Recognition of Generalized Anxiety Disorder in Boys and Girls: Difference between Health-Care Professionals

Master's thesis
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Foreword

This is the Master thesis 'Recognition of Generalized Anxiety Disorder in Boys and Girls: Difference between Health-Care Professionals". This research is about gender differences in recognition of Generalized Anxiety Disorder and the influence of different type of health-care professionals. This Master thesis is written in the context of the Master's programme Clinical Child, Family and Education Studies at the University of Utrecht. I have worked hard on this study from November 2018 to June 2019.

Since I was a teenager, I have been intrigued by gender differences. In our society, anxiety and fear seem more accepted in girls than boys. I was interested if there were differences in recognition of GAD between boys and girls and if there is a potential role of health-care professionals in this. Therefore, I decided to choose this topic for my dissertation.

During this research, my thesis supervisor (Mrs. Delia Burke) provided me with lots of critical feedback. Thank you for that. Also, I want to thank my family, friends and boyfriend, for the ongoing support during the stressful periods this year. Especially my boyfriend has seen me a lot behind my computer screen. Finally, I want to thank my father in-law for proof-reading my thesis.

I hope you enjoy reading it.

A.D. Liefting

De Blesse, June 2nd, 2019

Abstract

Generalized Anxiety Disorder (GAD) is a highly common disorder in children and adolescents, and it impairs their daily lives. One of few studies has shown that GAD is poorly recognized. While, early recognition by health-care professionals (HCPs) is crucial since absence of a diagnosis and treatment can dramatically increase the likelihood of GAD becoming chronic. Little is known about the effect of gender on recognition of GAD, let alone about the influence of HCPs. This study is an initial attempt to investigate whether some types of HCPs are better at recognizing GAD than others. HCPs (n=408) evaluated a total of 816 vignettes describing children and adolescents with symptoms of GAD. A logistic regression analysis was conducted. Findings show that GAD is, indeed, poorly recognized by HCPs. The results did not support the expectation that girls with GAD were better recognized than boys. However, the findings provide evidence for differences in recognition between HCPs. Psychologists and psychiatrists were found to be better in recognizing GAD than pedagogues, paediatricians, teacher/mentors and social workers. This implies that children's symptoms of GAD may be easier overlooked if they are evaluated by any other types of HCPs than a psychologist or psychiatrist. Type of HCP did not moderate the relationship between a child's gender and recognition. The findings implicate that HCPs should get more education and trainings about symptoms of GAD, so that they improve their recognition of GAD in children and adolescents.

Keywords: Generalized Anxiety Disorder, gender, health-care professionals, vignettes; recognition

Recognition of Generalized Anxiety Disorder in Boys and Girls: Difference between Health-care Professionals

Generalized Anxiety Disorder (GAD) is one of the most common anxiety disorders in youth (Merikangas, Nakamura, & Kessler, 2009) with prevalence rates varying from approximately 0.7% to 8.7% amongst youth of all ages (Kashani & Orvaschel, 1988; Kendall et al., 2009; Merikangas et al., 2009). GAD is characterized by excessive anxiety and worry concerning several issues, e.g. performances, school (Suvey, Jacob, & Thomassin, 2009). Children find their worry hard to control, intense and impairing in their daily life (Wagner, 2001). Early recognition of GAD is crucial since it can minimize long-term negative outcomes (Kessler et al., 2003) and prevent GAD from becoming chronic (Bernstein, Rapaport, & Leonard, 1997).

Recognition of GAD is different from diagnosis of the disorder. It involves a professionals' initial evaluation of and possible concerns about the symptoms a child is presenting (McConaughy, 2013). Recognition and diagnosis are the first steps toward treatment (Williams et al., 1999). But if symptoms are not recognized in first contact with a health-care professional (HCP), the diagnostic process is unlikely to get started (Hawkins-Walsh, 2001). Wittchen et al. (2002) found that GAD is poorly recognized in adults, with only 34% of GAD patients being recognized. However, little is known about recognition in children.

It can be hard for both parents and HCPs alike to pinpoint what the child is suffering from. First, the symptoms of GAD in children and adolescents are not always considered problematic; the excessive worry about performance and perfectionism is often seen as a quality (Suvey et al., 2009). Additionally, youth with GAD frequently experience somatic complaints (Ginsburg, Riddle, & Davies, 2006). Consequently, they often initially visit a primary care physician for the treatment of associated somatic symptoms instead of GAD

(Shear & Schulberg, 1995). Furthermore, the internalizing nature of anxiety (Mesman & Koot, 2000) and the high comorbidity with other disorders (Wittchen et al., 2002) may make recognition of the disorder extra difficult. It is necessary to determine factors that influence recognition of GAD in youth to improve access to treatment and care.

A Child's Gender and GAD Recognition

There is controversy about whether GAD occurs more in boys or girls. Some studies find no gender differences (Gater et al., 1988; Lavigne, Lebailly, Hopkins, Gouze & Binns, 2009; Wittchen, Nelson, & Lachner, 1998), whereas others report GAD to be more common in girls (Kashani & Orvanschel, 1988; Wittchen et al., 2002). Adolescent girls were found six times more likely to develop GAD than boys (Bowen, Offord, & Boyle, 1990). This could mean that HCPs are more familiar with anxiety in girls. It does not necessarily follow that there is a higher prevalence rate of GAD in girls. HCPs simply recognize symptoms of the disorder more conspicuous in girls than in boys.

The gender role theory (Eagly, 1987) claims that socialization processes prescribe gender-specific expectations regarding the expression of anxiety and the acceptable way of coping with it (McLean & Anderson, 2009). Because the expression of anxiety is not considered as masculine, fearful behaviors may be less tolerated in boys (McLean & Anderson, 2009). Hence, boys will learn to be brave and use problem-focused coping when experiencing anxiety. They may be less likely to go to a general practitioner than girls (Bebbington et al., 2000) and instead deal with the challenges actively (Panayiotou, Karekla, & Leonidou, 2017). Problem-focused coping may help boys to prevent excessive fears (Bem, 1981) as it encourages exposure and extinction of fear (Panayiotou et al., 2017). The traditional female role de-emphasizes autonomy and instead favors dependency, which is more compatible with avoidance behavior (McLean & Anderson, 2009). Avoidance behavior is associated with GAD symptom severity (Mahoney et al., 2016).

HCPs might expect anxiety related behaviors more in girls because of their own prejudices and stereotypes related to anxiety (Corrigan, 2004), which may also affect their judgment of GAD (Broverman, Broverman, & Clarkson, 1970). It is essential that the effect of gender on recognition of GAD is understood to improve recognition and diagnosis.

HCPs and Recognition of GAD

In addition to child factors, professional factors may play a role in recognition too. There is some evidence that there are differences in different types of professionals' ability to recognize disorders (Burke, Koot, & Begeer, 2016). For instance, older HCPs are less likely to recognize Conduct Disorder than younger HCPs (Pottick, Kirk, Hsieh, & Tian, 2007).

The degree of specialization and education might also be important (Williams et al., 1999). Psychiatrists, psychologists and pedagogues are especially specialized in mental disorders (Goldberg & Huxley, 2012). While, social workers, teachers/mentors and paediatricians are more broadly educated and their knowledge about mental-health problems may be more superficial since their occupations are diverse (Kluft & van der Haterd, 2012). Psychiatrists, psychologists, pedagogues and paediatricians are highly educated, minimally possessing a master's degree (Kluft & van der Haterd, 2012), while the others have a somewhat lower educational level.

Since there is an absence of earlier studies related to recognition of GAD addressing potential differences between professionals' recognition of GAD (Burke et al., 2015), it can only be assumed that they may also differ in recognition of GAD. Examining the extent to which these professionals differ is important if we are to improve their recognition of GAD in children and adolescents.

The Role of HCP type in the Gender-Recognition Relationship

Since HCPs are important in the process of recognizing a disorder, and each HCP type may have a different skill set, HCP type may also play a role in potential gender difference in

recognizing GAD. Although differences in HCPs' ability to recognize mental-health problems is enormously neglected (Burke, Koot, & Begeer, in press). One of few studies has shown that paediatricians are not confident in their own ability, due to little time or knowledge, to diagnose mental-health problems (Olson et al., 2001). This lack of knowledge may be heightened if the presenting child is male and their expression of symptoms differs from what is typical (Dworzynski, Ronald, Bolton, Happé, 2012). The time constraints reported by paediatricians might not allow them to deepen their knowledge about the problem that a boy is exhibiting (Olson et al., 2001), which results in failure to recognize GAD.

This research will examine whether a child's gender has an influence on the recognition of GAD in children, and if so, whether the type of HCPs influences this relationship. The following hypotheses will be tested: (1) Recognition of GAD in girls is higher than in boys (2) psychologists, psychiatrists and pedagogues are better at recognizing GAD in children than the other HCPs and (3) the relationship between gender of the child and recognition of GAD will be moderated by type of HCP. In other words, some professionals are better able to recognize GAD in girls than boys.

Method

Participants

431 child and adolescent HCPs employed in the Netherlands were recruited though their job or through an affiliation with a health-care organization. 127 (29%) of the participants were psychologists, 89 (21%) were paediatricians, 90 (21%) were pedagogues, 52 (12%) were social workers, 33 (8%) were teachers/mentors and 18 (4%) were psychiatrists. The remainder 22 (5%) were non-practicing HCPs (e.g. professors or policy makers). They were not included in this study, together with one missing on the variable *age of the HCPs*. A sample of 408 participants remained.

Of the participants, 10 (2%) professionals were 18-24 years old, 153 (37%) were 25-39 years old, 211 (52%) professionals were 40-59 years old, 34 (9%) were above 60 years old. 364 (89%) of the professionals were female, 40 (10%) were male. Four (1%) participants did not report their gender. The overrepresentation of women correlates with the female dominance in the mental-health care sector (Marsella, 2011).

Measuring instruments

This study will use data from an earlier, original study (The BePPS project; Burke et al., 2016) which used a standardized analogue design to examine whether HCPs' recognition of mental-health problems varies as a function of different child-related factors. All factors were systematically varied and randomly introduced to ensure that they were evaluated equally, and questions and instructions were standardized (Burke et al., 2016). This study will extend the current knowledge by examining whether some types of HCPs are better at recognizing GAD than others. Only the data related to GAD will be used.

GAD vignettes. Participants evaluated ten vignettes about children, aged 3-17 years, describing five different mental-health problems (ADHD, ASD, CD, GAD and MDD). Descriptions of the mental-health problems were based on DSM-IV-TR criteria. When creating the vignettes, symptoms were systematically chosen to ensure that all vignettes were equal and could be compared. For all disorders, there are necessary criteria (which are required to be met in order to receive a diagnosis) and there are criteria which describe possible symptoms of a disorder. For each of the vignettes, first symptoms were described that corresponded to the necessary criteria and then the remaining symptoms were selected from the possible symptoms (Burke et al., 2016). When vignettes described five symptoms of GAD, the first three corresponded to the necessary criteria for the diagnosis; the remaining two symptoms corresponded to the possible symptoms listed in criteria (see Appendix). When vignettes described ten symptoms, the remaining seven symptoms corresponded to the

possible symptoms listed in criteria. The vignettes were created in collaboration with child psychologists and pedagogues. A pilot study (n=24) showed that vignettes described accurate representations of GAD that were recognizable above chance level.

Gender. Vignettes differed by children's gender. Gender of the child was never explicitly mentioned but was reflected in the appropriate pronoun. The following codes were given: male (1) and female (2).

Type of professional. Participants were asked to select their current occupation from a list of six categories. If participants had different occupations, they could choose the category 'other' and name their title. The type of the HCP was coded as following 1= psychologist, 2= pedagogue, 3= psychiatrist, 4= paediatricians, 5=teacher/mentor, 6=social worker. Non-practicing HCPs were not included in this study. In the current study five groups will be compared to psychologists, because psychologists are one of the three types that is hypothesized to be better at recognizing GAD.

Recognition. After each vignette, participants were asked to indicate whether they considered the described vignette as a cause for concern. If yes, what they thought what the matter was with the child. This was an open question, so participants could respond in their own words. Responses were then coded by two independent researchers. Responses were coded "recognized" (1) if the participant recognized the disorder. Responses were considered 'recognized' when HCPs explicitly named GAD in their response or referred to any other anxiety disorder (in the DSM-IV-TR). Responses were coded 'not recognized' (0) if GAD was not named or if HCPs referenced an unrelated disorder. Twenty percent of the responses to the GAD vignettes were randomly selected to be coded by a second independent researcher. Reliability analyses, using the kappa statistic (*k*), were conducted to examine the agreement between the two coders concerning the recognition of GAD. Results show that the coding between the two independent researchers was very reliable, K=0.98 ($p<.001$).

Control variables. The *age of the professional* and *experience of the professional* were controlled for in all analyses.

Procedure

An advertisement, entitled *Evaluating School Children with Mental-Health Problems*, was published on various employee websites and in online newsletters of employees working in youth care. In the advertisement, the goal of the study was outlined and a link to the online survey was provided. Before the start of the digital survey, participants were informed that the vignettes did not provide all information required to make a full diagnosis, but that the researchers were interested in the first impression that was evoked. In the next step, consent was asked and obtained followed by information about the participants' demographics. In the following pages, participants were shown ten vignettes, two per mental-health problems, i.e., there were two GAD vignettes. Per vignette an open question about recognition was presented in combination with the vignette. Once participants had proceeded to the next page, they could not return to the previous page. Lastly, information about participants' job and experience was requested. The questionnaire took approximately 30 minutes to complete and participants were not rewarded for their participation. The study was ethically approved by the ethical committee of the VU University, Amsterdam.

Statistical Analysis

Analysis was conducted using the program *Statistical Package for Social Sciences* (SPSS) 25.0 (IBM corporate, 2017). Logistic regression was chosen for analyses because of the categorical nature of the data (Field, 2013). The dependent variable (*recognition*; dichotomous) was the outcome variable for the analysis. The independent variable *type of health-care professional* (nominal level) was made into a dummy variable for logistic regression in SPSS. Before the logistic regression analysis could be carried out, some assumptions for logistic regression must be met, namely: multicollinearity, the influence of

outliers and influential cases (Field, 2013). The data is not independent since almost every participant evaluated two vignettes for GAD. It was not possible to control for the nested element of the data. However, the influence of the nested data is expected to be minimal, since less than 50% of the data is nested. Nevertheless, the results should be interpreted carefully. For all analysis, a significance level of $p < .05$ is maintained.

In the first model, *gender of the child* was included to the constant model as a predictor and *recognition of GAD* as the dependent variable. The hierarchical (blockwise entry) method was used, since specific expectations have been made about the role of the predictors in the model (Field, 2013) based on few studies. In the second step, *the type of professional* was added to the model and finally, an interaction term *gender of the child x type of professional* was added in a third model. In all steps of analysis, *experience of the health-care professional* and *age of the health-care professional* were added to the model as covariates, to control for the heterogeneity of HCPs. The chi-square of the different models indicated which model fits the data best. A significant change between model two and three implies that the addition of the variable to the model influences the fit.

Results

Prior to testing hypotheses, descriptive statistics were calculated. 408 HCPs evaluated 816 vignettes. Of the vignettes, 254 (31.1%) were evaluated by psychologists, 180 (22.1%) by pedagogues, 36 (4.4%) by psychiatrists, 178 (21.8%) by paediatricians, 64 (7.8%) by teacher/mentors and 104 (12.7%) by social workers. Of the evaluated vignettes, 434 (53.2%) described boys with GAD, the remainder 382 (46.8%) described girls with the same disorder. Regardless of the child's gender, or type of HCP, 481 (58.9%) of children with GAD were recognized; 335 (41.1%) of the children with GAD were, therefore, not recognized.

The assumptions for logistic regression were tested. The collinearity statistics (VIF=1.536, Tolerance=0.702) showed no cause for concern regarding multicollinearity

(Field, 2013; Menard, 1995). The casewise list produced one case with a standardized residual above 2 (SResid= -2.37). Since this case is below 3, we can assume that it is not an outlier (Field, 2013). Influential cases are examined by Cook's distance and leverage. Cook's distance shows that only one case has a value above 1 (1.005). Because this is just slightly above the criteria, the case does not have such an influence on the data. Concerning leverage, 168 cases are found to be three times greater than the average leverage (0.007). This means that these cases can be influential, however since the sample (*n*) is large the effect might be small (Field, 2013). The assumptions have been met.

In order to test our three hypotheses, a binary logistic regression was conducted, using three models. The model summary shows that the final model, including the interaction term, x^2 (df=13, N=816) = 50.11, p<.001, best fits the data, explaining between 6-8% of the variance in recognition of GAD (Cox and Snell = .06, Nagelkerke = .08).

In model 1 *gender of the child* was added to the constant model to examine potential differences in recognition of boys and girls with GAD. The model was not significant, x^2 (df= 3, N=816) = 3.79, p = .285, Cox and Snell = .005, Nagelkerke = .006. That is, gender does not improve the predictive accuracy of our model. Furthermore, Hosmer and Lemeshow test showed that the model is not a good fit for the data, x^2 (df=8, N=816) = 27.657, p=.001. Results show no effect of gender on recognition of GAD, Wald = <0.001, p=.977. Coefficients for the model's predictors are presented in Table 1. GAD is recognized by professionals in 256 (59.0%) of the vignettes describing boys versus 225 (58.9%) of the vignettes describing girls. The first hypothesis that girls would be better recognized than boys is, therefore, rejected.

Table 1

Predictor Coefficients for the model predicting recognition of GAD by gender of the child and the control variables (N=816)

	B (SE)	**Wald**	***p***	**Exp(B) [95% BI]**
Constant	0.84 (0.31)	7.25	.007	2.32

Gender of the child				
Female [a]	0.00 (0.14)	0.00	.977	1.00 [0.76, 1.33]
Control variables				
Exp HCP's	-0.04 (0.06)	0.41	.521	0.96 [0.85, 1.09]
Age HCP's	-0.14 (0.14)	0.89	.346	0.87 [0.66, 1.16]

Note. CI = confidence interval. Exp HCPs= experience of the health-care professionals. Age HCPs= age of the health-care professionals.
Reference category: [a]Male,
**p* <.05, ***p* <.01, ****p* <.001.

In model 2, *type of professional* was added to the previous model to see if there is a difference between health care professionals in recognizing GAD in children. This model is a significant fit, x^2 (df= 8, N=816) = 37.62, *p* = <.001, Cox and Snell = 0.05, Nagelkerke = 0.06. This model is better in predicting the recognition of GAD than the previous model. Type of HCP is a significant predictor for recognition of GAD in children, Wald = 32.67, *p* = <0.001, see Table 2 for coefficients. Thus, some professionals are better at recognizing GAD than others. GAD is recognized by 180 (70.9%) of psychologists, 110 (61.1%) of pedagogues, 24 (66.7%) of psychiatrists, 91 (51.15%) of paediatricians, 31 (48.4%) of teacher/mentors, and 45 (43.4%) of social workers. Further analysis shows there is no difference between psychologists and psychiatrist in terms of recognition of GAD (Wald= 0.09, *p*= .762). However, pedagogues (Wald= 5.35, *p*=.021), paediatricians (Wald= 13.23, *p*<.001), teacher/school-mentors (Wald= 10.02, *p*=.002) and social-workers (Wald= 24.88, *p*=<.001) differ from psychologists. Specifically, psychologists are better at recognizing GAD in children in all cases. Thus, psychologists and psychiatrists are better at recognizing GAD than the other professionals. Pedagogues, however, are less competent in recognizing GAD than psychologists. This partially confirms our hypothesis.

Table 2

Predictor Coefficients for the model predicting recognition of GAD by gender of the child, control variables and type of professionals (N=816)

	***B* (SE)**	**Wald**	***p***	**Exp(B) [95% BI]**
Constant	1.24 (0.35)	12.39	<.001	3.45
Gender of the child				
Female[a]	0.12 (0.15)	0.62	.432	1.12 [0.84, 1.50]

Control variables				
Age HCP's	-0.10 (0.15)	0.41	.522	0.91 [0.67, 1.23]
Exp HCP's	-0.05 (0.07)	0.59	.444	0.95 [0.84, 1.08]
Type of professional				
Pedagogue[b]	-0.48 (0.21)*	5.35	.021	0.62 [0.41, 0.93]
Psychiatrist[b]	-0.12 (0.38)	0.09	.762	0.89 [0.42, 1.89]
Paediatrician[b]	-0.77 (0.21)***	13.23	<.001	0.46 [0.31, 0.70]
Teacher/mentor[b]	-0.92 (0.29)**	10.02	.002	0.40 [0.23, 0.70]
Social-worker[b]	-1.22 (0.25)***	24.88	<.001	0.29 [0.18, 0.47]

Note. CI = confidence interval. Exp HCPs = experience of the health-care professionals. Age HCPs= age of the health-care professionals.
Reference category: [a]Male, [b]Psychologist.
*p <.05, **p <.01, ***p <.001.

In the third and final model, the Gender x Type of Professional interaction term was added to the previous model. This step significantly improved the model, x^2 (df= 13, N=816) = 50.11, p <.001), and was better again at predicting the recognition of GAD. However, the interaction term did not reach statistical significance, Wald= 9.67, p= .085, see Table 3 for coefficients. Therefore, type of HCP does not moderate the relationship between gender of the child and recognition of GAD. That is, differences in recognition of GAD in boys and girls is not influenced by type of HCP. GAD in boys is recognised by 112 (70.9%) of psychologists, 60 (66.7%) of pedagogues, 11 (50.0%) of psychiatrists, 40 (45.5%) of pediatricians, 14 (46.7%) of teacher/mentors and 19 (41.3%) of social workers. GAD in girls is recognised by 68 (70.8%) of psychologists, 50 (55.6%) of pedagogues, 13 (92.9%) of psychiatrists, 51 (56.7%) of pediatricians, 17 (50.0%) of teacher/mentors and 26 (44.8%) of social workers. This result denies the hypothesis.

Table 3

Predictor Coefficients for the model predicting recognition of GAD by gender of the child, control variables, type of professional and gender of the child x type of professional (N=816)

	***B* (SE)**	**Wald**	***p***	**Exp (B) [95% BI]**
Constant	1.27 (0.36)***	12.35	<.001	
Gender of the child				
Female[a]	0.03 (0.29)	0.01	.914	1.03 [0.59, 1.81]
Control variables				
Age HCPs	-0.09 (0.16)	0.37	.546	0.91 [0.67, 1.23]
Exp HCPs	-0.06 (0.07)	0.71	.400	0.95 [0.83, 1.08]
Type of professional				

GAD recognition				
Pedagogue[b]	-0.23 (0.29)	0.62	.430	0.80 [0.46, 1.40]
Psychiatrist[b]	-0.82 (0.47)	3.12	.077	0.44 [0.18, 1.09]
Paediatrician[b]	-0.97 (0.28)***	11.66	.001	0.38 [0.22, 0.66]
Teacher/Mentor[b]	-0.94 (0.41)*	5.25	.022	0.39 [0.18, 0.87]
Social-worker[b]	-1.25 (0.35)***	12.94	<.001	0.29 [0.15, 0.57]
Gender of the child x type of professional				
GAD recognition				
Female[a] x pedagogue[b]	-0.48 (0.42)	1.32	.252	0.62 [0.27, 1.41]
Female[a] x psychiatrist[b]	2.60 (1.16)*	5.05	.025	13.52 [1.40, 131.04]
Female[a] x paediatrician[b]	0.42 (0.42)	1.02	.313	1.52 [0.67, 3.44]
Female[a] x teacher/mentor[b]	0.06 (0.58)	0.01	.917	1.06 [0.34, 3.31]
Female[a] x social-worker[b]	0.07 (0.49)	0.02	.881	1.08 [0.41, 2.83]

Note. CI = confidence interval. Exp HCPs = experience of the health-care professionals. Age HCPs= age of the health-care professionals.
Reference category: [a]Male, [b]Psychologist.
*p <.05, **p <.01, ***p <.001.

Discussion

This study aimed to examine and compare different mental-health professionals in their ability to recognize GAD in boys and girls. Early recognition of GAD in children and youth is crucial because misdiagnosis or absence of a diagnosis can dramatically increase the likelihood of GAD becoming chronic (Bernstein et al., 1997).

Results showed that GAD is poorly recognized, with only 59% of children with GAD recognized. This is in line with previous research which showed that only 34% of patients were recognized by doctors (Wittchen et al., 2002). It is possible that GAD is so poorly recognized due to the internalizing nature of the disorder (Mesman & Koot, 2000), the high comorbidity with, for instance, depression (Kartal, Coskun, & Dilbaz, 2010; Wittchen et al., 2002) and the somatic problems children often report when experiencing anxiety (Shear & Schulberg, 1995). This result has implications for clinical practice and for children and their families. It is of importance that HCPs learn more about GAD symptoms and how to prevent overlooking GAD, through education and training. Overlooking GAD or delays in recognition may lead to longer diagnostic processes than necessary, absence of treatment and thus, an increased chance of GAD becoming chronic (Bernstein et al, 1997).

In contrast to our hypothesis, there was no difference in recognition of GAD between boys and girls. These findings correspond with some previous research (Gater et al., 1988; Lavigne et al., 2009; Wittchen et al., 1998). This means that in practice boys are not at risk for not being recognized. It could be that the symptoms in the vignettes did not differ between boys and girls and therefore stereotypes might not be activated by HCPs. In the clinical practice, however, prejudices and stereotypes might be of more importance in recognition.

The current study provides evidence that different types of HCPs vary in their ability to recognize GAD. As hypothesized, psychologists and psychiatrists were better able to recognize GAD than the other HCPs. This result was to be expected, since psychologists and psychiatrists are specialized in mental disorders (Goldberg & Huxley, 2012). However, pedagogues were less competent in recognizing GAD, which is a notable result, since pedagogues are exposed to children on a regular basis and are also educated in mental disorders (Burke et al., in press). Teacher/mentors, paediatricians and social workers were also found to be less competent in recognizing GAD. Given that social workers are broadly educated, and their occupations are diverse, their knowledge of mental-health problems may be minimal, so this result is not surprising (Kluft & van der Haterd, 2012). This has implications for practice, since, in the current health-system, access to a psychologists or psychiatrists is often provided via a pedagogue, paediatrician or social-worker (Zwaanswijk, Van Der Ende, Verhaak, Bensing, & Verhulst, 2005). This suggests that children might often not receive the help they need. Furthermore, these findings show that in every setting where children can be evaluated, a psychologist or psychiatrist is needed.

Regarding the third hypothesis of this study, the relationship between gender and recognition of GAD was not moderated. This question was exploratory, since there is not much research about it. This result, therefore, adds something to the minimum of what is known about recognition of GAD.

Strengths and Limitations

Although this study had many strengths such as the ability to look at different type of HCPs and the use of vignettes, which is a reliable, valid and practical method for assessing clinical practice (Bachmann et al., 2008). There were also some limitations that must be considered. For example, ninety percent of the HCPs that participated in this study were female; therefore, it is not clear whether the results can be applied to male HCPs. Although, this sample is representative for the population of HCPs in general (Marsella, 2011). Furthermore, the groups of psychiatrists and teacher/mentors were small, thus the reliability of the results concerning those HCPs is questionable. Further, we could not control for the nested data, which could have influenced the results. Lastly, the results were based on evaluated vignettes. Reading a vignette is somehow different than experiencing a client in real life. The hypothetical behavior of HCPs might be different than their real behavior in everyday life (Lauder, 2002). Although, a vignette study is not intended to be representative of the actual behavior in the real world, but rather as predictors of it (Wallander, 2012). This study showed that type of HCPs is a predictor for recognition of GAD in children and adolescents.

Future research can aim on more representative groups of psychiatrists and teacher/mentors. Also, it would be interesting to create vignettes with symptoms based on previous literature about gender differences. In the vignettes, boys (e.g. problem-solvactively coping with anxiety) could present different symptoms than girls (e.g. avoidant behavior). In that way investigations can be done at potential differences in gender stereotypes and recognition of GAD by HCPs.

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Appendix Example of a vignette

Problem type: GAD

Gender: Female

Age: Adolescent

Jaishree has just turned 15 years old and is in year 10 at secondary school. She lives with her mum, dad and little sister in Venlo. Her dad works as a security guard and her mum is a housewife. Jaishree's parents are of Indian descent but met each other in Amsterdam where they were both born and bred. Multiple teachers have indicated that Jaishree is cooperative and hardworking but that her constant worries about everyday things are hindering her functioning at school. Jaishree worries excessively about her health and her future. She needs constant reassurance that she's doing well. Jaishree's parents also have difficulties reassuring her and don't know how to deal with her worries.