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ScienceDirect
Psychiatry Research 157 (2008) 211–223
PSYCHIATRY RESEARCH
www.elsevier.com/locate/psychres

Inter-informant agreement on diagnoses and prevalence estimates of anxiety disorders: Direct interview versus family history method

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Received 6 September 2005; received in revised form 3 March 2006; accepted 20 April 2006

Abstract

The aims of the present study were to: (1) assess agreement for diagnoses of specific anxiety disorders between direct interviews and the family history method; (2) compare prevalence estimates according to direct interviews and family history information; (3) test strategies to approximate prevalence estimates according to family history reports to those based on direct interviews; (4) test covariates of inter-informant agreement; and (5) test the likelihood of reporting disorders by informants. Analyses were based on family study data which included 1625 distinct informant (first-degree relatives and spouses)–index subject pairs. Our main findings were: (1) inter-informant agreement was satisfactory for panic disorder, agoraphobia, social phobia and obsessive-compulsive disorder; (2) the family history method provided lower prevalence estimates for all anxiety disorders (except for generalized anxiety disorder and obsessive-compulsive disorder) than direct interviews; (3) the lowering of diagnostic thresholds and the combination of multiple family history reports increased the accuracy of prevalence estimates according to the family history method; (4) female gender of index subjects was associated with poor agreement; and (5) informants, who themselves had a history of an anxiety disorder, were more likely to detect this disorder in their relatives which entails the risk of overestimation of the size of familial aggregation.

Keywords: Best estimate diagnosis; Family study; Genetic epidemiology; Diagnostic algorithm; Familial aggregation

1. Introduction

Although in family studies the investigator attempts to interview all members of a pre-defined category of relatives (e.g. all first-degree relatives), several family members are generally not available for direct interviews, e.g. because they are not willing to participate, live too far away or do not speak the language of the research team sufficiently. As unavailable relatives may be non-random with respect to psychopathological outcomes of interest, incomplete participation can induce selection bias (Heun et al., 1995; Rice et al., 1995; Bonsignore et al., 2002). For this reason, the use of the family history method is recommended in family studies as a type of proxy interview of non-participating relatives (Weissman et al., 1986). Moreover, direct interviews and family history reports are frequently considered as dual sources of information to be used within best estimate procedures

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doi:10.1016/j.psychres.2006.04.022

to assign diagnoses in family studies as suggested by Leckman et al. (1982).

In order to obtain psychopathological information from probands on their relatives in a reliable way, semi-structured interviews such as the Family History-Research Diagnostic Criteria (FH-RDC) (Andreasen et al., 1977) have been developed. The degree of agreement between diagnoses based on family history and direct interview information has been measured for a series of psychiatric diagnoses (Mendlewicz et al., 1975; Andreasen et al., 1977; Orvaschel et al., 1982; Thompson et al., 1982; Andreasen et al., 1986; Chapman et al., 1994; Rice et al., 1995; Heun et al., 1997; Li et al., 1997; Heun and Muller, 1998). The family history method was generally found to have high specificity (low probability of false positive diagnoses) with values of 0.9 and higher, whereas sensitivity was low (high probability of false negative diagnoses) regardless of the studied diagnosis (Orvaschel et al., 1982; Thompson et al., 1982; Weissman et al., 1986; Rice et al., 1995; Li et al., 1997). The low sensitivity of the method entails the risk of biased estimates of the familial aggregation of disorders if the participation of relatives varies between case and control families. In order to overcome this problem, researchers have suggested lowering diagnostic thresholds and combining information from multiple family members. However, except for some recommendations for depressive symptoms (Orvaschel et al., 1982), there are hardly empirically based rules for the lowering of thresholds for diagnoses relying on family history reports. Similarly, except for the efforts of Rice et al. (1995) with respect to the diagnosis of alcohol dependence, empirical data are also missing regarding the appropriate use of multiple and frequently contradictory diagnostic reports in best estimate procedures.

As the direct interview diagnosis does not represent a true "gold standard" (Heun and Muller, 1998), several authors used the κ statistic rather than sensitivity and specificity estimates to assess agreement between diagnoses derived from direct interview and family history information. Heun and Muller (1998) documented κ coefficients of 0.26 and 0.41 for depression and alcohol use disorders, respectively, whereas Mendlewicz et al. (1975) found higher inter-informant agreement for depression (κ coefficient of 0.52).

Only little research has yet been done on the inter-informant agreement for anxiety disorders. Moreover, regarding obsessive-compulsive disorder (OCD) and the three DSM-IV types of phobic disorders, such data are entirely missing. Lumping all anxiety disorders together, Heun et al. (1997) and Heun and Muller (1998) measured low inter-informant agreement (κ coefficients = 0.10 and 0.19, respectively) and low sensitivity (0.08 and 0.29, respectively). Similarly, Thompson et al. (1982) documented low sensitivity for detecting RDC GAD (0–0.17) and phobia (0.10–0.15) by means of the family history method, whereas Chapman et al. (1994) reported sizably higher sensitivity values for the overall anxiety disorder category (0.37–0.57) as well as for DSM-III-R panic disorder (0.07–0.51).

For the assignment of diagnoses relying on multiple sources of information in best estimate procedures, data on covariates affecting the degree of certainty attached to the information from a particular informant is of high practical relevance as it provides an empirical basis for weighting the number of positive and negative reports in case of discrepant information. The bulk of studies found spouses to inform more reliably on adult index subjects than first-degree relatives (Mendlewicz et al., 1975; Thompson et al., 1982; Heun and Muller, 1998). Regarding the effect of the index subject's gender, Orvaschel et al. (1982) reported higher inter-informant agreement if the index subject was a woman, although Heun and Muller (1998) could not replicate this finding. In addition, Orvaschel et al. (1982) measured higher agreement if the index subject sought medical treatment and Chapman et al. (1994) demonstrated a higher sensitivity of the family study method for the diagnoses of depression, panic disorder and alcoholism if the informant suffered from the same disorder.

Other authors have studied variables affecting the reporting of disorders by relatives. Kendler et al. (1991), Chapman et al. (1994) as well as Heun et al. (1997) found affected subjects to report disorders in their relatives more frequently than unaffected individuals. This is likely to lead to an overestimation of the familial aggregation of psychiatric disorders in studies relying on family history information (Chapman et al., 1994).

The aims of the present article were: (1) to assess agreement between diagnoses for specific anxiety disorders based on direct interviews and those relying on information from first-degree relatives; (2) to compare prevalence estimates for anxiety disorders based on family history information to those derived from direct diagnostic interviews; (3) to test strategies (lowering the threshold for diagnoses relying on family history information, combining multiple family history reports using diagnostic algorithms) to approximate prevalence estimates for specific anxiety disorders to those assessed using direct interview information; (4) to assess the influence of several characteristics in index subjects (gender and age) and informants (gender and age, familial relationship to index subject, presence of the same anxiety disorder) on the degree of inter-informant agreement for