

Multilevel
Analysis of
Individuals
and Cultures



Edited by

Fons J. R. van de Vijver • Dianne A. van Hemert
Ype H. Poortinga

"This book will have broad appeal to many scholars ... Cross-cultural psychology is a hot topic and this book would be a great asset for educators in psychology, sociology, education, and cultural psychology... This is a terrific book with many strengths."

Todd Little, PhD, University of Kansas

In this new book top specialists address theoretical, methodological, and empirical multilevel models as they relate to the analysis of individual and cultural data. Divided into four parts, the book opens with the basic conceptual and theoretical issues in multilevel research, including the fallacies of such research. Part II describes the methodological aspects of multilevel research, including data-analytic and structural equation modeling techniques. Applications and models from various research areas including control, values, organizational behavior, social beliefs, well-being, personality, response styles, school performance, family, and acculturation, are explored in Part III. This section also deals with validity issues in aggregation models. The book concludes with an overview of the kinds of questions addressed in multilevel models and highlights the theoretical and methodological issues yet to be explored.

Intended for researchers and advanced students in psychology, sociology, social work, marriage and family therapy, public health, anthropology, education, economics, political science, and cultural and ethnic studies who study the relationship between behavior and culture.

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13

Multilevel Structure Analysis for Family-Related Constructs

Kostas Mylonas, Vassilis Pavlopoulos, and James Georgas

This chapter is based on a project which studied similarities and differences in families across cultures (Georgas, Berry, Van de Vijver, Kagitcibasi, & Poortinga, 2006). The goal of the project was to study family networks, family roles, and psychological variables in different ecological and socio-political systems across 30 countries. The present chapter focuses on the issue of structural equivalence of the above measures at the individual and country level. Structural equivalence implies that the same psychological constructs are measured cross-culturally (Van de Vijver & Leung, 1997); cross-level equivalence implies that the same constructs can serve to explain differences at each of the two levels without committing an ecological fallacy (Hox, 2002). The need to compare variables at different levels of aggregation is an important aspect of multilevel analysis in cross-cultural research (Van de Vijver & Poortinga, 2002).

The purpose of the present chapter is to explore structural equivalence of the scales employed in the 30-country family study and to compare the underlying constructs at the individual and country levels of aggregation; these scales involve family constructs, such as family hierarchy, family values and roles, and presumably related variables, such as values and personality.

Family systems and family change have been studied during the past two centuries by family sociology, cultural anthropology, psychology, education, psychiatry, economics, and historical demography, among other disciplines. Theories of family change have centered on the effects of social changes, such as economic development, education, political systems, and more recently, the global influence of television, of communication through telephones, e-mail, and the Internet. Changes in family types during the past two centuries, as a result of industrialization and urbanization, have been described as transitions from extended types of

family systems to the nuclear family, and more recently, to the one-parent family.

For some family researchers, these social changes are considered to lead to an inevitable convergence of family systems across the globe. Extended family in non-Western societies is thought to give way to the nuclear family and ultimately the one-person family of Western societies in North America and Northern Europe. However, other studies have shown that the extended family did not become extinct in modern cities; rather, it has changed into a "modified extended family system," in which contact and psychological bonds of nuclear family members with kin are maintained (see also Georgas et al., 2006, for detailed discussion).

The theoretical approach of the overall project was derived from cross-cultural and indigenous psychology. The formulation of research hypotheses was guided by the ecocultural framework of Berry (1976, 1979) and the model of family change of Kagitcibasi (1990, 1996). The cross-cultural analyses were based on data from variables at four hierarchically related sets of variables: Country-level ecological and sociopolitical variables; family roles; family networks; and an array of psychological variables, including emotional bonds with members of the nuclear family and kin, personality traits, self-construal, family values, and personal values (Figure 13.1). The main analyses for this project were directed toward determining similarities and differences in mean scores at country level (Georgas et al., 2006). In addition, the findings were interpreted not only across all countries, but also for clusters of countries, or "cultural zones," based on ecological and sociopolitical variables. The indigenous approach was reflected

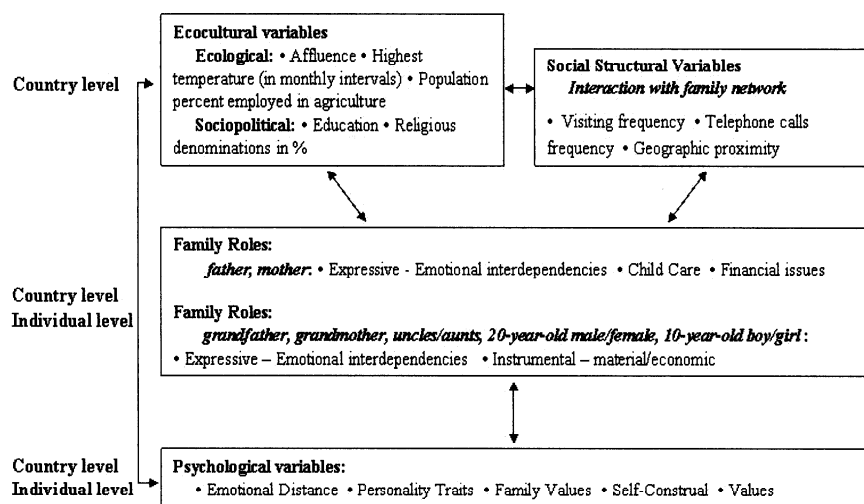


FIGURE 13.1 Overview of the levels of analyses and the variables employed based on the Ecocultural Framework. (Adapted from Georgas, Berry, Van de Vijver, Kagitcibasi, & Poortinga, 2006)

TABLE 13.3
Component Matrices for Values of the Individual- and the Country-Level Factor Analysis Solutions

	Embeddedness		Hierarchy		Harmony		Intellectual autonomy		Affective autonomy		Mastery	
	I	C	I	C	I	C	I	C	I	C	I	C
Family security	.55	.82	.82	.90	.72	.82	.63	.81	.79	.90	.81	.90
Respect for tradition	.69	.91	.70	.84	.83	.91	.77	.59	.67	.58	.64	.36
Honoring elders	.73	.88	.82	.92	.80	.89	.75	.80	.79	.88	.65	.73
Social order	.63	.84										
National security	.72	.90										
Reciprocation of favors	.47	.78										

Note: I = Individual-level analysis on the pooled-within countries correlation matrix; C = Country-level analysis.

Father's Roles and Mother's Roles

For the 22 *Father's Roles* the initial factor analysis at the individual level and the structural comparisons across countries (Van de Vijver et al., 2006) resulted in three dimensions. These are also found in the present results for the individual-level analysis and are presented in Table 13.4 as I-1, I-2, and I-3; the first factor refers to the Expressive Roles of the father, the second to Child Care, and the third to Financial Roles. All three factors in the solution were found to be correlated (an oblique rotation was applied). Although the selection of the family roles was not based on a particular theory, two of the extracted factors in the factor analyses of the family roles resemble Parsons's (1943, 1949) expressive and instrumental roles, the latter being a combination of Financial and Child Care Roles. They also resemble Durkheim's (1888, 1892/1921) description of the last two stages of family change, in which the paternal family is reduced to the conjugal or nuclear family and in which the relationships between parents and children change from a material or economic basis to a psychological basis in which "personal motives" are dominant. The two factors are also similar to Kagitcibasi's (1990, 1996) emotional interdependencies and material/economic interdependencies roles.

The same factors were found at the individual level of analysis for Mother's Roles, although the order of the factors was different, with Expressive Roles still the first factor (I-1), Financial Roles the second factor (I-2), and Child Care the third factor (I-3). Each of the three factors at the individual level showed the same patterning of high and low loadings as found in the analysis of Father's Roles, with one remarkable exception (see Table 13.4). The item dealing with housework had a loading of .68 on the second individual-level factor in the analysis of the roles of the father, but the loading was only .21 in the analysis of the roles of the mother (first factor). The mean of the mothers across all 5,482 participants was 5.47 ($SD = .99$) on a 7-point scale, compared to a mean of 2.61 ($SD = 1.49$) for the fathers. It is very clear that mothers do most of the housework in all countries studied. The three factors showed agreement indices between father and mother of .98, .97, and .87, respectively. The somewhat lower ϕ value of the third factor can be explained by the differential loadings of the item about housework in the two individual-level analyses or as a consequence of the limited variability of the scores of the mothers.

Country-level factor solutions were also computed for Father's Roles and Mother's Roles. Loadings for both solutions are reported in Table 13.4. An inspection of the first factor for Father's Roles reveals "Protective and regulatory" roles a father might undertake within a family. The second resembles the individual-level "Child care" factor, but covers also financial support and conveyance of tradition to children along with more general managing of finances. The third factor reflects father's role in contributing financially along with emotional support and protection of the emotional

TABLE 13.4
 Rotated Component Matrices for Father's Roles and for Mother's Roles in the Family of the Individual- and Country-Level Factor Analysis Solutions^a

Father / Mother ...	Father						Mother					
	I-1	I-2	I-3	C-1	C-2	C-3	I-1	I-2	I-3	C-1	C-2	C-3
Provides emotional support to children	.74	.15	-.04	.06	.15	.81	.68	-.01	-.06	.90	.11	-.11
Provides emotional support to grandparents	.76	-.07	-.18	.23	-.24	.79	.58	.01	.09	.67	.07	-.32
Provides emotional support to wife	.74	.06	-.03	-.09	.17	.89	.66	-.05	.02	.83	-.01	-.02
Keeps the family united	.77	-.06	.15	.41	.06	.67	.79	.04	.07	.92	-.21	.08
Keeps a pleasant environment	.76	.04	.07	.45	.13	.54	.76	.01	.00	.89	-.18	.09
Conveys traditions to children	.56	.28	-.04	.49	.48	.08	.46	-.15	-.38	.74	.45	-.25
Conveys religion to children	.54	.01	.12	.66	.19	.29	.58	-.25	-.13	.80	-.33	.03
Preserves family relations	.70	.01	.11	.54	.06	.51	.68	-.09	-.14	.90	-.12	-.06
Supports grandparents	.59	-.13	.16	.28	-.12	.72	.58	.15	.07	.73	.09	-.06
Takes care of grandparents	.45	.06	-.02	.71	-.33	.25	.43	-.02	.00	.44	-.66	.17
Protects the family	.59	-.14	.35	.43	-.08	.65	.61	.24	.14	.44	-.64	.35
Resolves disputes	.33	-.08	.44	.60	.27	.31	.36	.26	-.05	.62	-.09	.21
Does housework	-.02	.68	-.15	-.92	.05	.13	.21	.11	-.13	.15	.00	.54
Does the shopping	-.07	.21	.60	.56	.14	.12	-.17	.66	-.13	-.46	.48	.55
Takes children to school	-.01	.54	.31	.32	.65	.06	-.23	.14	-.78	-.08	.80	.31
Plays with children	.31	.56	.09	-.09	.81	-.08	.18	.04	-.67	.45	.63	.12
Helps children with homework	.14	.62	.20	-.11	.88	.01	.11	.03	-.72	.46	.57	.17
Teaches manners to children	.43	.12	.39	.35	.54	.31	.53	.06	-.27	.90	.10	.14
Contributes financially	.09	-.13	.68	-.40	.21	.88	.02	.68	-.01	.03	.45	.67
Manages finances	-.04	-.05	.81	.55	.45	.07	.04	.76	.06	-.26	-.08	.89
Gives pocket money to children	.05	.08	.68	.43	.43	.23	.14	.56	-.09	.04	-.01	.73
Supports career of children	.16	.09	.59	.00	.79	.21	.32	.36	-.16	.59	.41	.22

Note: I = Individual-level analysis on the pooled-within countries correlation matrix (three-factor solution); C = Country-level analysis (three-factor solution).

^aPattern matrices are reported (oblique rotation solutions). The loadings reported for the individual-level structure are the ones before target rotation toward the country-level solution.