The association of family functioning and psychosis proneness in five countries that differ in cultural values and family structures

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ABSTRACT

For decades, researchers have attributed the better prognosis of psychosis in developing countries to a host of socio-cultural factors, including family functioning. Nevertheless, it is unknown whether family functioning and its association with symptoms differs across countries. This study assessed family functioning (support, satisfaction with family relations, and criticism) and psychosis proneness in community samples from Chile (n = 399), Colombia (n = 486), Indonesia (n = 115), Germany (n = 174) and the USA (n = 143). Family functioning was compared between prototypical developing countries (Chile, Columbia, Indonesia) and highly industrialized countries (Germany, USA). Hierarchical regression analysis was used to test for the moderating effect of country on the associations between family functioning and psychosis proneness. Participants from developing countries perceived more support and felt more satisfied. However, they also perceived more criticism than participants from highly industrialized countries. Criticism and family satisfaction were significantly associated with psychosis proneness. Moreover, the relationship between criticism and psychosis proneness was significantly stronger in developing countries compared to highly industrialized countries. Generally, family satisfaction and criticism appear to be more relevant to psychosis proneness than the quantity of family support. Moreover, criticism seems to be more closely related to psychosis proneness in developing countries.

1. Introduction

A heated international debate began when several studies from the World Health Organization (WHO) found a more favorable course and better outcome for schizophrenia in developing compared to industrialized countries (Harrison et al., 2001; Jablensky et al., 1992; WHO, 1979). This surprising discovery became psychiatric lore over the years and corresponding results have been replicated independently (Kulhara et al., 2009; Novick et al., 2012; Verghese et al., 1990). The paradoxical finding that despite a lack of affordable psychopharmacological treatment and limited resources in developing countries (Isaac et al., 2007), recovery was more likely there than in wealthy industrialized countries, calls for explanations. These have been predominantly sought for in socio-cultural factors and especially in family related factors, such as family support, satisfaction with family relationships, and patterns of familial communication (Isaac et al., 2007; Naheed et al., 2012; Padma, 2014), which will be referred to in the following as family functioning.

Indirect support for the notion that family functioning differs between developing and highly industrialized countries stems from research findings on cultural value orientation and family structures. Individuals from developing countries are characterized by a higher availability of an extended family (Social Trends Institute, 2015) and endorse interdependent values more strongly (i.e. emphasis on connectedness and relations) than individuals from industrialized countries (Markus and Kitayama, 1991; Singelis, 1994; Weisman de Mamani et al., 2007). Individuals with higher interdependent values have also been found to be less conflictual and more attentive to maintaining group cohesion (Kim et al., 2001). This has led researchers to speculate that patients in developing countries benefit from more family support and less criticism (Kurila et al., 2000; Padma, 2014). Research on Expressed Emotion (EE; manifested as e.g. criticism, hostility) supports this assumption by showing that both patients from developing countries and minority groups in the US are exposed less to criticism, within the family, than patients who stem from industrialized countries (Aguilera et al., 2010; Bhugra, 2003; Weisman de Mamani et al., 2007). Nevertheless, there is a lack of research that directly compares different components of family functioning between developing and highly industrialized countries that differ in cultural values and family structures. Moreover, even if family functioning was found...
to be better in developing countries, it is still unclear whether it is associated with psychotic psychopathology and has the potential to contribute to explaining the better prognosis in some countries relative to others.

Within highly industrialized countries, such as the USA and European member states, family functioning has been shown to be relevant to both etiology (O'Brien et al., 2006; Schlosser et al., 2010; Tienari et al., 2004) and maintenance of psychosis (Brown et al., 1972; Cechnicki et al., 2013; Koutra et al., 2015). For example, Tienari et al. (2004) reported that the risk of developing psychosis in adopted children with a genetic predisposition for schizophrenia depended on the presence of an unfavorable family atmosphere (e.g. criticism) in the adoptive family and that a positive family environment (e.g. less criticism) had a protective effect on at-risk individuals. Moreover, criticism is one of the strongest predictors for relapse (Brown et al., 1972; Cechnicki et al., 2013; Hooley, 2007) whereas warm and optimally involved family environments have been associated with fewer self-reported symptoms and better functioning (O’Brien et al., 2006; Schlosser et al., 2010).

Studies on minority groups in the USA, however, have found the association between criticism/warmth and psychotic symptomatology to depend upon the patients’ ethnicity (Guada et al., 2011; Tsai et al., 2014). Thus, the findings cited above from the USA and Europe cannot automatically be generalized to the so-called developing countries which have a different family culture that includes larger families, more closely knit family structures (i.e. more family members and generations living in the same house) and higher interdependent value orientation (Isaac et al., 2007; Kolstad and Horpestad, 2009; Markus and Kitayama, 1991).

It appears intuitive to expect that the associations between family functioning and symptoms or course of disorder might even be stronger for developing countries than for highly industrialized countries because positive family functioning is likely to be more salient in the former type of countries and therefore have a greater impact on psychotic symptoms. Moreover, high interdependence is likely to lead families to provide more support for their family members and thereby prevent symptom formation or deterioration. At the same time, high interdependence might also make individuals more sensitive towards family criticism, which could be perceived as a threat to the strongly valued group harmony.

Taken together, it seems that (1) family functioning (i.e. family support, satisfaction with family relations, and criticism) is better in developing countries characterized by higher interdependence and more family members at home than in highly industrialized countries characterized by lower interdependence and less family members at home; (2) family functioning in general, and criticism in particular, are associated with the extent and course of psychotic symptomatology; and (3) the association between family functioning and psychotic symptoms is likely to be stronger in developing than in highly industrialized countries. A better understanding of how the associations between family functioning and psychosis varies across countries is relevant to the understanding of the outcome paradox and to developing early intervention and prevention strategies worldwide.

As a first step towards testing the three assumptions outlined above, this study examined the relationship between family functioning and psychosis proneness in community samples in developing countries characterized by higher interdependent values and larger family sizes (Chile, Colombia, Indonesia) versus highly industrialized countries characterized by lower interdependent values and smaller family sizes (Germany, USA).

The rationale for using community samples is that psychotic experiences and symptoms exist along a continuum ranging from people with no psychotic experiences whatsoever, through those with transient or persistent unusual and psychotic experiences below the diagnostic threshold for a psychotic disorder to those who fulfil the full diagnostic criteria (Linscott and van Os, 2013; Kaymaz et al., 2012). The unusual and psychotic experiences have been referred to as indicating psychosis proneness (Mark and Touloupiou, 2016) or extended psychosis phenotype (van Os and Linscott, 2012) because they are associated with the risk of transition to full psychosis and because they share demographic, environmental, familial, and psychopathological risk factors with psychotic disorders (van Os and Linscott, 2012). Accordingly, psychosis proneness in the community sample provides a useful base from which to study the etiology of psychosis. Moreover, research on risk factors along the continuum is advantageous because the findings of a community sample can be interpreted free of the issues that often influence studies comparing clinical with nonclinical populations, such as selective small samples and medication.

2. Methods

2.1. Participants and Procedure

Participants were recruited on the platform ‘Crowdflower’ and asked to complete an anonymous 30-min online survey. Crowdsourcing (e.g. Crowdflower, Amazon MTurk) is the distribution of tasks to large voluntary groups from the community, mostly online. It is the practice of obtaining needed services, ideas or content by soliciting contributions (e.g. Lintott and Reed, 2013, Ranard et al., 2014). There are many advantages of crowdsourcing compared to physical recruitment, such as completion speed, population diversity, anonymity, reduced social desirability, and low costs. According to the Crowdflower webpage, 208 different countries are participating (Crowdflower, 2013). Crowdflower has recently been used in a multi-national community sample (Germany, Indonesia and the USA) testing for psychotic experiences and finding comparable prevalence-rates of these experiences to those observed in other community samples (Jaya and Lincol, 2016). In our study, participants received 0.50 US$ following the median hourly wage in Amazon MTurk (Buhrmester et al., 2011). Compensation was not adjusted for the country of origin. However, recent studies showed that the level of financial compensation does not affect the quality of responses (Buhrmester et al., 2011).

All participants provided written informed consent and indicated being above 18 years of age prior to data collection. All relevant information about the survey was provided on its first page which was followed by items to assess whether information had been understood and agreed to. All items had to be endorsed before the next page was revealed. The present study was approved by the Ethics Committee at the University of Hamburg; the approval included the survey in every participating country.

Following considerations by Rosenberg and Kosslyn (2014), we defined the developing/industrialized dichotomy as a category characterized by the predominant socio-cultural values. The inclusion criteria for the developing country group were high interdependent values (operationalized by a score under 35 on the Individualism vs. Collectivism dimension according to Hofstede et al., (2010)) and more than three family members at home on average (according to census data of each country). The inclusion criteria for the industrialized country group were low interdependent values (above 65 on the Individualism vs. Collectivism dimension) and on average less than three family members at home. Among the countries fulfilling the criteria for one of the two categories, the final country selection resulted from the availability of translators (professional health workers) and the feasibility of recruitment on Crowdflower. There were no collaborative links for recruiting, which took place via Crowdflower only.

From an initial 1518 completed survey entries, 79 were excluded from the analysis due to duplicate entries (n = 79), 107 due to longstrig (i.e. providing the same answer consecutively for 50 items) and due to inconsistent answers (n = 15). The final sample consisted of a community sample of 1317 participants from Chile (n = 399),
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