

Assessment and Treatment of Pediatric Eating Disorders: A Survey of Physicians and Psychologists

Adèle Lafrance Robinson PhD, CPsych¹; Ahmed Boachie MB ChB, MRCPsych, DCH, FRCP(C)^{2,3}; Glenys A. Lafrance PhD⁴

Abstract

Objective: Studies show that primary care clinicians struggle with the assessment and treatment of eating disorders in adults. There are no known studies examining current practices of clinicians with respect to eating disorders in children and adolescents. The following study describes the key practices of primary care clinicians in Ontario, Canada, around the screening, assessment, and treatment of eating disorders in children and adolescents. **Method:** A 24-item survey was developed to obtain information from family physicians and psychologists about presenting complaints and current practices related to the assessment and treatment of eating disorders. **Results:** Findings of this study suggest that despite discipline-specific differences, a large proportion of clinicians do not routinely screen for eating disorders, and when eating disorders are assessed and treatment is initiated, family members are not routinely involved in the process. **Conclusion:** In Ontario, primary care clinicians may benefit from more training and support to better identify and treat children and adolescents with eating disorders. In particular, clinicians may require additional training around screening, multi-informant assessment methods, as well as appropriate therapy techniques.

Key words: *eating disorders, children and adolescents, assessment and treatment, primary care*

Résumé

Objectifs: Les cliniciens chargés des soins primaires ont des difficultés à diagnostiquer et à traiter les troubles alimentaires chez les adultes. À notre connaissance, aucune étude n'examine les pratiques actuelles des cliniciens qui traitent les troubles alimentaires chez les enfants et les adolescents. Cet article expose les principales pratiques des cliniciens responsables des soins primaires en Ontario, et plus particulièrement en ce qui a trait au triage, à l'évaluation et au traitement des troubles alimentaires chez les enfants et les adolescents. **Méthodologie:** Des généralistes et des psychologues ont répondu à 24 questions sur les symptômes des troubles alimentaires et sur leurs méthodes d'évaluation et de traitement. **Résultats:** Malgré les différences propres à chaque discipline, la majorité des cliniciens ne fait pas de triage en matière de troubles alimentaires. Lorsqu'ils diagnostiquent les troubles alimentaires et mettent en place le traitement, les cliniciens n'impliquent généralement pas les membres de la famille. **Conclusion:** En Ontario, les responsables des soins primaires gagneraient à suivre des formations complémentaires et à avoir davantage de soutien, afin de mieux dépister les troubles alimentaires chez enfants et les adolescents et d'améliorer le traitement de ces derniers. Les cliniciens peuvent notamment demander à être formés aux techniques d'évaluation par plusieurs intervenants et aux thérapies appropriées.

Mots clés: *troubles alimentaires, enfants et adolescents, évaluation et traitement, soins primaires*

¹Laurentian University, Sudbury, Ontario

²Southlake Regional Health Centre, Newmarket, Ontario

³University of Toronto, Toronto, Ontario

⁴Avanti Insight, London, Ontario

Corresponding email: acrobenson@laurentian.ca

Submitted: February 22, 2011; Accepted: May 27, 2011

Eating disorders (ED) are the third most common chronic disease among adolescent females after asthma and obesity (Golden et al., 2003). Approximately 0.5% of the population in Canada is suffering from anorexia nervosa (AN), 1% from bulimia nervosa (BN), and 3% to 5% from other disordered eating patterns severe enough to warrant clinical attention (Garfinkel et al., 1995, 1996). The annual mortality rate of 15- to 24-year old females with anorexia nervosa is 12 times that of the general population and can be as high as 20% (National Institute of Mental Health [NIMH], 2001). Up to 50% of adult ED patients are unresponsive to standard treatment protocols, and progress on to chronic medical and psychosocial impairments which not only severely impair quality of life, but also lead to exorbitant health care system costs (NIMH, 2001).

Diagnosis and Treatment of ED in General and Adult Populations

Research suggests that physicians struggle with the assessment and diagnosis of ED in general (Boulé & McSherry, 2002; Burnsten, Gabel, Brose & Monk, 1996; Clarke & Polimeni-Walker, 2004). This is a serious problem given that ED patients visit their family physicians significantly more frequently than matched controls in the five years prior to a diagnosis (Ogg & Millar, 1997), and that early detection of ED can be related to patient outcome (Hall, Slim, Hawker & Salmond, 1984). For example, Bursten, Gabel, Brose, and Monk (1996) surveyed family physicians on the assessment and diagnosis of BN in the general population and reported that, despite a general prevalence rate of 1% for the disorder, almost one-third of physicians reported no current or past office contact with bulimia, and more than half (60%) reported having no bulimic patients on their caseload at the time of the survey. When physicians did report seeing bulimic patients, the majority (86.9%) reported providing medical care only and chose to refer to specialists for counseling. Only 3.4% of respondents reported managing all aspects of these patients' care.

Researchers in Canada also conducted a survey among family physicians which yielded similar results with respect to the assessment and diagnosis of ED in the general population (Boulé & McSherry, 2002). The authors found that nearly 20% of family physicians surveyed reported having no patients with ED in their practice, and 3% of respondents reported never having seen a patient with an ED. In addition, the authors reported that a mere 25.4% of respondents admitted to routinely screening for ED. With respect to treatment, the majority of physicians (87%) reported sharing patient care with other health professionals including psychiatrists, nutritionists and psychologists. Only 3.6% of respondents indicated that they managed all aspects of

patient care, compared to 7.1% who reported referring all aspects of care.

Diagnosis and Treatment of ED in Child and Adolescent Populations

To date, there have been no studies examining the practices of physicians with respect to the assessment and treatment of ED in children and adolescents. The only known study related to the assessment of pediatric ED was conducted with pediatricians, general practitioners, and school medical officers using clinical vignettes of AN in children (Bryant-Waugh, Lask, Shafran & Frosson, 1992). The results of this study revealed that only 33% of pediatricians considered AN in their differential diagnosis, while only 2% of primary care physicians did so. Those who did consider ED in their differential diagnosis indicated that treatment should include medical management (including blood and urine analyses), as well as frequent appointments with the child and/or referral to a mental health specialist.

The Current Study

Overall, it is clear that physicians struggle with the assessment and treatment of ED in adult populations and in general. However, there are no known studies examining the current practices of primary care physicians with respect to ED in children and adolescents specifically. In addition, despite the fact that psychologists are qualified to assess, diagnose, and treat mental disorders, including ED, there have been no studies examining their practices. This is particularly relevant given that more and more research is pointing to the importance of family involvement in child and adolescent mental health in general (Josephson & Diamond, 2005), and more specifically in the treatment of ED. For example, behavior-based family therapy (family-based therapy or the Maudsley approach) in conjunction with medical monitoring is considered best practice in the treatment of ED in children and adolescents (see Loeb & le Grange, 2009, for a review of the research findings). As a result, the following study describes the key practices of primary care clinicians in Ontario, Canada with respect to ED in children and adolescents by identifying (a) common presenting complaints and current practices related to assessment, as well as (b) current practices related to treatment, including referral pathways. These practices are explored in relation to clinicians' (a) discipline (physician/psychologist); (b) clinic status (the absence/presence of children and adolescents with ED within an individual's practice); and (c) family-focus status (the degree to which ED clinicians reported using a family-focused approach to assessment and treatment).

Method

Materials

A 24-item survey informed by previously used survey instruments was developed (Boulé & McSherry, 2002; Clarke & Polimeni-Walker, 2004). Several clinicians reviewed a draft of the survey and revisions were made based on their feedback. The study received approval from the institutional research ethics board. Participants were advised in a covering letter that surveys returned by mail, fax, or electronically would assume informed consent.

Although the scope of the survey was broader, this study focuses on the results associated with items pertaining to clinicians' assessment and treatment practices and pathways when pediatric ED was suspected or identified.

Participants

Individuals eligible to participate in the study included family physicians and psychologists/psychological associates whose practices included children and/or adolescents in the province of Ontario, Canada. From here on, the term psychologist is used to describe both psychologists and psychological associates. Participants were recruited via (a) a mail-in survey targeted to clinicians within a metropolitan area, and (b) two electronic list-serves (Ontario Psychological Association and Ontario College of Family Physicians). A list of potential participants was compiled using web-based directories of The College of Physicians and Surgeons of Ontario and The College of Psychologists of Ontario.

A total of 783 potential participants were identified and contacted at Stage 1 via mail-outs. Of these, 95 (12%) returned surveys. At Stage 2, 73 online surveys were collected via list-serves. Fifteen surveys were removed from the analyses because respondents did not specify discipline, leaving a valid sample of 153 respondents.

Statistical Procedures

Descriptive statistics included (a) the median for ordinal and non-normal continuous variables, and (b) percentages for categorical variables. Group differences were assessed on the basis of primary grouping variables and, where warranted, interactions among them were examined. The primary grouping variables were: (a) discipline (physicians/psychologists), (b) clinic status (non-ED/ED), and (c) family-focus status (non family-focused/family-focused). Fisher's Exact Test (chi-square, FET) and Mann-Whitney (U) tests were used to detect group differences, if any. Where multiple tests were conducted, a correction to alpha was applied. In the presence of a significant FET result, 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.

Group effects from categorical data are reported using odds ratios (confidence intervals) and an r estimate was derived (Z/\sqrt{N}) for Mann-Whitney tests. All statistical tests were two-tailed; the level of precision was $\alpha = 0.05$, with p -values $< .05$. Unless noted, non-significant results were omitted.

Results

Discipline and Clinic Status

The disciplines were equally represented across the sample, with 76 physicians and 77 psychologists. Approximately 63% of the total sample reported seeing ED in their practice. Physicians were 4.3 ($CI = 2.1, 8.7$) times more likely than psychologists to do so.

Family-focus Status

Assessment. Only clinicians who reported having children and/or adolescents with identified or suspected ED in their practice were asked to answer questions regarding family involvement in assessment. Table 1 provides the response frequencies to the question that asked, "How often do you involve the family in identification and/or assessment of an eating disorder?" Approximately 65% of ED clinicians reported "usually" or "always" involving the family in the assessment of ED in children or adolescents ($N = 90$, $Mdn = \text{"usually"}$). Although the disciplines' medians were the same, there were significant differences in the distributions of the values. None of the ED physicians ($n = 57$) compared to 12% of the ED psychologists ($n = 33$) reported "never" involving the family in the assessment. On the other hand, only 25% of the ED physicians, compared to 46% of the ED psychologists, reported always involving the family.

Treatment. In terms of treatment, approximately 61% of ED clinicians reported "usually" or "always" involving the family in the treatment of ED ($n = 90$, $Mdn = \text{"usually"}$) in response to the following question: "How often do you involve the family in the treatment of an eating disorder?" Distributions of the values did not vary significantly by discipline (Table 1).

Family-focus status. In line with the literature on the importance of family involvement, the sample was stratified into two categories (using the median as a cut-off) to discern the clinicians involvement of the family with respect to the assessment and treatment processes. The two values associated with the new variable, family-focus status (FFS), were (a) NFF = clinicians who did not usually/always involve families in both assessment and treatment, and (b)

Table 1. Family involvement in the assessment and treatment of pediatric eating disorders			
Family-focus status item	Total (N = 90)	Discipline	
		ED Physician (n = 57)	ED Psychologist (n = 33)
Family involvement in assessment			
Never	4%	0%*	12%*
Occasionally	12%	16%	6%
Often	19%	26%*	6%*
Usually	32%	33%	30%
Always	33%	25%*	46%*
Family involvement in treatment			
Never	5%	3%	7%
Occasionally	10%	10%	10%
Often	24%	26%	21%
Usually	29%	29%	28%
Always	32%	32%	34%

Note. ED = pediatric eating disorder, N = sample size, n = sub-sample size.
* = significant group differences, FET two-tailed $p < .001/ASD > 2.0$, comparator groups share symbols row-wise within grouping factors.

Table 2. Eating behaviours questions included in clinical interviews or functional inquiries. Discipline by clinic status.					
Clinical interview ED scope	Total (N = 84)	Clinic status			
		Non-ED		ED	
		Physician (n = 12)	Psychologist (n = 17)	Physician (n = 38)	Psychologist (n = 17)
Median*	3.0	2.5	3.0	3.0	3.0
Never	5%	8%	6%	3%	6%
Occasionally	33%	42%	24%	37%	29%
Often	27%	17%	29%	34%	18%
Usually	19%	25%	6%	18%	29%
Always	16%	8%	35%	8%	18%

Note: ED = pediatric eating disorder, N = sample size, n = sub-sample size.
* Median where 2 = "occasionally", 3 = "often".

FF = clinicians who usually/always did. Approximately half of ED clinicians were categorized as "FF", irrespective of discipline.

To deepen our understanding of current ED practices and pathways, the remaining assessment and treatment items were analysed in the context of each of the attribute variables (discipline, clinic status and family-focus status).

Clinical Interview

When asked the following question: "During clinical assessment or health examinations, how often does your clinical interview or functional inquiry include questions about

eating behaviours?" overall, clinicians reported doing so often or more (62%, *Mdn* = "often"). Only 5% of the participants reported never screening, while only 16% claimed that they always screen. Interestingly, this question had the highest rate of missing entries. Table 2 reports response frequencies and group comparisons.

Discipline Effect. Psychologists were 4.1 times ($CI = 1.2, 18.8$) more likely than physicians to report "always" asking questions related to eating; however, the FET result was non-significant once the multiple test correction was applied. No significant interaction was noted between discipline and clinic status.

Table 3. Common presenting complaints/problems encountered

Presenting complaints selected	Total (N = 95)	Screening frequency					
		Discipline		Frequent		Infrequent	
		ED Physician (n = 60)	ED Psychologist (n = 35)	ED Physician (n = 10)	ED Psychologist (n = 8)	ED Physician (n = 28)	ED Psychologist (n = 8)
Restriction	77%	72%	86%	90%	88%	71%	75%
Weight loss	76%	78%	71%	100%	88%	79%	50%
Depression	75%	65%*	91%*	70%	75%	54%	88%
Anxiety	75%	70%	83%	70%	75%	71%	75%
Low self-esteem	73%	67%	83%	100%*	75%	50%*	88%
Binge eating	62%	62%	63%	80%	75%	71%	50%
Self-induced vomiting	58%	57%	60%	50%	63%	50%	50%
Over-exercise	56%	52%	63%	70%	50%	50%	50%
Amenorrhea	51%	58%*	37%*	90%*,**	13%*	50%**	25%
Fatigue/fainting	40%	52%*	20%*	60%	13%	46%	13%
Gastrointestinal complaints	37%	47%*	20%*	50%	13%	43%	25%
Abdominal pain	25%	30%	17%	10%	0%	25%	0%
Food intolerance	17%	22%	9%	20%	0%	14%	13%
Abnormal blood work	12%	17%	3%	20%	13%	18%	0%

Note. ED = pediatric eating disorder, N = sample size, n = sub-sample size.

*,** = significant group differences, FET two-tailed $p < .025$ /ASD > 2.0 , comparator groups share symbols row-wise within grouping factors.

Presenting Complaints

ED clinicians were presented with a list of 14 common presenting complaints related to pediatric ED. They were asked to indicate those which they encounter. Of the 14 complaints, the majority of ED clinicians encountered 9 of them. Table 3 shows the response rates by discipline.

Discipline Effect. With respect to the items selected most often, ED physicians were more likely than ED psychologists to encounter amenorrhea ($OR = 2.4$, $CI = 1.0, 5.6$), while ED psychologists were more likely than ED physicians to be presented with depression, ($OR = 5.7$, $CI = 1.6, 21.0$). There were no differences attributable to discipline for restriction of food intake, weight loss, anxiety, self-esteem, binge eating, self-induced vomiting, or over-exercise.

Among the five least frequently encountered presenting complaints, ED physicians were more likely than ED psychologists to select fatigue/fainting ($OR = 4.3$, $CI = 1.6, 11.3$) and gastrointestinal complaints ($OR = 3.5$, $CI = 1.3, 9.2$). No group differences were detected for abdominal pain, food intolerance, or abnormal blood work.

Presenting Complaints by Screening Frequency

The presenting complaints' frequencies were cross-tabulated with dichotomized screening frequencies (usually/always versus never/occasionally/often) to determine if screening frequency might account for fewer opportunities to receive presenting complaints (Table 3).

Screening Frequency Effect. Except for low self-esteem, there were no significant effects attributable to screening frequency. The most frequent screeners were 5.7 ($CI = 1.1, 28.7$) times more likely than those who screened less frequently to receive complaints related to self-esteem.

Screening Frequency within ED Physicians. When discipline was accounted for, amenorrhea and low self-esteem were more likely to be encountered by ED physicians who screened frequently compared to ED physicians who screened infrequently ($OR = 9.0$, $CI = 1.0, 80.1$; $OR = inf$); all frequent screening ED physicians encountered low self-esteem complaints compared to 50% of infrequent screening ED physicians.

Screening Frequency within ED Psychologists. No significant differences were noted between ED psychologists

Table 4. Services provided by ED clinicians by discipline by family-focus status

Services Provided	Total (N = 88)	Family-focus status					
		Discipline		Non-family-focused		Family-focused	
		ED Physician (n = 56)	ED Psychologist (n = 32)	ED Physician (n = 27)	ED Psychologist (n = 15)	ED Physician (n = 29)	ED Psychologist (n = 17)
Referral to specialist	73%	82%*	56%*	74%	67%	90%	47%
Individual counseling/therapy	58%	45%*	81%*	37%	60%*	52%	100%*
Medical management	58%	88%*	6%*	89%	7%	86%	6%
Medications	33%	50%*	3%*	52%	0%	48%	6%
Nutrition counseling	27%	39%*	6%*	37%	0%	41%	12%
Family counseling/therapy	23%	7%*	50%*	7%	27%*	7%	71%*
Exercise information	21%	30%*	3%*	19%	0%	41%	6%

Note: ED = pediatric eating disorder, N = sample size, n = sub-sample size.
 * = significant group differences, FET two-tailed $p < .05$, comparator groups share symbols row-wise within grouping factors.

Table 5. Referral Paths. Discipline by clinic status

Referral paths selected	Total (N = 117)	Clinic status				Family-focus status			
		Non-ED		ED		Non-family-focused		Family-focused	
		Phy (n = 12)	Psy (n = 31)	Phy (n = 48)	Psy (n = 26)	ED Phy (n = 25)	ED Psy (n = 16)	ED Phy (n = 23)	ED Psy (n = 10)
Psychiatrist	74%	75%	58%	81%	81%	80%	81%	83%	80%
Psychologist	66%	50%*	84%*,**	67%	50%**	64%	38%	70%	70%
Dietician	51%	42%	42%	56%	58%	60%	31%*	52%	100%*
Community mental health worker	17%	33%*	7%*	23%	12%	8%*	13%	39%*	10%
Endocrinologist	10%	17%	7%	15%	4%	8%	0%	22%	10%
Internal medicine	9%	0%	10%	6%	15%	0%	6%	13%	30%
Public health nurse	7%	17%	3%	4%	12%	4%	19%	4%	0%

Note: ED = pediatric eating disorder, Phy = physician, Psy = psychologist, N = sample size, n = sub-sample size.
 *,** = significant group differences, FET two-tailed $p < .05$, comparator groups share symbols row-wise within grouping factors.

with different screening practices for any of the presenting complaints.

Screening Frequency between ED Disciplines. The only presenting complaint where a significant screening effect between disciplines was detected was amenorrhea. ED physicians who screened frequently were more likely than their ED psychologist counterparts to encounter amenorrhea ($OR = 63, CI = 3.3, 1195$).

Services Provided

Discipline Effect. The ED clinicians were asked to indicate the services they provided to their pediatric ED patients. Table 4, ranked by response rate, shows significant group

differences by discipline for all items. When compared with ED psychologists, the ED physicians reported providing significantly more referrals to specialists, medical management, medications, nutrition counseling, and exercise information. In contrast, the ED psychologists provided significantly more individual counseling/therapy and family counseling/therapy than the ED physicians.

Given the polarity of responses across disciplines, findings are presented within disciplines without further reference to overall ranking or between discipline effects.

Services Provided by ED Physicians. Within the ED physicians group, the median number of services provided was three, irrespective of family-focus status. The top three

services provided by physicians, in ranked order, were medical management (88%), referrals to specialists (82%), and medications (50%) while the lowest ranked item was family counseling/therapy, by far (7%). There were no significant family-focus effects among any of these service items.

Services Provided by Psychologists. Within the ED psychologists group, the family-focused ED psychologists ($Mdn = 2$) offered more services than the non-family-focused group ($Mdn = 1$), $N = 32$, $U = 57.50$, $Z = 2.89$, $p < .01$, $r = .50$. The top three services provided by ED psychologists, in ranked order, were individual counseling/therapy (81%), referral to specialists (56%), and family counseling/therapy (50%). Family-focused ED psychologists provided significantly more individual counseling/therapy services ($OR = \text{infinity}$) and family counseling/therapy services ($OR = 6.6$, $CI = 1.4, 31.1$) than their non-family-focused counterparts. Finally, it may be worth noting that, for 40% percent of the non-family-focused ED psychologists, the only service reported was that of referral to a specialist, while none of the family-focused group reported referral as the only service provided ($OR = \text{infinity}$).

Referral Paths

All clinicians (non-ED and ED) were asked to identify to whom they might refer patients with suspected ED (Table 5). Overall, clinicians indicated that they referred cases most often to psychiatrists, psychologists and dietitians (74%, 66%, 51%, $Ns = 117$).

Clinic Status Effect within Physicians. There were no significant clinic status effects for any referral paths when comparing ED to non-ED physicians. However, the family-focused physicians were more likely than their non-family-focused counterparts to refer to community health workers ($OR = 7.4$, $CI = 1.4, 39.3$).

Clinic Status Effect within Psychologists. Within psychologists, non-ED psychologists were 5.2 ($CI = 1.5, 17.9$) times more likely than ED psychologists to refer to psychologists. All of the family-focused psychologists referred to dietitians compared to only 31% of non-family-focused psychologists.

Discipline by Clinic Status Effect. Between disciplines, non-ED psychologists were 5.2 ($CI = 1.2, 22.9$) times more likely than non-ED physicians to refer to psychologists. As well, although referral to community health workers was not frequently selected (17%, $N = 117$), non-ED physicians were 7.3 ($CI = 1.1, 47.6$) times more likely than non-ED psychologists to make these referrals. It should be noted that both of these results were non-significant once the multiple test correction was applied.

Number of Referral Paths. There was no association between referral services and the number of referral paths selected.

Conclusion

Screening and Assessment

In terms of screening and assessment, surveyed clinicians reported including questions about eating behaviors during their clinical assessment “often”, “usually”, or “always” in greater than half of the cases (62%). Sixteen percent of clinicians reported “always” screening for ED in their clinics, an encouraging figure relative to the findings reported among primary physicians in the United Kingdom (Bryant-Waugh et al., 1992). In terms of presenting complaints/symptoms, overall, infrequent-screening clinicians report encountering amenorrhea and low self-esteem less often than frequent-screening clinicians. In terms of disciplines, psychologists endorsed encountering psychological symptoms of ED most often, while physicians endorsed encountering the medical symptoms most often. In light of the fact that, in Ontario, medical doctors (family physicians, pediatricians, etc.) are sometimes the only discipline from whom referrals are accepted by treatment programs, this over-reliance on physical symptoms may suggest that at the time of referral, patients are more likely to be entrenched in psychological issues. Frequently occurring co-morbid psychiatric risk factors such as major depression are also likely to be missed. Similarly, the low frequency with which psychologists detect physical symptoms such as amenorrhea, may lead patients to become more medically compromised by the time the appropriate services are rendered, or a referral is made to a physician or specialist. In terms of family involvement, a high proportion of clinicians, psychologists and physicians alike, fail to routinely involve families in the assessment process. This is a serious problem given that patients with ED typically deny, or lack appreciation of the severity of symptoms. Parents, if included in interviews, can serve as important informants, which can lead to a more accurate diagnosis, or reduce the likelihood of a misdiagnosis.

Treatment

It has been established and accepted that behavior-based family therapy using a team approach is currently considered best practice in the treatment of ED in children and adolescents. However, according to the results of this study, only a third of the participants reported always involving families in treatment, and of these, it is unclear how this involvement translates into practice. For example, although psychologists reported inclusion of families in their treatment more often than did family physicians, the majority of them reported providing individual therapy rather than family therapy as a primary service rendered. While this

approach may be useful with adult populations, it is not considered best practice when working with children and adolescents. As such, when the small proportion of clinicians does report including families in treatment, it may be in a less direct, more consultative role, as opposed to being directly active in the intervention. It is reassuring, however, that a large number of clinicians, physicians and psychologists alike, list referrals to specialists as a common service pathway.

Implications

In pediatric ED, the earlier the diagnosis and treatment, the better the outcome. Without a doubt, this study suggests that in Ontario, Canada, there seems to be a need to improve the training of, and support for primary care clinicians to whom patients with ED may present. In particular, physicians and psychologists may benefit from additional training around screening, multi-informant assessment methods, as well as evidence-based interventions. Improved screening, assessment and treatment practices could improve the quality of life of children with ED and their families, lead to shorter lengths of stays in specialized treatment centers, and, in turn, reduce overall health-care costs. With respect to screening and assessment specifically, it may also be worthwhile to promote inter-disciplinary collaborations to increase detection rates by both disciplines, by harnessing their respective strengths. Lastly, the results of the current study have implications for treatment centers who only accept referrals from a medical doctor (family physician, pediatrician, etc.) prior to conducting a multi-disciplinary assessment. It may be that, for eating disorders, as long as a medical assessment is conducted, referrals from caregivers, school personnel, etc., could also be considered.

Limitations

The response rate for this study was low, especially for family physicians. As such, it is possible that results may be biased if non-respondents differed from respondents in significant ways. It was not possible to obtain information about non-respondents in this study, so this potential bias cannot be evaluated. It was also not possible to track for duplicate survey submissions; however, given the low response rate, we do not believe this to be a likely event. In addition, the wording of the questions limited the information that could be gathered regarding family involvement. Additional information on the nature of discipline-specific

family involvement will be useful to examine in future studies to further clarify clinical practices. Finally, future studies should also survey other medical specialists who may be referring to specialized centers, such as pediatricians, psychiatrists, gastroenterologists, etc.

Acknowledgements / Conflicts of Interest

The authors have no financial relationships to disclose.

References

- Boulé, C. J., & McSherry, J. A. (2002). Patients with eating disorders. How well are family physicians managing them? *Canadian Family Physician, 2*, 1807-1813.
- Bursten, M. S., Gabel, L. L., Brose, J. A., & Monk, J. S. (1996). Detecting and treating bulimia nervosa: How involved are family physicians? *Journal of the American Board of Family Practice, 9*, 241-248.
- Bryant-Waugh, R. J., Lask, B. D., Shafran, R. I., & Frosson, A. R. (1992). Do doctors recognize eating disorders in children? *Archives of Disease in Children, 67*, 103-105.
- Clarke, D. E., & Polimeni-Walker, I. (2004). Treating individuals with eating disorders in family practice: A needs assessment. *Journal of Eating Disorders, 12*, 293-301.
- Garfinkel, P. E., Lin, E., Goering, P., Spegg, C., Goldbloom, D. S., Kennedy, S.,... Woodsite, D. B. (1995). Bulimia nervosa in a Canadian community sample: Prevalence and comparison of subgroups. *American Journal of Psychiatry, 152*, 1052-1058.
- Garfinkel, P. E., Lin, E., Goering, P., Spegg, C., Goldbloom, D. S., Kennedy, S.,... Woodsite, D. B. (1996). Should amenorrhea be necessary for a diagnosis of anorexia nervosa: Evidence from a Canadian community sample? *British Journal of Psychiatry, 168*, 500-506.
- Golden, N. H., Katzman, D. K., Kreipe, R. E., Stevens, S. L., Sawyer, S. M., Rees, J.,... Rome, E. S. (2003). Eating disorders in adolescents: Position paper of the Society for Adolescent Medicine. *Journal of Adolescent Health, 33*, 496-503.
- Hall, A., Slim, E., Hawker, F., & Salmond, C. (1984). Anorexia nervosa: Long-term outcome in 50 female patients. *The British Journal of Psychiatry, 145*, 407-413.
- Josephson, A., & Diamond, G. (2005). Family-based treatment research: A 10-year update. *Journal of the American Academy of Child and Adolescent Psychiatry, 44*, 872-887.
- Loeb, K. L., & le Grange, D. (2009). Family-based treatment for adolescent eating disorders: Current status, new applications and future directions. *International Journal of Child and Adolescent Health, 1*, 243-254.
- National Institute of Mental Health (NIMH) Publication No. 01-4584, Updated: January 1, 2001.
- Ogg, E. C., & Millar, H. R. (1997). General practice consultation patterns preceding diagnosis of eating disorders. *International Journal of Eating Disorders, 22*, 89-93.