Is the Next Generation of Physicians Adequately Prepared to Diagnose and Treat Eating Disorders in Children and Adolescents?

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Is the Next Generation of Physicians Adequately Prepared to Diagnose and Treat Eating Disorders in Children and Adolescents?

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This study examined medical residents’ comfort with and knowledge of eating disorder assessment and treatment practices for children and adolescents. Since entering medical school, the majority of respondents reported receiving fewer than 5 hours of training in this area. Participants reported feeling more comfortable with the assessment of eating disorders than with their medical management and treatment. Questions testing participants’ knowledge in these domains reflected this finding; participants did well on the assessment questions, but quite poorly on the treatment questions. Intensity of training and self-reported comfort with these skills predicted residents’ knowledge, suggesting that additional training opportunities are warranted.

Eating disorders (ED) are one of the most prevalent chronic health conditions among adolescent females, third only to asthma and obesity (Golden et al., 2003). These illnesses are associated with psychosocial impairments, as well as a number of medical consequences, including stunted growth and osteoporosis (Rosen & the Committee on Adolescence, 2010). Eating disorder
symptoms among children and adolescents that are not treated promptly can become chronic (Loeb & le Grange, 2009; Treasure & Russell, 2011), leading to impaired quality of life and exorbitant health care costs (National Institutes of Mental Health, 2001). As such, it is imperative that treatment providers are able to identify early signs and symptoms, make accurate diagnoses, and provide evidence-based treatment in order to prevent eating disorders from becoming chronic and entrenched.

Despite the serious psychosocial impairments and medical complications associated with eating disorders, previous research has shown that the majority of physicians are dissatisfied with the quality of training they have received in the assessment and treatment of eating disorders in general (Boule & McSherry, 2002; Clarke & Polimeni-Walker, 2004), and with children and adolescents specifically (Lafrance Robinson, Boachie, & Lafrance, 2013a). For example, Lafrance Robinson et al. (2013a) found that the vast majority of family physicians surveyed (90%) reported low levels of self-competence with regard to the assessment and treatment of eating disorders in children and adolescents.

Similar levels of dissatisfaction have been reported by medical residents with respect to their training in eating disorders. In 2006, Williams and Leichner reported that only 24% of residents viewed their classroom education regarding eating disorders as adequate, and only 6% viewed their clinical experiences with eating disorders as adequate. There are no recent data, however, to indicate whether satisfaction with ED training has improved in the last ten years, and there have been no studies examining satisfaction with ED training among medical residents with respect to child and adolescent populations specifically. This last point is especially important since assessment and treatment protocols for children and adolescents have evolved greatly in the last 10 years, and are quite different from those used in general practice. For example, with respect to assessment, specialized knowledge is required to diagnose eating disorders in children and adolescents as these illnesses often present very differently than they do in adults (Nichols, Chater, & Lask, 2000; Rosen, & the Committee on Adolescence, 2010). Rather than weight loss, a failure to achieve expected gains in height and weight can be indicative of a diagnosis of anorexia nervosa in a child or adolescent. Similarly, children and adolescents who are restricting their food intake may not appear underweight but their height and weight trajectories will move away from their expected courses. Severity indices and markers are also assessed differently in younger patients.

In terms of treatment, Family Based Therapy (FBT) is now considered the outpatient intervention of choice for adolescents with eating disorders (Loeb & le Grange, 2009). This outpatient therapy model consists of three phases that span a period of 6–12 months. The first phase of the treatment model is focused on supporting the parents to promote weight gain in their child, in addition to interrupting symptoms and normalizing eating patterns and food choices. Once the child’s weight nears full restoration,
the second phase of treatment is initiated, and the clinician supports the family to return control over eating to the adolescent. In the third and final phase of treatment, the family works toward restoration of healthy relationships and autonomy for the adolescent (le Grange, 1999; le Grange, Lock, & Dymek, 2003; Lock, le Grange, Agras, & Dare, 2001). Throughout each phase, medical management is necessary to support the intervention. FBT differs from traditional ED therapies in significant ways. For example, FBT does not require motivation on the part of the adolescent (since it is an expected feature of the illness) and the responsibility for recovery is trusted to parents. As such, individual therapy and/or working with adolescents on their motivation levels is discouraged as these practices could interfere with the FBT process and can increase the likelihood that behaviors become more entrenched over time. Although FBT is characterized by family involvement throughout the assessment and treatment process, a recent study found that a large proportion of family physicians did not regularly involve families in either domain (Lafrance Robinson, Boachie, & Lafrance, 2013b).

The Current Study

Treatment providers must be aware of the differences outlined above to properly diagnose and treat eating disorders in children and adolescents. As such, the current study will explore: (a) medical residents' knowledge of and comfort with ED assessment and treatment practices in child and adolescents; (b) the intensity of child and adolescent ED training received over the course of their studies; and (c) the relationship between overall training hours and self-assessed competence and knowledge about eating disorders in children and adolescents.

METHOD

A 19-item survey, informed by previously used survey instruments, was developed (Boule & McSherry, 2002; Clarke & Polimeni-Walker, 2004; Lafrance Robinson et al., 2013a, b). Several clinicians reviewed a draft of the survey and revisions were made based on their feedback. Information about the survey was sent to medical education coordinators at all seventeen Canadian residency programs and a request was made that a link to the web-based survey be distributed to medical residents training in family medicine, pediatrics, psychiatry, internal medicine, emergency medicine, and obstetrics and gynecology. The survey required 10–15 minutes to complete, and residents who completed the survey were entered into a drawing for a $100 gift card.

According to the Canadian Post-M.D. Education Registry (2012–2013), a total of 6761 potential participants were completing postgraduate training...
in the specified fields at the time the survey was disseminated. Of the 880 participants who completed the survey, 31.1% were training in family medicine, 10.8% were training in pediatrics, 24.2% were training in psychiatry, 17.2% were training in internal medicine, 7.8% were training in emergency medicine, and 8.9% were training in obstetrics and gynecology. The majority of participants were in either year one (33.6%) or year two (31.1%) of their postgraduate medical training, with the remainder in year three (18.0%), year four (10.5%), year five (6.7%), or beyond (0.1%).

**RESULTS**

**Intensity of Training**

The number of hours of training received since entering medical school in the assessment and treatment of eating disorders in children and adolescents are reported in Table 1 (by year of residency) and Table 2 (by specialty). Approximately 70% of participants reported receiving 5 or fewer hours of training in child and adolescent eating disorders. The adjusted standardized residuals (ASR) produced with contingency table analyses were examined to locate group differences associated with individual response values. An ASR value > 2 was considered significant. For Table 1, these comparisons showed that first-year residents were more likely than expected to have received 5 or fewer hours of training, and less likely than expected to have received more than 10 hours of training. Residents in their fourth year and beyond were more likely than expected to have received more than 10 hours of training. In Table 2, comparisons revealed that family medicine, internal medicine, OB-GYN, and emergency medicine residents were more likely than expected to have received 5 or fewer hours of training and less likely than expected to have received more than 10 hours of training. Pediatric and psychiatry

**TABLE 1** Frequencies and Percentages (Within Each Year of Residency) for Self-reported Hours of Training in the Assessment and Treatment of Child/Adolescent Eating Disorders Across Medical Specialties

<table>
<thead>
<tr>
<th>Year</th>
<th>5 hours or less</th>
<th>6–10 hours</th>
<th>More than 10 hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Residency year one</td>
<td>230</td>
<td>34</td>
<td>31</td>
</tr>
<tr>
<td>78.0%</td>
<td>11.5%</td>
<td>10.5%</td>
<td></td>
</tr>
<tr>
<td>Residency year two</td>
<td>186</td>
<td>41</td>
<td>44</td>
</tr>
<tr>
<td>68.6%</td>
<td>15.1%</td>
<td>16.2%</td>
<td></td>
</tr>
<tr>
<td>Residency year three</td>
<td>104</td>
<td>20</td>
<td>34</td>
</tr>
<tr>
<td>65.8%</td>
<td>12.7%</td>
<td>21.5%</td>
<td></td>
</tr>
<tr>
<td>Residency year four+</td>
<td>97</td>
<td>19</td>
<td>35</td>
</tr>
<tr>
<td>64.2%</td>
<td>12.6%</td>
<td>23.2%</td>
<td></td>
</tr>
</tbody>
</table>

Residents from these subspecialities were recruited on the basis of their likelihood to encounter patients with eating disorders in their current and future practice.
residents were less likely than expected to have received 5 or fewer hours of training and more likely than expected to have received more than 10 hours of training.

Adequacy of Training and Comfort with Diagnosis and Medical Management/Treatment

Participants rated the adequacy of their training in the assessment and treatment of child and adolescent eating disorders in general on a scale from 1 (not at all adequate) to 5 (very adequate). The modal response was 3 (somewhat adequate). Participants also rated their comfort with the identification of symptoms and diagnosis of anorexia nervosa (AN), bulimia nervosa (BN), and eating disorder, not otherwise specified (EDNOS) on a scale from 1 (not at all comfortable) to 5 (very comfortable). The modal responses for AN was 4 (mostly comfortable), whereas the modal response for BN and EDNOS was 3 (somewhat comfortable). Likewise, participants rated their comfort with the medical management/treatment of AN, BN, and EDNOS on a scale ranging from 1 (not at all comfortable) to 5 (very comfortable). The modal responses for AN and BN was 2 (slightly comfortable), whereas the modal response for EDNOS was 1 (not at all comfortable).

Assessment of Eating Disorder-Specific Knowledge

Participants’ knowledge of eating disorder-specific information was assessed using true or false questions (six assessment-related questions and five treatment-related questions). The treatment-related questions came from a revised version of the Parents versus Anorexia Scale in which “anorexia” was changed to “eating disorder” (Rhodes, Baillie, Brown, & Madden, 2005).
### TABLE 3 Responses to True/False Items Assessing Participants’ Knowledge of Assessment and Treatment of Eating Disorders in Children and Adolescents

<table>
<thead>
<tr>
<th>Item</th>
<th>Correct answer</th>
<th>Incorrect answer</th>
<th>&quot;I don’t know&quot;</th>
</tr>
</thead>
<tbody>
<tr>
<td>If you eat 3 meals per day and don’t purge, you’re not likely to have an eating disorder. (False)</td>
<td>86.9%</td>
<td>7.8%</td>
<td>5.0%</td>
</tr>
<tr>
<td>Individuals with bulimia nervosa always purge by vomiting or using laxatives. (False)</td>
<td>85.0%</td>
<td>11.4%</td>
<td>3.2%</td>
</tr>
<tr>
<td>Individuals with anorexia nervosa do not binge or purge. (False)</td>
<td>89.2%</td>
<td>8.4%</td>
<td>1.8%</td>
</tr>
<tr>
<td>Adolescents with anorexia nervosa typically look underweight. (False)</td>
<td>33.1%</td>
<td>61.5%</td>
<td>4.9%</td>
</tr>
<tr>
<td>The majority of adolescents with eating disorders come from dysfunctional families. (False)</td>
<td>78.8%</td>
<td>10.3%</td>
<td>10.3%</td>
</tr>
<tr>
<td>You cannot disclose an eating disorder diagnosis to a parent if the child disagrees. (False)</td>
<td>59.2%</td>
<td>20.3%</td>
<td>20.0%</td>
</tr>
<tr>
<td>Parents cannot be seen as the solution in the treatment of eating disorders until ways in which they have caused it have been properly explored. (False)</td>
<td>59.4%</td>
<td>22.0%</td>
<td>18.0%</td>
</tr>
<tr>
<td>It is not always advisable for parents to get tough with a child with an eating disorder because he/she will experience too much trauma and distress. (False)</td>
<td>33.0%</td>
<td>43.1%</td>
<td>23.3%</td>
</tr>
<tr>
<td>While parents are important, children with eating disorders will never get better until they receive some sort of individual therapy themselves. (False)</td>
<td>20.8%</td>
<td>63.6%</td>
<td>14.9%</td>
</tr>
<tr>
<td>It is more the parents’ responsibility than the child’s to bring their child to recovery from an eating disorder. (True)</td>
<td>10.5%</td>
<td>75.7%</td>
<td>13.0%</td>
</tr>
<tr>
<td>Adolescents need at least some motivation to be able to receive treatment. (False)</td>
<td>14.0%</td>
<td>77.8%</td>
<td>7.4%</td>
</tr>
</tbody>
</table>

Composite scores were created on the basis of the assessment and treatment questions. The items, mean scores and standard deviations are presented in Table 3. Overall, the modal number of assessment-related questions answered correctly was 5 (out of 6), with 81% of participants answering 4 or more questions correctly and 48% of participants answering 5 or more questions correctly. The modal number of treatment-related questions answered correctly was 1 (out of 5), with 59% of participants answering 1 or fewer questions correctly and 85% of participants answering 2 or fewer questions correctly. An independent samples t-test showed that mean scores were significantly higher for pediatrics and psychiatry residents ($M = 4.45$ for assessment-related questions and $M = 1.83$ for treatment-related questions) than for residents in the other specialties ($M = 4.26$ for assessment-related questions and $M = 1.14$ for treatment-related questions).

### Predicting Comfort With Identification of ED Symptoms/Diagnosis

To examine how hours of training and year of residency related to comfort with identification of symptoms/diagnosis (DX), an analysis of variance was
conducted with hours of training (5 hours or less, 6–10 hours, and more than 10 hours) as well as year of residency (one, two, three, and four or more) as the independent variables and comfort with DX as the dependent variable. A main effect of hours of training was observed, $F(3, 863) = 128.157, p < .001$. Bonferroni posthoc analyses showed that comfort with DX was significantly higher at each successive increase in hours of training (all $p$ values less than .001). Year of residency did not predict comfort with DX.

Predicting Comfort With ED Diagnosis and Management/Treatment

To examine how hours of training and year of residency related to comfort with medical management/treatment (TX), an analysis of variance was conducted with hours of training (5 hours or less, 6–10 hours, and more than 10 hours) as well as year of residency (one, two, three, and four or more) as the independent variables and comfort with TX as the dependent variable. A main effect of hours of training was observed, $F(3, 863) = 139.869, p < .001$. Bonferroni posthoc analyses showed that comfort with TX was significantly higher at each successive increase in hours of training (all $p$ values less than .001). Year of residency did not predict comfort with TX.

Prediction of Eating Disorder-Specific Knowledge

In order to determine whether participants’ training intensity and comfort with identification of symptoms/diagnosis (DX) of eating disorders among children and adolescents predicted their assessment-related knowledge of eating disorders in this population, a regression analysis was conducted with total number of true/false assessment questions answered correctly as the dependent variable, and with hours of training and comfort with identification of symptoms/diagnosis as independent variables. The full regression model was significant, $F(4, 871) = 14.545, p < .001$. Comfort with DX predicted higher scores on the true/false questions, $t = 4.439, p < .001$. In addition, participants who received more than 10 hours of training reported higher scores than did participants who received less than 5 hours of training, $t = -2.241, p = .025$, as well as marginally higher scores than did participants who received 6–10 hours of training, $t = -1.733, p = .084$.

In order to determine whether participants’ training intensity and comfort with the medical management/treatment (TX) of eating disorders among children and adolescents predicted their treatment-related knowledge of eating disorders, a regression analysis was conducted with the total number of true/false treatment questions answered correctly as the dependent variable,

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1 Scores were created by summing responses (1 = correct; 0 = incorrect or I don’t know) to each of the true or false questions.
and with hours of training and comfort with treatment as independent variables. The full regression model was significant, $F(4, 869) = 26.509, p < .001$. Comfort with TX predicted higher scores on the true/false questions, $t = 3.245, p = .001$. In addition, participants who received more than 10 hours of training reported higher scores than did participants who received less than 5 hours of training, $t = -5.660, p < .001$, and participants who received 6–10 hours of training, $t = -3.181, p = .002$.

**Interest in Additional Training**

Participants were asked to identify any particular areas of interest for additional training in child/adolescent eating disorders. Every item was endorsed by at least 30% of all participants (Table 4). More than half of the participants reported an interest in further training in early identification and screening, medical management, outpatient management, and distinguishing eating disorders from disordered eating and normal eating patterns.

**DISCUSSION**

The current study examined medical residents’ knowledge of and comfort with ED assessment and treatment practices, the intensity of their training, and the relation of overall training hours and self-assessed comfort to objective indicators relating to assessment and treatment-specific knowledge about eating disorders in children and adolescents. Consistent with
previous research conducted among physicians (Lafrance Robinson et al., 2013b), participants reported feeling more comfortable with the assessment of eating disorders than they did the medical management and treatment of these illnesses. In terms of the specific disorders, residents reported feeling more comfortable with AN, and to a lesser degree BN, and least comfortable with EDNOS, particularly with respect to its medical management and treatment. Not surprisingly, since entering medical school, approximately 70% of respondents reported receiving fewer than 5 hours of teaching or clinical exposure directly relating to eating disorders in children or adolescents; however, it should be noted that this result seemed to be skewed due to the number of respondents in first year. Still, this is a troubling finding given the complexity of these illnesses, especially among children and adolescents, and the fact that the survey asked respondents to report on the intensity of their training since entry to medical school (as opposed to the start of their residency).

Follow-up analyses were then conducted to determine whether these findings could predict more objective indicators of competence. In essence, with respect to the identification of symptoms/diagnosis and the medical management/treatment of ED in children and adolescents, more intense training was related to increased comfort with these skills, and a higher level of comfort was related to more accurate responses on questions relating to specific assessment and treatment issues and practices. This pattern of results suggests that additional training opportunities are worthwhile since they are likely to lead to changes in child and adolescent-specific knowledge and practices. This is especially true with respect to the medical management and treatment of eating disorders. Participants performed very poorly on these questions and in some cases, their beliefs translated to practice could interfere with best practice outpatient treatment protocols. For example, more than three quarters of the residents surveyed believed that motivation in the child was a necessary precursor for treatment and they denied that the child’s recovery was primarily the parent’s responsibility. More than 60% stated that children could never recover from an eating disorder without individual therapy. These beliefs are in direct opposition to the core beliefs that underlie FBT, potentially leading to major difficulties coordinating treatment efforts. Another troubling finding related to the identification of symptoms, is that more than 60% of the sample positively endorsed the item: “Adolescents with anorexia nervosa typically look underweight.” This belief could lead clinicians to employ a “wait and see” approach, or worse, fail to identify EDs in those children and adolescent who have not experienced any weight loss or who are genetically heavier.

Although residents in each of these specialties were included because they are likely to encounter patients with eating disorders, pediatric and psychiatry residents reported receiving significantly more training in child and adolescent ED than did residents in the other specialties. They also
scored relatively higher on the tests of knowledge about assessment and treatment of eating disorders among children and adolescents. However, even among these residents, knowledge about treatment was fairly poor and this area requires attention given the serious implications.

Limitations

In terms of responses, although the number of participants was adequate in light of the elite population and the length and anonymous nature of the survey instrument (Asch, Jedrziewski, & Christakis, 1997), it is always possible that participants who did not complete the survey differed from respondents in significant ways, leading to the potential for biased results. For example, it could be that residents who chose to complete the questionnaire already had an interest in the topic, therefore inflating the results relating to their interest in training. In terms of the content of the questionnaire, comfort with medical management/treatment was addressed, but specific questions assessing medical knowledge were not included. It is possible that participants did not have an accurate perception of their knowledge related to the medical management of eating disorders. A final limitation relates to the heterogeneity of the medical specialties included in the study (family medicine, pediatrics, internal medicine, psychiatry, OB-GYN, and emergency medicine). Given the variability in training and knowledge across specialties, the results should be considered a broad snapshot of the preparedness of medical residents to diagnose and treat eating disorders rather than an assessment of specific competencies within each medical specialty.

Future Studies and Implications

Future studies should include an assessment of the adequacy of training in child/adolescent eating disorders within specific medical specialties, among medical residents in countries other than Canada, as well as among a broader scope of health and mental health clinicians in training, such as psychologists, social workers and dietitians. In addition, hours of training and self-reported adequacy of training should be linked directly to child/adolescent symptom outcome measures. It would also be beneficial to examine medical school curricula to determine whether students are being taught current best practices with regard to the assessment and treatment of eating disorders in children and adolescents.

Based on the needs assessment in this study, specific training modules in the areas of early identification of eating disorders, medical and outpatient management, and involvement of the family in assessment and treatment should be designed for inclusion in the medical school curriculum. It would be wise to place particular emphasis on education about evidence-based treatment, particularly family-based therapy, given that residents
Medical Residents’ Training in Eating Disorders

across specialties seem to have very poor knowledge about treatment and are actively endorsing attitudes that may hamper receipt of timely and effective care.

REFERENCES


