to as externally controlling (Grolnick, 2003). Instead of primarily appealing to pressures within children's psychological world, externally controlling parenting would give rise to externally regulated behavior in children. Children would follow parental requests to avoid external punishment. We suggest that studies that capture the range of controlling parenting behaviors in a more exhaustive fashion may obtain a stronger negative correlation. More generally, we believe that the issue of the correlation between PVF and controlling parenting should be an explicit focus of future research. Ideally, such research would use observational ratings and parent reports of parenting in addition to adolescent or emerging adults' self-report because it remains to be examined whether the current findings will replicate with other assessment methods.

Limitations and Directions for Future Research

There are a number of important limitations to this study, including the use of self-report instruments, the reliance on a cross-sectional study design, and the sampling of emerging adults.

First, the use of self-report questionnaires to assess both perceived parenting and adjustment outcomes may have led to an overestimation of relations between perceived parenting profiles and adjustment. Future research would do well to draw from multiple methods (e.g., parental reports) to assess both parenting and adjustment outcomes. Related to this measurement issue, we believe that future research could improve on the assessment of the parenting dimensions and on the assessment of autonomy-support in particular. The PVF scale used in this study was brief and focused on some (e.g., provision of choice and empathy) but not all (e.g., provision of a rationale) elements of this parenting dimension. Similarly, the PI scale was developed by Silk et al. (2003) in an ad hoc manner: Silk et al. selected items from a larger item pool that was not originally meant to assess this aspect of autonomy-support, and this method may explain the low to modest reliability of this scale obtained in the current study. It is also important to note that this scale does not include items tapping the presumed opposite side of PI, that is, the promotion of dependence.

Second, the cross-sectional design of this study precludes inferences about the direction of effects involved in associations between parenting profiles and adjustment. Longitudinal research is needed to determine whether parenting profiles actually drive changes in adolescent adjustment and also to examine the long-term adjustment outcomes of the parenting profiles (e.g., in terms of young adults' development in intimate relationships). Third, the current sample of college students represents a well-educated sample of White participants from one particular university, which sets limits on the generalizability of the findings. It is important for future research to examine the replicability of the parenting profiles obtained in this study across ethnicity and levels of SES and education. Similarly, one may wonder whether the same profiles will show up in samples of younger adolescents, where issues of independence may be less pronounced (Steinberg, 1989).

Conclusion

The findings of this study suggest that whether or not parents are perceived to promote independence may or may not co-occur with the extent to which parents are perceived to support volitional functioning or to pressure their emerging adult children through psychological control. Whereas some parents are perceived to promote independence in a volitional fashion, other parents are perceived to oblige an independent orientation in a pressuring manner. Similarly, parents can support their children's dependence in a volitional manner or they can enforce it in a manipulative fashion. Ultimately, the extent to which parents are perceived as promoting volitional functioning and as refraining from psychological control seems to matter more for emerging adults' well-being than the extent to which parents are perceived to promote independent functioning.

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