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The Distinction of 'Psychosomatogenic Family Types' Based on Parents' Self Reported Questionnaire Information: A Cluster Analysis

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The theory of 'psychosomatogenic family types' is often used in treatment of somatizing adolescents. This study investigated the validity of distinguishing 'psychosomatogenic family types' based on parents' self-reported family features. The study included a Flemish general population sample of 12-year olds (n = 1428). We performed cluster analysis on 3 variables concerning parents' self-reported problems in family functioning. The distinguished clusters were examined for differences in marital problems, parental emotional problems, professional help for family members, demographics, and adolescents' somatization. Results showed the existence of 5 family types: 'chaotic family functioning,' 'average amount of family functioning problems,' 'few family functioning problems,' 'high amount of support and communication problems,' and 'high amount of sense of security problems' clusters. Membership of the 'chaotic family functioning' and 'average amount of family functioning problems' cluster was significantly associated with higher levels of somatization, compared with 'few family functioning problems' cluster membership. Among additional variables, only marital and parental emotional problems distinguished somatization relevant from non relevant clusters: parents in 'average amount of family functioning problems' and 'chaotic family functioning' clusters reported higher problems. The data showed that 'apparently perfect' or 'enmeshed' patterns of family functioning may not be assessed by means of parent report as adopted in this study. In addition, not only adolescents from 'extreme' types of family functioning may suffer from somatization. Further, professionals should be careful assuming that families in which parents report average to high amounts of family functioning problems also show different demographic characteristics.

Keywords: adolescents, cluster analysis, family features, family functioning, somatization

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'Psychosomatogenic Family Types'

In the 'psychosomatogenic family model,' Minuchin et al. (1975) described the necessity of certain family interaction patterns for the development of severe psychosomatic struggle in anorexic and diabetic children. In particular, the scholars stated that four interaction characteristics are required: enmeshment (a high degree of responsiveness and involvement), overprotectiveness (a high degree of concern for each other's welfare), rigidity (being heavily committed to maintain status quo), and lack of conflict resolution (no explicit negotiation of differences). Regarding 'lack of conflict resolution,' Minuchin et al. postulated that some families report constant conflict over many topics, whereas other families report no conflict at all. To date, the psychosomatogenic family model is not only used for anorexic and diabetic children but also for children with somatizing problems in general, or in other words children who have the (psychological) tendency to experience several somatic complaints not accounted for by pathological medical findings (De Gucht & Fischler, 2002; Husain, Browne, & Chalder, 2007).

Eminson (2007) states that expert clinicians dealing with somatizing children predominantly observe two 'family clusters': an 'apparently perfect' and 'chaotic' family type. The first cluster resembles the psychosomatogenic family model of Minuchin et al. (1975), as family members appear to be tightly bound together, showing enmeshed, overprotected, and rigid family interaction. However, Eminson states that in addition to this typical interaction pattern, families of the 'apparently perfect' cluster also show favorable demographic features (like socioeconomic status and origin) and at first sight no social, familial, or psychological difficulties. Nevertheless, intensive and judicious assessment reveals numerous inter- and intrapersonal problems. Families from the second cluster are characterized by disengaged and chaotic interactions. In addition, they show unfavorable demographic features. Also for these families, multiple inter- and intrapersonal problems are present, but in contrast to the 'apparently perfect' cluster, outsiders can easily identify the problems, and family members easily report them (Eminson, 2007).

The Use of 'Psychosomatogenic Family Types' in Practice

The above outlined family descriptions are frequently applied in clinical practice: when professionals see families in which parents report either very few or excessive problems, they often assume that children are at risk for somatization. Similarly, when professionals see families with somatizing children, they often consider the etiological role of family problems (Husain et al., 2007). However, both Minuchin et al.'s (1975) and Eminson's (2007) family descriptions are based on clinical impressions or empirical studies with questionable internal and external validity (e.g., flaws concerning sampling procedures and concept operationalizations, substantial bias regarding measurement and inferences; Loader, Kinston, & Stratford, 1980). Few previous studies have applied data-driven classification methods to validate the family types. Olson and Gorall (2006) collected self-report data on family interaction in the general population. By means of cluster analysis, they distinguished six types of family functioning (balanced, rigidly cohesive, midrange, flexibly unbalanced, chaotically disengaged, and unbalanced). Sturge-Apple, Davies, and Cummings (2010) observed family functioning in the general population. Through latent class analyses they derived three types of family functioning (cohesive, enmeshed, and disengaged). To our knowledge, no studies have related data driven family classifications to children's somatization.

Current Study

The current study examined the validity of assessing 'psychosomatogenic family types' based on parents' self report. First, we investigated the existence of family types in a general population sample. In reference to the above outlined theories and research, we hypothesized to observe at least three clusters: 'apparently perfect' (parents report exceptionally few problems), 'chaotic' (parents report exceptionally many problems), and 'average amount of problems' (parents report less problems compared to the 'chaotic' cluster, but a more realistic amount of problems compared to the 'apparently perfect' cluster).

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Second, we explored the association between family type and adolescents' somatization. In reference to the theory of Minuchin et al. (1975) we investigated necessity and sufficiency. Necessity exists when all adolescents with high somatization scores are part of 'apparently perfect' or 'chaotic' families, and do not belong to other family types such as the 'average amount of problems' type. Sufficiency exists when only adolescents with high somatization scores are part of 'apparently perfect' and 'chaotic' families, whereas other adolescents do not belong to these family types. However, inspired by the idea of biopsychosocial determination of somatization (i.e., in addition to social features, also biological and psychological aspects play a role in the development of somatization; Palermo & Chambers, 2005), we also investigated the relative link between family type and adolescents' somatization. A relative link exists when adolescents from 'apparently perfect' and 'chaotic' families report significantly higher levels of somatization than adolescents from other families.

Method

Participants and Procedure

We collected the data as part of the JOnG!-study, a multidisciplinary longitudinal research project in three cohorts of Flemish youth (Grietens, Hoppenbrouwers, Desoete, Wiersema, & Van Leeuwen, 2010). Participants were recruited using a conditional random sampling plan. In a first phase (2008), we selected eight Flemish regions based on geographic and socioeconomic diversity (Hermans et al., 2008). In a second phase (2009), we informed and invited all families who lived in one of the selected regions and who had a child born in 1996. The researchers stimulated participation through incentives and publicity (e.g., posters in public places, advertisement in mass media). For the present study, we used first wave data from the adolescent-cohort. Adolescents and one of their parents (preferably the mother) who agreed to participate completed an informed consent form and subsequently filled out separately a questionnaire. Questionnaires were available in four languages (Dutch, French, English, and Turkish). Families could ask questions by e-mail or phone. In addition, we provided assistance at home for families experiencing problems completing the questionnaires. Also, we informed various types of professionals (e.g., teachers, social workers, school counselors) about the study and asked them to provide participants with information and/or assistance when needed.

Of 9861 informed families, 1445 parents (14.7%) and 1443 (14.6%) adolescents, from 1498 (15.2%) families, sent back their first wave questionnaire. We omitted from the cluster analysis families with missing values on all the variables ($n = 70$), resulting in a sample size of 1428 families (general population sample). A total of 773 (54.1%) of the included adolescents was female, 1316 (92.2%) of the parents was the biological mother of the child. The excluded families did not differ significantly from the final sample on adolescents' gender ($\chi^2 = 3.41$, $p = .07$) and parents' gender ($\chi^2 = 1.53$, $p = .98$). From this general population sample, we derived a highly somatizing group by selecting families with an adolescent scoring higher than 2 *SD* above the mean on the Somatic Complaints List (SCL; Jellesma, Rieffe, & Terwogt, 2007). A total of 67 families was included in this group. The Medical Ethics Committees of the universities of Leuven and Ghent approved the study.

Measurements

Adolescents reported about their *somatization* by means of the Somatic Complaints List (SCL), an 11-item list of functional complaints (e.g., headache, nausea, tired) scored over the prior 4 weeks on a 5-point Likert scale ranging from 1 (*almost never*) to 5 (*very often*). The SCL has been validated (Jellesma et al., 2007). We operationalized somatization by the SCL mean item score. For this study, Cronbach's alpha was .82.

The parent reported on *problems in family functioning* via the Dutch Family Problems Questionnaire (DFPQ), which has been validated (Koot, 1997). In the current study, we included the subscales 'problems in support and communication' (e.g., *discussing important issues with each other is a problem in our family*), 'problems in commitment' (e.g., *some family members do not want anything to do with others*) and 'problems in sense of security' (e.g., *some family members give help and support when needed*), with a total of 27 items. Parents

scored the items by means of a three-point Likert scale going from 'not at all applicable' to 'clearly or often applicable.' Total scale scores were obtained by averaging responses across scale items. We reverse scored the items of the 'problems in sense of security' scale, so that higher scale scores reflected higher self reported problems. In this study, Cronbach's alphas were respectively .95, .86, and .84.

Parents also provided information about additional family variables. As suggested by Eminson (2007), we included a) marital relationship problems, b) parental emotional problems, c) use of professional help for family members, and d) demographic characteristics (family constellation, parents' country of origin, family income, parents' occupation, and parents' education).

We assessed *marital relationship problems* through the DFPQ scale 'marital problems' (Koot, 1997). The subscale contained five items, for example *I am worried about the relationship with my partner*. Cronbach's alpha in this study was .79. We assessed *parental emotional problems* by means of six items of the Dutch General Health Questionnaire (GHQ; e.g., *Have you recently felt unhappy and down?*). The Dutch GHQ has been validated (Goldberg, 1972; Koeter & Ormel, 1991). In this study, the Cronbach's alpha was .86. We developed nine questions about the *use of professional help* (because of serious health problems, physiological/psychiatric problems, or social problems) for family members other than the adolescent included in the JOnG!-research (e.g., *Are you currently seeking help from a professional because of serious health problems?*). In this research we included a variable reflecting whether professional help (concerning at least one of the above mentioned domains) is used for all, some, or none of the other family members.

We developed questions about *demographic characteristics*. Concerning family constellation, the parent reported on living in a two parent family (both biological parents), a blended family (biological parent and his or her partner with or without live-in children from another partner), or a single parent family (biological parent without live-in partner). Based on nationality and country of birth, we allocated families to stem from Belgium, a WHO-A country (a country other than Belgium, with high prosperity and low health-risks as defined by the World Health Organization), or a WHO B-D country (a country other than Belgium, with low prosperity and high health-risks as defined by the World Health Organization) (Murray, Lopez, Mathers, & Stein, 2011). We coded family income into low (<2000 dollars), high (>4000 dollars), and middle income. We operationalized occupational status as whether or not the parent had paid work. Education was coded into low education (no high school diploma), middle education (highest diploma is that of high school) and high education (diploma higher than high school).

Data Analysis

First, we analyzed our data to test for the presence of clusters, by means of K-means cluster analysis with 1000 random starts on the three family functioning variables (problems in support and communication; problems in commitment; problems in sense of security), using MATLAB (Steinley, 2003). The inclusion of a limited number of variables enhances unambiguous cluster interpretation (Weatherall, Shirtcliffe, Travers, & Beasley, 2010). Currently, from all family variables studied with regards to child somatization, the connection between family functioning and child somatization is the best documented (Campo & Fritsch, 1994; Eminson, 2007; Gustafsson et al., 1994; Loader et al., 1980; Minuchin et al., 1975). Therefore, in this cluster analysis we considered only family functioning variables. Pearson correlations between the included variables lay between 0.16 and 0.31. We chose the optimal number of clusters based on theoretical meaningfulness and fit versus complexity balance. Regarding fit versus complexity balance, we aimed for a parsimonious (i.e., not too many clusters) solution that described the data well (i.e., low sum of squared errors [SSE]; Koehly, Arabie, Bradlow, & Hutchinson, 2001). Concerning theoretical meaningfulness, we had to define remarkably high (~'chaotic'), low (~'apparently perfect'), and average problem report. Therefore, we compared cluster solutions with the general population sample statistics. We set the cutoff for remarkably low cluster means on 'lower than or equal to the 25th percentile (Pc25) of the general population sample,' the cutoff for remarkably high on 'higher than or equal to 75th

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percentile (Pc75) of the general population sample.' We decided that cluster scores were average if they were lower than Pc75 and higher than Pc25. Second, we compared the best fitting cluster solution to the general population sample on additional family variables, using *t* tests for continuous variables and chi-square difference tests for categorical variables. Third, we assessed the relation between cluster membership and adolescents' somatization using ANOVA with Games-Howell post hoc tests (Field, 2009).

Results

The socioeconomic profile of the responders group matched that of the target population (Flemish families with a child born in 1996) (Guérin et al., 2012). Table 1 gives descriptive information concerning cluster defining variables (family functioning; marital problems; parental emotional problems; professional help for family members; demographic characteristics) for the general population sample. In what follows, these descriptives will be used in the consideration of different cluster solutions.

Taking into account minimization of both SSE and cluster complexity, cluster analysis supported the selection of a two- up to five-cluster solution. To choose a final cluster solution, we contemplated theoretical meaningfulness of the cluster solutions, comparing clusters' family functioning descriptives to general population sample descriptives (see Table 2). In what follows, we will elaborate on the 5-cluster solution, because it is the only solution corresponding to the hypothesis of observing at least a 'low amount of family functioning problems,' 'average amount of family functioning problems' and 'high amount of family functioning problems' cluster. Cluster sizes ranged from 154 to 621 families. The largest cluster was the 'few family functioning problems' cluster.

Table 3 describes additional family features for the five-cluster solution. Compared with the general population sample, the 'chaotic family functioning' cluster showed significantly more marital relationship problems, more parents' emotional problems, more use of professional help for family members, and lower mothers' education. The 'average amount of family functioning problems' cluster displayed significantly more marital relationship problems, more parents' emotional problems, more use of professional help for family members, higher mothers' education, and more two-parent family constellations. Parents of the 'few family functioning problems' cluster reported significantly less marital relationship problems, less parents' emotional problems, less use of professional help for family members, higher parental education, and higher income. In addition, these families less frequently originated from at risk countries, and fathers more often had paid jobs. The 'high amount of support and communication problems' cluster demonstrated significantly lower parental education and lower family income. In addition, these families more frequently originated from at risk countries, and fathers less often had paid jobs. Families from the 'high amount of sense of security problems' cluster reported significantly more use of professional help for family members and lower mothers' education, and fathers less often had paid jobs.

Table 4 describes for the five-cluster solution adolescents' somatization scores. All clusters included both highly and nonhighly somatizing adolescents. However, adolescents from the 'average amount of family functioning problems' and 'chaotic family functioning' clusters had significantly higher somatization scores compared with their peers in the 'few family functioning problems' cluster.

Discussion

The psychosomatogenic family theory is often used in clinical practice (Minuchin et al., 1975; Eminson, 2007): based on parents' self reported family features, professionals categorize families into family types and make hypotheses about the (necessary and sufficient) relation with adolescents' somatization. The current study examined the empirical validity of using the psychosomatogenic family theory in practice based on parents' self reported family features, in a Flemish general population sample of 12-year olds ($n = 1428$).

Overview Findings

The results supported a five-cluster family functioning solution: 'chaotic family functioning,' 'few family functioning problems,' 'aver-

Table 1
Descriptive Information Concerning Cluster Defining Variables (Family Functioning; Demographic Characteristics; Marital Problems; Parental Emotional Problems; Professional Help for Family Members) (General Population Sample)

Variable	*Mean*	*Standard deviation*	Min	Max	Pc5	Pc25	Pc75	Pc95
Family functioning								
Problems in support and communication	0.59	0.57	0.00	2.00	0.00	0.15	0.92	1.83
Problems in sense of security	0.32	0.40	0.00	2.00	0.00	0.00	0.50	1.00
Problems in commitment	0.28	0.37	0.00	2.00	0.00	0.00	0.38	1.00
Marital relationship	0.30	0.39	0.00	2.00	0.00	0.00	0.40	1.00
Emotional problems parent	0.74	0.58	0.00	3.00	0.00	0.33	1.00	1.83

	% (valid percentages)
Use of professional help for family members other than the child participating in the JOnG! study	
No others	83.48
Some others	15.82
All others	0.71
Demographic characteristics	
Education father	
No high school diploma	14.44
Highest diploma = high school	38.71
Highest diploma > high school	46.85
Education mother	
No high school diploma	12.04
Highest diploma = high school	30.82
Highest diploma > high school	57.13
Family income in dollars	
<2000	5.96
2000–4000	41.40
>4000	52.64
Country of origin[a]	
Belgium	89.82
WHO A	4.28
WHO B-D	5.90
Family constellation	
Two-parent	78.17
Blended	9.17
Single-parent	12.66
Occupation father	
Paid work	94.29
Occupation mother	
Paid work	82.79

Note. Pc = Percentile.
[a] As defined by the World Health Organization (Murray, Lopez, Mathers, & Stein, 2011): WHO-A country = a country other than Belgium, with high prosperity and low health-risks; WHO B-D country = a country other than Belgium, with low prosperity and high health-risks.

age amount of family functioning problems,' 'high amount of support and communication problems,' and 'high amount of sense of security problems.' Contrary to our hypothesis, we identified only one cluster with extreme family functioning, namely the 'chaotic family functioning' cluster. This finding does not necessarily prove that the 'apparently perfect' cluster is nonexistent. Based on the fact that 'apparently perfect' families are seen by clinicians, we may hypothesize that self report is not sensitive enough to detect this group.

None of the distinguished clusters showed a necessary or sufficient link with high somatization

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Table 2
Family Functioning per Cluster Solution: Means on the Three Subscales of the Dutch Family Problems Questionnaire

	2-cluster solution		3-cluster solution			4-cluster solution				5-cluster solution				
Family functioning	cl 1 (n = 958)	cl 2 (n = 470)	cl 1 (n = 344)	cl 2 (n = 851)	cl 3 (n = 233)	cl 1 (n = 197)	cl 2 (n = 203)	cl 3 (n = 220)	cl 4 (n = 808)	cl 1 (n = 154)	cl 2 (n = 283)	cl 3 (n = 169)	cl 4 (n = 621)	cl 5 (n = 201)
Problems in support and communication, mean (*SD*)	0.26 (.22)	1.29 (.42)	0.77 (.37)	0.25 (.23)	1.62 (.28)	0.98 (.37)	0.52 (.34)	1.62 (.28)	0.25 (.23)	0.45 (.34)	0.62 (.23)	1.03 (.37)	0.16 (.15)	1.67 (.23)
Problems in sense of security, mean (*SD*)	0.23 (.36)	0.50 (.42)	0.82 (.42)	0.14 (.20)	0.22 (.27)	0.67 (.39)	0.92 (.39)	0.22 (.26)	0.11 (.15)	1.03 (.37)	0.24 (.20)	0.76 (.37)	0.09 (.14)	0.22 (.27)
Problems in commitment, mean (*SD*)	0.17 (.25)	0.50 (.46)	0.64 (.46)	0.13 (.19)	0.27 (.35)	0.99 (.37)	0.22 (.20)	0.20 (.24)	0.14 (.19)	0.21 (.20)	0.36 (.25)	1.03 (.37)	0.08 (.13)	0.20 (.25)
Cluster type[a] 1 = few family functioning problems 2 = average amount of family functioning problems 3 = chaotic family functioning 4 = high amount of security and commitment problems 5 = high amount of support and communication problems 6 = high amount of sense of security problems	2	3	4	2	5	3	6	5	2	6	2	3	1	5

Note. cl = cluster.
[a] Based on the comparison of clusters' family functioning means to general population sample means.

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Table 3
Additional Family Features for the Five-Cluster Solution: Descriptive Information on Marital Problems, Parental Emotional Problems, Professional Help for Family Members, and Demographics

	Descriptives					Comparison to general population sample				
	Cluster 1: High security problems (n = 154)	Cluster 2: Average problems (n = 283)	Cluster 3: Chaotic (n = 169)	Cluster 4: Few problems (n = 621)	Cluster 5: High supp & comm problems (n = 201)	Cluster 1: High security problems t	Cluster 2: Average problems t	Cluster 3: Chaotic t	Cluster 4: Few problems t	Cluster 5: High supp & comm problems t
Marital relationship, mean (*SD*)	0.32 (.35)	0.45 (.40)	0.68 (.57)	0.14 (.22)	0.24 (.31)	−0.57	−6.05*	−8.27*	11.47*	2.09
Parents' emotional problems, mean (*SD*)	0.79 (.56)	0.90 (.60)	1.15 (.70)	0.55 (.46)	0.71 (.55)	−1.11	−4.22*	−7.34*	07.91*	0.55
						χ^2	χ^2	χ^2	χ^2	χ^2
Use of professional help						06.94***	08.67***	25.57*	10.14**	03.07
No others (%)	76.46	77.78	74.40	88.73	88.38					
Some others (%)	23.53	22.22	20.83	11.11	11.11					
All others (%)	00.00	00.00	04.76	00.16	00.51					
Demographics										
Education father						05.66	00.80	01.00	12.89**	22.19*
No high school diploma (%)	19.40	15.38	16.78	08.74	25.45					
Highest diploma = high school (%)	44.03	35.77	34.97	37.92	44.85					
Highest diploma > high school (%)	36.57	48.85	48.25	53.35	29.70					
Education mother: count						08.99***	10.70**	10.26**	22.58*	50.79*
No high school diploma (%)	19.59	07.94	20.63	05.68	25.26					
Highest diploma = high school (%)	33.78	24.55	31.25	28.90	43.30					
Highest diploma > high school (%)	46.62	67.51	48.13	65.42	31.44					

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Table 3 (*continued*)

	Descriptives					Comparison to general population sample				
	Cluster 1: High security problems (n = 154)	Cluster 2: Average problems (n = 283)	Cluster 3: Chaotic (n = 169)	Cluster 4: Few problems (n = 621)	Cluster 5: High supp & comm problems (n = 201)	Cluster 1: High security problems t	Cluster 2: Average problems t	Cluster 3: Chaotic t	Cluster 4: Few problems t	Cluster 5: High supp & comm problems t
Family income in dollars						00.72	03.39	05.36	06.62***	15.41*
<2000 (%)	07.81	02.99	11.03	03.96	11.04					
2000–4000 (%)	41.41	43.59	41.18	37.23	51.95					
>4000 (%)	50.78	53.42	47.79	58.81	37.01					
Country of origin[a]						00.41	00.10	04.61	07.52***	06.28***
Belgium (%)	88.31	90.11	85.63	93.05	84.08					
WHO A (not Belgium) (%)	04.55	03.89	04.19	03.88	05.97					
WHO B-D (%)	07.14	06.01	10.18	03.07	09.95					
Family constellation						00.59	07.62***	02.32	00.03	02.67
Two-parent (%)	75.50	85.25	73.05	78.34	73.98					
Blended (%)	10.60	07.19	10.78	09.28	09.18					
Single-parent (%)	13.91	07.55	16.17	12.38	16.84					
Occupation father						04.70***	00.23	02.07	07.26**	04.73***
Paid work (%)	89.55	95.04	91.33	97.25	90.00					
Occupation mother										
Paid work (%)	77.70	83.75	78.88	85.55	79.80	02.37	00.15	01.52	02.39	01.07

[a] As defined by the World Health Organization (Murray, Lopez, Mathers, & Stein, 2011): WHO-A country = a country other than Belgium, with high prosperity and low health-risks; WHO B-D country = a country other than Belgium, with low prosperity and high health-risks.
* $p < .001$. ** $p < .01$. *** $p < .05$.

Table 4
Adolescents' Somatization Scores for the Five-Cluster Solution (General Population Sample)

Somatization score	Cluster 1: High amount of sense of security problems (n = 154)	Cluster 2: Average amount of family functioning problems (n = 283)	Cluster 3: Chaotic family functioning (n = 169)	Cluster 4: Few family functioning problems (n = 621)	Cluster 5: High amount of support and communication problems (n = 201)	Δ stat
	n (valid %)	*n* (valid %)	*n* (valid %)	*n* (valid %)	*n* (valid %)	
Highly somatizing group	8 (5.8)	11 (4.1)	14 (8.8)	22 (3.7)	12 (6.3)	
	M (*SD*)	*M* (*SD*)	*M* (*SD*)	*M* (*SD*)	*M* (*SD*)	*F*
SCL-score	1.72 (0.54)	1.74 (0.56)	1.83 (0.59)	1.59 (0.49)	1.68 (0.53)	9.01*
Post hoc		cluster 4**	cluster 4*	cluster 2** cluster 3*		

Note. Δ stat = significance of difference test between the clusters (ANOVA); post hoc = if Δ stat were significant, Games-Howell post hoc tests were administered to assess which clusters differed significantly.
* $p < .001$. ** $p < .01$.

scores. However, the results did reveal significant relative associations: adolescents in the 'chaotic family functioning' or 'average amount of family functioning problems' cluster reported significantly higher levels of somatization, compared with adolescents in the 'few family functioning problems' cluster. Additional family variables distinguishing somatization-relevant from somatization nonrelevant clusters are marital relationship and parents' emotional problems: compared with the 'chaotic family functioning' and 'average amount of family functioning problems' cluster, the 'few family functioning problems' cluster demonstrated significantly less problems (~more advantageous scores) for these variables. In other words, the additional variables concerning intra- and interpersonal problems may be considered as risk factors for somatization, while demographic variables (parents' education, family income, parents' occupation, parents' country of origin, and family constellation) are not. This finding relates to previous research showing that demographic variables are not always directly related to child outcome, but that the relation may be moderated by other features such as family characteristics (Bradley & Corwyn, 2002).

Limitations of the Study and Suggestions for Further Research

Because of limited study resources, only one family member (a parent; preferably mothers) reported family data. We elected not to request adolescents' report on family functioning to diminish the burden of surveys on this age group and therefore to keep them engaged in the study follow up. Including other family perspectives could potentially have revealed a cluster in which all family members report extremely low amounts of problems in family functioning (cf. apparently perfect cluster). In addition, including other family perspectives could potentially have revealed a cluster characterized by disagreement between family members, a situation which might be stressful for the child and therefore leading to a higher risk on somatization (Campo & Fritsch, 1994; Mathijssen, Koot, Verhulst, De Bruyn, & Oud, 1997). Another limitation of the study is the low response rate. However, the socioeconomic profile of the responders matched that of the target population (Flemish families with a child born in 1996; Guérin et al., 2012), and therefore the results of this study may be generalized to the broader population.

Our findings point the way to further research. The inclusion of data from interviews or direct observation from standardized family crisis or problem-solving tasks could enhance the ability to distinguish family types. In addition, further research should incorporate prospective data to elucidate the stability of family types and the longitudinal associations with somatization.

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Practical Implications of the Study

Professionals who want to use the 'psychosomatogenic family theory' relying on parents' report of family features, should take into account four aspects. First, they should be aware that 'apparently perfect' or 'enmeshed' patterns of family functioning may not be assessed by means of parent report as adopted in this study. Direct observation of family functioning on a standardized family crisis or problem-solving task could enhance the ability to distinguish this family type. Second, no necessary or sufficient relation exists between adolescents' somatization and patterns of family functioning as reported in this study. Related to this, professionals should know that not only adolescents from 'extreme' types of family functioning may suffer from somatization (Minuchin et al., 1975). Our analysis suggests that adolescents from 'average amount of family functioning problems' and 'chaotic family functioning' family types may be more likely to suffer from somatization. Fourth, professionals should be careful assuming that less favorable family types also show less favorable demographic characteristics (Eminson, 2007). Our study revealed that, of a various range of additional variables, only inter- and intrapersonal distress (marital relationship problems and parents' emotional problems) was higher in 'average amount of family functioning problems' and 'chaotic family functioning' clusters.

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