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Factors Associated With Adolescent Mental Health Service Need and Utilization

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ABSTRACT

Objective: To determine the association of parent, family, and adolescent variables with adolescent mental health service need and utilization. **Method:** Correlates of adolescent mental health service utilization, self-perceived need and unmet need were investigated in a general population sample of 1,120 Dutch adolescents aged 11 to 18 years (78% response rate). **Results:** 3.1% of the sample had been referred for mental health services within the preceding year, and 3.8% reported unmet need. 7.7% of adolescents at risk for psychopathology, and 17.8% of those indicating a need for help, had been referred. Family stress and adolescent's self-reported problems were most strongly associated with service need and utilization. Internalizing problems, female gender, and low education level were associated with self-perceived unmet need. Adolescent ethnicity and competence in activities and school were associated with service use, but did not influence service need, while the opposite effect was found for adolescent age and parental psychopathology. **Conclusion:** In designing intervention programs aimed at increasing adolescent mental health service use, distinctions should be made between efforts focused at adolescents not recognizing their problems, and those with unmet need.

Studies have repeatedly shown that a substantial proportion of adolescents in the community meet criteria for emotional or behavioral psychopathology (Fergusson et al., 1993; McGee et al., 1990; Saunders et al., 1994; Whitaker et al., 1990). Although these problems can hamper everyday functioning and well-being, many adolescents with disorders do not receive specialist mental health services, while utilization of these services in adolescence may be particularly salient for preventing persistence of psychopathology into adulthood (cf. Feehan et al., 1993; Harrington et al., 1996). Saunders et al. (1994) reported that 23% of adolescents who identified themselves as having a mental health problem had sought professional help in the preceding year. Likewise, 28% of a sample of

Finnish adolescents, whose parents perceived them as having significant behavioral or emotional problems, had been in contact with mental health services. Of adolescents who perceived themselves as having a serious problem, only 13% had been referred (Sourander et al., 2001).

To understand the discrepancy between the proportion of adolescents with a psychiatric disorder and the proportion receiving mental health care, it is important to investigate factors that influence the process leading to receiving professional help (Goldberg and Huxley, 1980, 1992; Verhulst and Koot, 1992). In an 8-year follow-up, Sourander et al. (2001) studied concurrent and predictive associations of several child and family factors and service use at age 16. At the age of 8, the most potent predictors of later referral were parent-reported total behavior problems and antisocial problems, the teacher's perception of the child's need for referral, and living in other than a biological two-parent family. At age 16, parent-reported externalizing, internalizing, and total behavior problems; self-reported total competence; and family composition were associated with mental health service use.

Many studies on mental health service use for child and adolescent psychopathology treat help-seeking as a one-step process, i.e., they investigate whether or not help is being sought and which variables are associated with one or the other. However, because the majority of psychiatrically disturbed adolescents do not seek professional help, it is also important to know whether they feel the need to seek help but do not translate this need into help-seeking actions, or whether they do not at all recognize the problematic nature of their state. Therefore, to attain a more complete picture of the help-seeking process, studies should focus on correlates of mental health service need as well as utilization. Two studies that explicitly made this distinction are those by Saunders et al. (1994) and Verhulst and Van der Ende (1997). In a large school-based sample of adolescents, Saunders et al. found a history of abuse, poor self-rated physical health, suicidal ideation, and female gender to be related to adolescents' need for professional help. Actually obtaining professional help was associated with suicidal ideation, informal help-seeking, the interaction between race and socioeconomic status, parental marital status, and having had a medical checkup within the previous year.

In a general population sample of children and adolescents aged 4 to 18 years, Verhulst and Van der Ende (1997) found the child's internalizing, externalizing, and academic problems and family stress to be the most potent factors associated with mental health service need and utilization. Parental and family psychopathology, life events, the absence of siblings, child age, and the presence of a physical handicap in the child were associated with an increased chance of parent-reported mental health service need, but did not increase the likelihood of service utilization.

In addition to studying factors associated with mental health service need and utilization, it is also important to study correlates of unmet need, which is defined as the presence of psychopathology and associated functional impairment, for which no mental health services have been received (Brewin et al., 1987; Flisher et al., 1997). Seventeen percent of children and adolescents in the study by Flisher et al. met these criteria. Unmet need was significantly associated with indicators of socioeconomic disadvantage, parents' and children's opinions that the latter had poor mental health, parental psychopathology, poor school grades, and parental beliefs regarding their child's opinion of mental health services.

We used a somewhat different definition of unmet need, as we did not include an objective measure of psychopathology and functional impairment, but instead used adolescent self-reporting of a need for professional help without having obtained it as operationalization of unmet need. To distinguish between these different definitions of unmet need, we will refer to our operationalization as "self-perceived unmet need."

In our previous study cited above (Verhulst and Van der Ende, 1997), we found that adolescents were especially reluctant to seek professional help. The present study therefore aims at further unraveling factors influencing adolescent help-seeking.

Instead of treating help-seeking as a one-step process, the present study extends previous findings by assessing three distinct aspects of adolescent help-seeking (mental health referral, need, and unmet need) as related to characteristics of parents, adolescent, and family in a general population sample of 1,120 adolescents aged 11 to 18 years. While our previous study used parents as the main informants, the present study relies on adolescent self-reports of service use and need and the presence of psychopathology, in addition to parental reports of service use.

METHOD

Participants

The sample used in this article is part of a larger study on psychopathology and mental health service use in a Dutch national sample of children and adolescents. We will describe the selection of the original sample (involving subjects aged 4–18 years) before describing the sample used in the present study.

The target population for the original study consisted of all 4- to 18-year-olds who were of Dutch nationality and living in the Netherlands. Respondents were recruited using a stratified multistage cluster and random-sampling design. The population was stratified according to four country regions and four degrees of urbanization. A two-stage sampling procedure was followed, with a selection of clusters in the first stage, followed by a selection of individuals in the second stage. For each stratum, the number of clusters to be selected was determined. The eight largest cities were selected on the basis of cluster size and sampling fraction. Other municipalities were randomly selected within each of the strata with a probability of selection that was proportional to size. In this way, 81 municipalities were selected in addition to the eight largest cities. Municipalities were requested to send names and addresses of a specified number of subjects aged 4 to 18 years on January 1, 1993, equally divided across both sexes and selected randomly from municipal population registers that list all residents.

Trained lay interviewers with previous survey experience visited or phoned the parents to make an appointment for an interview, preferably with the mother. If parents were not initially reached, at least five callbacks were made on different days and at different times of the day. If the subject was 11 years or older, the interviewer handed out a copy of the Youth Self-Report (YSR) (Achenbach, 1991) and explained it to the adolescent. The adolescent was asked to complete the YSR in a room separate from the one where the parent was interviewed, to ensure that information from the adolescent was obtained independently from that of the parents. After the adolescent completed the YSR, it was checked for missing or incorrect information, and any questions were answered. Adolescents also completed a questionnaire concerning demographic features, self-perceived need for help, unmet need, and referral for mental health services. For a more detailed description of methodology, see Verhulst et al. (1997).

A total of 1,120 adolescents aged 11 to 18 years (51.5% boys, 48.5% girls; response rate: 78%) completed the questionnaires. Adolescents were included in the sample only if they were of Dutch nationality. Of the sample, 7.2% had one or both parents who were of Mediterranean origin (mostly Hispanic, Turkish, or Moroccan) or non-Caucasian (mostly black or of Asian descent from former Dutch colonies).

Parental education level was scored on a 7-point scale, with 7 being the highest level. The parent with the highest education level was used to dichotomize the sample in low education level (scores 0, 1, and 2), which comprised 33.7% of the sample, and high education level (scores 3–7), which comprised 66.3% of the sample. Adolescent education level was also dichotomized, resulting in 22.2% scoring low (including no education, special elementary and secondary education for children with learning difficulties, and lower vocational education) and 77.8% scoring high (ranging from general elementary to academic education).

Parental occupation level was scored on a 6-point scale, with 6 being the highest level (Van Westerlaak et al., 1975). If both parents worked, the score for the parent with the highest occupation status was taken. The sample was dichotomized, resulting in 54.2% scoring low (scores 1–3), and 45.8% scoring high (scores 4–6) on occupation level.

Measures

Youth Self-Report. The YSR (Achenbach, 1991) was used to obtain standardized adolescent self-reports of problem behaviors and competencies over the preceding 6 months. The YSR has good reliability and discriminative validity in both American (Achenbach, 1991) and Dutch samples (Verhulst et al., 1989).

The YSR scores were dichotomized into those in the normal range versus those in the borderline or clinical range of the distributions based on the Dutch normative sample. A *T* score of 67 was used as cutoff point for the syndrome scales, a *T* score of 37 as cutoff point for the competence scales, and a *T* score of 60 as cutoff point for the Total Problems, Internalizing, and Externalizing scales (Achenbach, 1991).

Current Demographic and Help-Seeking Features Interview. Three help-seeking variables were measured: (1) referral for specialized mental health services, (2) adolescent's report of having problems that are more serious than other adolescents' problems (problem recognition or need), and (3) adolescent's report of a need for professional help without having obtained it (self-perceived unmet need). Parent, family, and adolescent variables thought to be relevant for understanding the help-seeking process were assessed during the interview (Table 1). All variables pertained to the 12 months preceding the assessment. All scores were dichotomized.

Statistical Analyses

To determine the strength of the association between parent, family, and adolescent variables and the three help-seeking factors, simple logistic regression analyses were performed for each association separately.

Stepwise multiple logistic regression analyses were performed to determine the unique contribution of each of the parent, family, and adolescent variables to an increase in the likelihood of the help-seeking variables over and above the effect of all other variables. The hierarchical relationship of the eight YSR syndrome scales, the Externalizing, Internalizing, and Total Problems scale made it necessary to perform regression analyses on three different sets of variables: one including the Total Problems score, the second including Externalizing and Internalizing scores, and the third including the eight syndrome scales.

RESULTS

Thirty-five adolescents (54% boys; 46% girls) reported a referral for mental health services in the 12 months preceding the assessment. This represents 3.1% of the total sample. Of the 209 adolescents who scored in the deviant range of the YSR Total Problems scale, only 7.7% had been referred for mental health services. However, of the 35 adolescents who were referred, 45% were in the deviant range on the YSR Total Problems scale.

Of the total sample, 425 adolescents (37.9%) perceived themselves as having a behavioral or emotional problem. Of these adolescents, only 6.4% were referred for mental health services. Of the 118 adolescents (10.5% of the total sample) who reported having a behavioral or emotional problem, more serious than other adolescents' problems, 17.8% were referred.

Forty-two adolescents (3.8% of the total sample) reported having a need for professional help, without having obtained it.

Simple Logistic Regression Analyses

Results are listed in Table 2. Only significant odds ratios are reported. Sociodemographic variables, such as ethnicity and adolescent education level, aspects of family composition, and adolescent problem and competence scales were significantly related to mental health referral.

Adolescents' need for help was significantly associated with parental psychopathology, aspects of family composition, and all YSR problem scales. Girls and older adolescents were more likely to report a need for help than boys and younger adolescents.

The likelihood of self-perceived unmet need was increased for girls, older, and less-educated adolescents. All YSR problem scales except for Withdrawn and Social Problems were identified as increasing the likelihood of self-perceived unmet need.

Multiple Logistic Regression Analyses

Results are shown in Table 3 for each of the three sets of variables separately. Only variables that were entered and not removed in the stepwise regression procedure are listed. These variables contributed significantly to an increase in the likelihood of the presence of the helpseeking variable.

As in the simple logistic regression analyses, these analyses identified sociodemographic variables and aspects of family composition as significantly increasing the likelihood of mental health referral. YSR Total Problems, Externalizing, two out of eight syndrome scales, and two competence scales were also related to mental health referral.

The multiple regression results for adolescents' need for help were similar to the simple regression results, with the exception that the effect of four YSR syndrome scales disappeared when other variables were controlled for.

For self-perceived unmet need, the effects of adolescent age, Externalizing, and three YSR syndrome scales disappeared in the multiple regression analyses, while the effects of adolescent female gender, low education level, YSR Total Problems, Internalizing, Anxious/Depressed, and Delinquent Behavior remained significant.

DISCUSSION

Of our total sample of Dutch adolescents, 3.1% were referred for mental health services. This figure is lower than the 5.8% reported by Saunders et al. (1994) and the 7% reported by Sourander et al. (2001). These differences may be ascribed to differences in definitions of mental health service use, differences in prevalence rates for adolescent psychopathology between nations (Verhulst et al., 1993; Verhulst et al., unpublished, 2002), or differences in the organization of mental health services in the nations under study.

Of the adolescents scoring in the deviant range of the YSR Total Problems scale, 7.7% had been referred for mental health services, whereas of the adolescents who perceived themselves as having an emotional or behavioral problem, only 6.4% had been referred. These findings are lower than the 13% and 14% referral found for parent-reported Total Problems and parent reports of their child having a behavioral or emotional problem (Verhulst and Van der Ende, 1997). The differences may partly be ascribed to the fact that the 1997 study involved children as well as adolescents, whereas the present study involved only adolescents. However, a comparable difference in the predictive value of parent-reported versus adolescent-reported problems was found by Sourander et al. (2001), who found parental perceptions of problems to be related to 28% referral, whereas adolescents' perceptions were related to 13% referral. Apparently, adolescents who recognize the problematic nature of their behavior and feelings are less likely than parents to translate their concern into help-seeking actions, and they are less able to singlehandedly initiate mental health service use.

The finding that mental health service use increased from 6.4% for adolescents perceiving themselves as having an emotional or behavioral problem, to 17.8% for adolescents who perceived their problems to be serious, indicates the importance of adolescent problem recognition for mental health service use. However, problem recognition is not a sole prerequisite for mental health service use, as 3.8% of the total sample of adolescents reported a need for help, without having obtained it.

Our operationalization of unmet need resulted in a considerably lower figure than Flisher and colleagues' (1997) more objective measure of this concept (3.8 versus 17%). By using a self-report measure of unmet need, adolescents with disorders who do not recognize the problematic nature of their state are not taken into account, resulting in an underestimation of unmet need. On the other hand, adolescents who report unmet need themselves are the ones who are best motivated to obtain care, and the use of a self-report measure will therefore help to identify those adolescents at whom interventions can be directed.

Remarkable is the finding that only 45% of the adolescents who were referred for mental health services in the preceding year also scored in the deviant range of the YSR Total Problems scale. This finding is in sharp contrast to the 71% of referred children scoring in the deviant range on the CBCL Total Problems score (Verhulst and Van der Ende, 1997). As was previously found (Sourander et al., 2001), parent evaluations of child symptoms are apparently more strongly associated with service use than adolescent self-reports, indicating the importance of parents in initiating mental health service use.

Parent Factors

Simple as well as multiple analyses showed a significant effect of ethnicity on adolescent mental health referral. Adolescents from non-Caucasian or Mediterranean descent were more likely to have received mental health care than Caucasian youths. This finding is in contrast with findings of previous studies (Cuffe et al., 1995; Cunningham and Freiman, 1996; McMiller and Weisz, 1996; Wu et al., 2001), in which ethnic minority status was associated with a lower likelihood of children and adolescents receiving mental health care. We should, however, keep in mind the relatively small number of adolescents from ethnic minorities in the present study ($n = 81$) and the probable differences in status and living conditions of ethnic minorities in the countries under study.

After we controlled for the effect of other variables, parental psychopathology was significantly associated with adolescents' perceptions of serious problems, indicating that adolescents with parents

who have psychiatric disorders may have lower thresholds for reporting problems themselves. However, parental psychopathology was not significantly related to mental health referral.

Previous studies have provided contradictory results regarding the effect of socioeconomic variables such as education and occupation level on help-seeking for child psychopathology. In general, the influence of these variables seems to depend largely on a country's health care system. In countries where health care is not readily available to everyone, financial constraints are likely to influence service use, and socioeconomic factors are likely to influence professional help-seeking. In countries like France and the Netherlands, however, where the health care system is organized in such a way that there are no major financial constraints to receiving professional help, socioeconomic variables have been found not to influence mental health service use, even after controlling for the effect of these variables on child psychopathology (Gasquet et al., 1997, 1999; Sourander et al., 2001; Verhulst and Van der Ende, 1997). The present finding that parental education and occupation levels do not exert an influence on any of the three help-seeking variables is in concordance with these previous findings.

Family Factors

As was previously found (Gasquet et al., 1997, 1999; Laitinen-Krispijn et al., 1999; Sourander et al., 2001; Verhulst and Van der Ende, 1997), family factors such as living in a one-parent family and changes in family composition made a unique contribution to adolescent mental health referral and the perception of problems, even after controlling for the influence of other variables.

Although the presence of siblings has been found to decrease the chance of parents' perceiving their child's behavior as problematic (Verhulst and Van der Ende, 1997), family size did not influence adolescent problem recognition or help-seeking. Maybe adolescents are more likely to use their peers instead of siblings as frame of reference against which they judge their behavior, whereas parents are more prone to form an opinion of their child's behavior by comparing their children with each other.

Adolescent Factors

The adolescent's report of the presence of problem behavior was associated with mental health service need, self-perceived unmet need, and referral. However, although Verhulst and Van der Ende (1997) found both parent-reported externalizing and internalizing problems to be associated with service need and utilization, in the present study differential effects of internalizing and externalizing problems on the three help-seeking variables were found. Whereas both internalizing and externalizing problems were associated with adolescents' reports of serious problems, internalizing problems did not increase the likelihood of referral over and above the effect of externalizing problems. While adolescents suffering from internalizing problems did recognize the problematic nature of their state, their need was not converted into referral, which was also reflected in the significant effect of internalizing problems on self-perceived unmet need.

In the multiple logistic regression analyses, two of eight YSR syndrome scales were associated with adolescent mental health referral, and four YSR syndromes were associated with adolescent perception of serious problems. While adolescents with poor competence in activities (i.e., low participation and skill in sports, hobbies, and jobs) and better school results were more likely to be referred, these YSR competence scales were not significantly associated with adolescents' perceptions of serious problems. Although these adolescents do not perceive themselves as having problems, they are probably more likely to follow their parents' or teachers' advice to seek help.

Adolescent girls had higher rates of self-perceived serious problems than adolescent boys, a finding also reported by Saunders et al. (1994). However, mental health referral rates did not differ significantly for boys versus girls. This mismatch between problem recognition and helpseeking can also be derived from the significant association between female gender and self-perceived unmet need.

A similar effect was found for age: older adolescents perceived themselves as having serious problems more often than younger adolescents, but this service need was not effectuated into referral. This finding is in concordance with the elevated noneffectuated parent-reported service need for older children found by Verhulst and Van der Ende (1997). The authors hypothesized that this finding could be ascribed to adolescents' striving for autonomy, which makes them reluctant to actually seek help from professionals. The present results provide confirmation for this statement.

Although parental education level was not associated with any of the help-seeking variables, adolescent education level was significantly related to self-perceived unmet need and mental health

referral in the multiple analyses. Adolescents with low education levels were more likely to experience a need for help without obtaining it and were also more likely to be referred for mental health services.

Limitations

Because of differences between countries' health care systems, caution should be exercised in generalizing these findings to nations with systems unlike the Dutch one, in which no major financial constraints hamper availability of services and in which the general practitioner fulfills a gate-keeping role and mental health care can be obtained only indirectly.

The present study was cross-sectional, thereby limiting the possibility of establishing the causal directionality of the associations found. Future longitudinal studies are needed to further unravel factors influencing the process leading to mental health service utilization.

The results of this study may also be limited because of the reliance on self-report data. We relied on adolescents' judgments of the presence of emotional or behavioral problems, and it is unknown how many adolescents would have met formal diagnostic criteria. On the other hand, an adolescent's report of the presence of emotional or behavioral problems is probably a valid indicator of the distress the adolescent experiences. Moreover, adolescents' self-reports have been found to be valid and reliable (Achenbach, 1991; Verhulst et al., 1989), and clinical researchers have suggested that adolescents' self-reports are critical for the study of emotional disturbance (Edelbrock, 1987; Weissman et al., 1980).

The present study did not specifically address possible reasons for service need not being effectuated into referral (e.g., demand exceeding supply), but a study currently being conducted does.

Finally, our data set did not contain any information about adolescents' use of informal sources of help, such as family and friends. Since several researchers (e.g., Rickwood and Braithwaite, 1994; Saunders et al., 1994) have shown the importance of informal help-seeking for adolescents and have shown that factors that influence professional help-seeking are not necessarily the same as those that influence informal help-seeking, future studies should explicitly involve both kinds of help.

Clinical Implications

The distinction made in the present article between need for help, unmet need, and mental health service utilization is valuable for designing new intervention programs. Adolescents who do not recognize the problematic nature of their state (i.e., those scoring in the deviant range of a screening instrument for psychopathology, but not indicating a need for help) could benefit from interventions focused at providing information about the nature of mental health problems and how common they are. Adolescents who report unmet need should be provided with information about how and where to get professional help. The latter kind of intervention may also be important for adolescents who are less conscious of their unmet need, but who do report a need for help which is not effectuated into referral.

Indicators of family stress and the presence of problem behaviors were the most potent factors associated with adolescent mental health service need and utilization. Differential effects were found for internalizing and externalizing behavior problems: while both types of problems were related to service need, internalizing problems did not increase the likelihood of referral over and above the effect of externalizing problems. Adolescents with internalizing problems apparently do recognize their problems, but these concerns are not effectuated into mental health referral. Mental health professionals and others working with adolescents should therefore focus their efforts to reduce adolescents' thresholds for mental health service use specifically at adolescents with internalizing problems.

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TABLES

TABLE 1
Demographic and Help-Seeking Variables Included
in the Present Study ($N = 1,120$)

Help-seeking variables

- Adolescent report of referral for specialized mental health services (3.1% yes vs. 96.9% no)
- Adolescent report of having problems that are more serious than other adolescents' problems (problem recognition or need) (10.5% yes vs. 89.5% no)
- Adolescent report of need for professional help without having obtained it (self-perceived unmet need) (3.7% yes vs. 96.3% no)

Parent variables

- Education level (66.3% high [scored 0] vs. 33.7% low [scored 1])
- Occupation level (45.8% high [scored 0] vs. 54.2% low [scored 1])
- Ethnicity (92.8% Dutch [scored 0] vs. 7.2% non-Caucasian or Mediterranean [scored 1])
- Parental psychopathology (88.8% normal range [scored 0] vs. 11.2% at or above P90 [scored 1])

Family variables

- One-parent family (8.1% yes vs. 91.9% no)
- No. of children in family under 18 years (23.5% one [scored 0] vs. 76.5% more than one [scored 1])
- Parent report of any change in family composition (3.0% yes vs. 97.0% no)

Adolescent variables

- Gender (51.5% boys [scored 1] vs. 48.5% girls [scored 0])
- Age (51.9% 11–14 years [scored 1] vs. 48.1% 15–18 years [scored 0])
- Education level (77.8% high [scored 0] vs. 22.2% low [scored 1])

Note: All variables were entered as 1 = yes, 0 = no, unless noted otherwise.

TABLE 2
 Results From Simple Logistic Regression Analyses for Three Help-Seeking Variables

	Mental Health Referral (<i>n</i> = 35)		Self-Perceived Need for Help (<i>n</i> = 118)		Self-Perceived Unmet Need (<i>n</i> = 42)	
	OR	95% CI	OR	95% CI	OR	95% CI
Parent						
Education level						
Occupation level						
Non-Caucasian or Mediterranean	3.8	1.7–8.7				
Psychopathology			2.0	1.2–3.3		
Family						
One-parent family	3.2	1.4–7.2	2.3	1.4–4.0		
No. of children <18						
Change in family composition	5.5	2.2–14.1	4.7	2.5–9.1		
Adolescent						
Gender			0.5 ^a	0.4–0.8	0.4 ^a	0.2–0.8
Age			0.4 ^b	0.3–0.7	0.5 ^b	0.3–0.9
Education level	3.4 ^c	1.7–6.7			2.0 ^c	1.0–3.8
YSR						
Activities						
Social	4.1	1.7–9.8				
School	3.4	1.3–9.1				
Total Competence						
Withdrawn			4.4	2.3–8.4		
Somatic Complaints			2.8	1.4–5.5	3.0	1.1–8.1
Anxious/Depressed	5.3	2.3–12.3	6.5	3.8–11.1	4.2	1.9–9.5
Social Problems			2.9	1.6–5.5		
Thought Problems	5.2	2.2–12.4	4.9	2.7–8.8	2.7	1.0–7.1
Attention Problems	5.4	2.2–13.0	5.2	2.8–9.3	4.3	1.8–10.2
Delinquent Behavior	3.9	1.7–9.3	4.7	2.7–8.1	4.4	2.0–9.6
Aggressive Behavior	4.7	2.0–10.6	2.2	1.2–4.0	2.5	1.0–6.2
Internalizing	2.5	1.2–5.1	4.5	3.0–6.7	5.5	3.0–10.3
Externalizing	4.2	2.1–8.4	3.5	2.3–5.2	2.8	1.4–5.3
Total Problems	3.9	2.0–7.7	5.2	3.5–7.8	4.7	2.5–8.8

Note: All odds ratios were significant at $p < .05$. Due to rounding, some confidence intervals include the value 1.0, which was in fact somewhat larger. OR = odds ratio; CI = confidence interval; YSR = Youth Self-Report.

^a Greater likelihood for girls versus boys.

^b Greater likelihood for older (15–18) versus younger (11–14) adolescents.

^c Greater likelihood for low versus high education level.

TABLE 3
 Results From Multiple Logistic Regression Analyses for Three Help-Seeking Variables

	Mental Health Referral (<i>n</i> = 35)		Self-Perceived Need for Help (<i>n</i> = 118)		Self-Perceived Unmet Need (<i>n</i> = 42)	
	OR	95% CI	OR	95% CI	OR	95% CI
I. Analysis including YSR Total Problems						
Family						
One-parent family	3.6	1.5–8.7	2.3	1.3–4.1		
Change in family composition	9.5	3.3–27.2	6.5	3.2–13.5		
Adolescent						
Gender			0.5 ^a	0.3–0.8	0.4 ^a	0.2–0.8
Age			0.5 ^b	0.3–0.7		
Education level	2.9 ^c	1.4–6.0				
YSR						
Activities	4.0	1.6–10.3				
School	0.2	0.0–0.9				
Total Problems	3.8	1.9–7.9	4.9	3.2–7.4	4.8	2.6–9.1
II. Analysis including YSR Int and Ext						
Parent						
Non-Caucasian or Mediterranean	2.7	1.1–7.0				
Family						
One-parent family	2.9	1.2–7.3	2.8	1.6–5.0		
Change in family composition	7.3	2.5–21.6	6.0	2.9–12.4		
Adolescent						
Gender			0.5 ^a	0.3–0.7	0.4 ^a	0.2–0.8
Age			0.4 ^b	0.3–0.7		
Education level	2.8 ^c	1.4–5.8			2.0 ^c	1.0–3.8
YSR						
Activities	4.1	1.6–10.7				
School	0.2	0.0–1.0				
Externalizing	3.5	1.7–7.3	2.3	1.5–3.6		
Internalizing			3.6	2.3–5.7	5.6	3.0–10.6
III. Analysis including YSR syndromes						
Parent						
Non-Caucasian or Mediterranean	2.8	1.1–7.3				
Psychopathology			1.8	1.1–3.1		
Family						
One-parent family	2.5	1.0–6.4	2.2	1.2–4.1		
Change in family composition	5.5	1.9–16.0	5.7	2.7–12.1		
Adolescent						
Gender			0.5 ^a	0.3–0.8	0.4 ^a	0.2–0.8
Age			0.5 ^b	0.3–0.8		
Education level	3.2 ^c	1.6–6.6			2.0 ^c	1.0–3.8
YSR						
Activities	5.3	2.1–13.5				
Withdrawn			2.3	1.0–4.9		
Anxious/Depressed	4.0	1.5–10.5	4.0	2.1–7.8	3.9	1.7–9.2
Thought Problems	3.5	1.2–9.7	2.7	1.3–5.5		
Delinquent Behavior			3.2	1.8–6.0	3.3	1.5–7.6

Note: All odds ratios were significant at $p < .05$. Due to rounding, some confidence intervals include the value 0.0, which was in fact somewhat larger. OR = odds ratio; CI = confidence interval; YSR = Youth Self-Report; Int = Internalizing; Ext = Externalizing.

^a Greater likelihood for girls versus boys.

^b Greater likelihood for older (15–18) versus younger (11–14) adolescents.

^c Greater likelihood for low versus high education level.