











Jordan, and India). The total connectedness mean of the three Western countries was lower ( $M=4.94$ ,  $STD=0.75$ ) than that of the six Eastern countries ( $M=5.51$ ,  $STD=0.92$ ). The difference was significant with  $p<0.0001$ . These findings enable us to deal with our data on the basis of two major cultures that were bifurcated as Western and Eastern culture.

**Table 3. Standardized Coefficients ( $\beta$ ) Between Family and Parental Factors, and Psychological Disorders Analyzed Together in One Regression Among All Subjects, and Each Western and Eastern Societies and Among Each Female and Male Adolescents**

	All	West	East	Female	Male
Siblings #	n.s	n.s	n.s	<b>-.07*</b>	n.s
Father education	n.s	n.s	n.s	n.s	n.s
Mother education	n.s	n.s	n.s	n.s	n.s
Family economic	n.s	n.s	n.s	n.s	n.s
Emotional cnet	<b>.09**</b>	<b>.10*</b>	<b>.07*</b>	<b>.08*</b>	n.s
Financial cnet	<b>-.05*</b>	<b>-.10*</b>	n.s	n.s	n.s
Functional cnet	n.s	<b>-.14**</b>	n.s	<b>-.09*</b>	n.s
Father control	n.s	<b>.12*</b>	n.s	n.s	n.s
Mother control	n.s	n.s	n.s	n.s	n.s
Father tmp. incns.	<b>.08*</b>	<b>.12*</b>	n.s	n.s	n.s
Mother tmp. incns	n.s	n.s	n.s	n.s	n.s
Father situ. incns	<b>.06*</b>	n.s	n.s	n.s	n.s
Mother situ. incns	<b>.06*</b>	n.s	<b>.07*</b>	n.s	<b>.10*</b>
Father-Mother incns	n.s	<b>.11*</b>	n.s	<b>.08*</b>	n.s
Father rejection	<b>.16***</b>	<b>.31***</b>	<b>.10*</b>	<b>.18***</b>	<b>.22***</b>
Mother rejection	<b>.09*</b>	n.s	<b>.15**</b>	<b>.18***</b>	n.s
Father acceptance	<b>-.11***</b>	n.s	<b>-.12**</b>	n.s	<b>-.18***</b>
Mother acceptance	<b>-.06*</b>	n.s	<b>-.09*</b>	n.s	n.s
Sum R <sup>2</sup>	.135	.230	.126	.211	.145

\* Significant at  $\alpha<0.05$ , \*\* Significant at  $\alpha<0.001$ , and \*\*\* Significant at  $\alpha<0.0001$ .

The associations between all family and parental factors together and PD were dramatically influenced by the cultural variable (western and eastern cultures) and by the adolescents' sex. The vast majority of associations of the familial and parental factors were not persistent, but rather culturally or sexually dependent. The only factor that was consistently associated with PD despite the differences in culture and the adolescents' sex was the fathers' rejection. The number of siblings was associated with better mental health only among female adolescents. The associations between connectedness and PD were dependent on culture and the adolescents' sex. Emotional connectedness was associated with higher PD in all the categories, but not among male adolescents. Financial and functional connectedness was associated with better mental health, in particular among western adolescents, but not among male adolescents. The associations between parental control and PD were dependent on culture. No significant associations were found between mothers' control and PD. Fathers'

control was significantly associated with PD only in western culture. The associations between parental inconsistencies and PD were dependent on culture and on the adolescents' sex. Parental acceptance and rejection associations were dependent on culture and also on the adolescents' sex.

## DISCUSSION

### Reductionist Versus Systemic Research

The comparison between the reductionist and systemic analyses supports our hypotheses. Most of the associations between family and parenting factors and PD seemed significant in the reductionist analysis. Many of these associations were diminished or changed in the systemic analysis. The associations of the more systemic analysis changed again when two nominal factors (culture and sex) were taken into consideration. The variance of the PD explained by the factors in the reductionist analysis was much higher than that in the more systemic analysis. These findings indicate that reductionist analyses may lead to selection-dependent associations that are in fact due to relevant excluded unseen factors, concealed behind the factors chosen to be analyzed.

Notwithstanding the possible influence of different methodologies (instruments or sampling) on the results, the comparison between the results of different levels of reductionism showed that contradictory or mixed results may be generated owing to the reductionism rather than to methodological differences. Mixed results are an inevitable or even inherent byproduct of reductionist research. Each column in Tables 2 or 3 may be considered as representing the results of different studies regarding the same group of factors, ending in inconsistent results. For instance, mothers' temporal inconsistency appears to be associated with PD in one study (the reductionist one), but not associated with PD in another (the systemic one) (Table 2). Mothers' rejection was associated with PD in two studies (of female and eastern adolescents), but not significant in two others (of male and western adolescents) (Table 3). Interestingly, when a factor that has a positive association with PD (e.g. emotional connectedness) is analyzed together with a factor that has a negative association with PD (e.g. financial connectedness), a new association can appear (between emotional connectedness and PD) in a more systemic analysis, not found by means of reductionist analysis (see Table 2).

The limited generalization of the reductionist approach is not new, rather it is well known among researchers. Despite that, this approach still dominates much research such as research conducted on parenting; therefore most of the results that appear to be objective and scientific are in fact state-dependent or illusory. What makes this situation dangerous is the fact that many crucial decisions are taken on the basis of these results in the fields of education, psychology, medicine, sociology, and politics.

Our results do not reject the use of reductionist research, since it is useful in identifying specific factors that are relevant to the system in order to include them later on in more systemic analyses. It is useful too in learning about the distribution of the factors and for comparing groups. As for learning about the associations and interactions between factors to understand how a system works, one should be

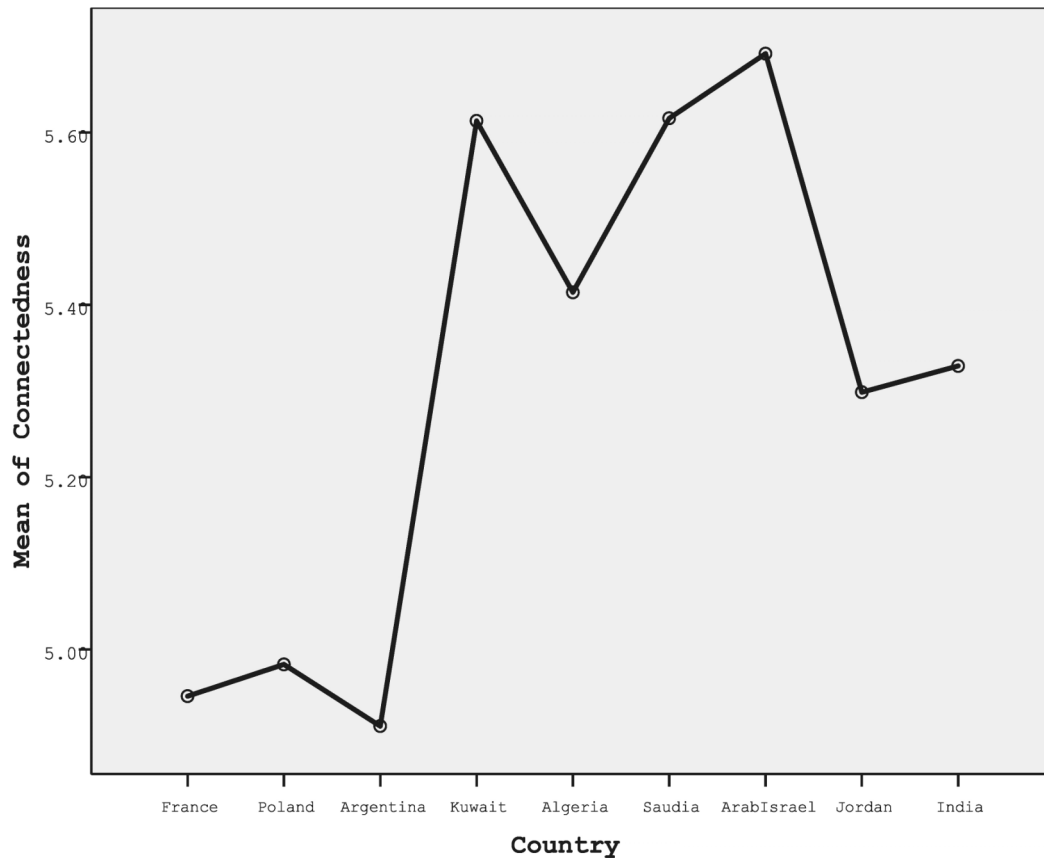


Fig. (1). Connectedness across countries.

extremely wary of reductionist research. Our results are expected to encourage researchers in the social sciences and medicine to adopt more systemic research before reaching conclusions concerning the system and before making decisions that may impact peoples' lives.

#### Family and Parenting Factors and PD

It appears that the numbers of siblings, parents' education, and family's economic level have no significant associations in themselves with PD, but rather *via* the factors of connectedness and the other parental factors. The functional connectedness, fathers' control, mothers' control, mothers' temporal inconsistency, and father-mother inconsistency also appears to be associated with PD *via* the other parenting factors and not in themselves. Although parental rejection was associated with PD in all the analyses in the systemic analysis, the associations were greatly reduced in the systemic analysis, indicating that the association of parental rejection with PD is shared with connectedness and parental inconsistencies.

Regardless of the culture and the adolescents' sex, the demographic factors of the family and of the parents (number of siblings, parents' education, and the family's economic level) have no associations with PD. The associations found with these factors in a reductionist analysis were misleading, because these associations were shared by other familial and parental factors and cannot be considered by themselves. Emotional connectedness was associated with higher PD and financial connectedness was associated with better mental health. Fathers' temporal

inconsistency, fathers' situational inconsistency, and mothers' situational inconsistency were associated with higher PD. Father and mother rejections were associated with higher PD, and father and mother acceptance were associated with better mental health.

#### Family and Parenting Factors and PD in Both the Western and Eastern Countries

The associations found among all respondents regardless of culture and the adolescents' sex were different when the culture factor was taken into account. Interestingly, the variance of PD explained by familial and parental factors was higher in the west ( $R^2=.230$ ) than that in the east ( $R^2=.126$ ). This may be attributed to the fact that eastern children live in more extended families, where grandparents, uncles, aunts, nephews and cousins have daily relations with the children, which make the familial and parental factors within the nuclear family less important than in the west, where children are influenced mainly by their parents.

Connectedness seems to be associated with PD in the west much more than in the east. In both cultures emotional connectedness was associated with higher PD, but financial and functional connectedness was associated with better mental health only among western adolescents. Taking into account that western culture tends to be more individualistic and the western family is less connected than the eastern family [27, 33, 34], it appears that the process of individuation taking place in the west occurs at the cost of more psychological disorders among adolescents.

Fathers' and mothers' control was not associated with PD in the east. Fathers' control was only associated with PD in the West. To understand these cultural differences one should remember that control is considered normal in the authoritarian eastern societies and has no negative connotations [34, 35], whereas in the west, characterized as more democratic and liberal, control is considered to be a more unusual measure of parenting.

The mental health of eastern adolescents appears to be associated with parental rejection or acceptance, while the mental health of western adolescents is associated exclusively with fathers' rejection, but not with mothers' rejection or fathers' and mothers' acceptance. One possible explanation for these cultural differences may be attributed to the collective nature of the eastern cultures. In such cultures, the familial relationships are very close and expected to be warm therefore rejection or lack of acceptance in such families may hurt the children more than it would be in an individualistic culture, where the children are raised to be more independent.

Yet, it is not easy to explain why fathers' control and rejection rather than mothers' control and rejection were associated with PD, despite the fact that Western mothers are more controlling than fathers. One possible explanation is that western fathers become more involved and controlling and sometimes rejecting when the children display behavioral or psychological problems, hence the association found between fathers' control or rejection and PD in the west. Generally speaking, results shows that fathers, more than mothers, are associated with adolescents' mental health in the west, and mothers, more than fathers, are associated with mental health in the east.

As to the associations between parental inconsistencies and PD, it appears that the culture caused clear distinctions in these associations. The mental health of western adolescents was associated with fathers' temporal inconsistency and father-mother inconsistency, whereas mental health of eastern adolescents was associated with mothers' situational inconsistency. The absence of mothers' inconsistency's associations with PD exclusively in the west and the presence of the association between mothers' situational inconsistency and PD exclusively in the east may be attributed to the differences between the two cultures in the parents' roles, mentioned above.

### **Family and Parenting Factors and PD Among Male and Female Adolescents**

When the adolescents' sex is taken into account, we see significant changes in the associations found between familial and parental factors and adolescents' PD. Generally speaking, familial and parental factors explain more variance of female ( $R^2=.211$ ) than male ( $R^2=.145$ ) PD. These differences may be attributed to the wider range of influences males experience, minimizing the familial and parental influences on them and keeping these influences more dominant among females. These differences between male and female adolescents may explain why PD of males was not associated with family connectedness while the PD of females was associated with emotional and functional connectedness.

Fathers' acceptance and fathers' rejection were associated with male PD, whereas the female PD was associated exclusively with fathers' and mothers' rejection. In other words, PD of male adolescents is sensitive to the fathers' reactions (rejection or acceptance), whereas the PD of female adolescents is sensitive to rejection (either the fathers' or the mothers' rejection). As to the associations between parental inconsistencies and adolescents' PD, it seems that these associations are minor among males and females.

Although psychology and education greatly emphasize the role parents play in their children's mental health, our results show that the variance of PD explained by family and parental factors vary from approximately 13% to 23%, depending on the population focused on. This finding is disappointing for those who believe that parents have more effective role, but not very different from recent meta-analytical research, showing that the variance of PD explained by parenting is very low [36-38]. It appears that children's psychological adjustment is associated with many other factors such as peers, siblings, school, culture, and genetics. Of course, parents still have a tremendous influence on what their children will be exposed to or how they cope with most of these factors. Therefore the actual effect of the parents' behavior and of the family in general on the children is assumed to be much higher than the explained variance of mental health found in this study.

The large and cross-cultural sample and the large number of variables measured are among the major strengths of this research, yet it was based exclusively on self-reported data, collected from adolescents. There is a need to conduct more systemic research using other instruments, such as self-reports collected from parents and observation of the children and the parents. Although our research tends to be systemic, yet it excludes other factors relevant to children's mental health. Future research needs to be more inclusive and analyze additional familial factors, such as siblings' behavior and attitudes, social factors such as peers' and teachers' behavior and attitudes, and genetic factors together with parental factors.

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