
Article:
Ali, S.I., Bodnar, E., Gamberg, S. et al. (5 more authors) (2021) The costs and benefits of intensive day treatment programs and outpatient treatments for eating disorders: an idea worth researching. International Journal of Eating Disorders, 54 (7). pp. 1099-1105. ISSN 0276-3478

https://doi.org/10.1002/eat.23514

The costs and benefits of intensive day treatment programs and outpatient treatments for eating disorders: An Idea Worth Researching

Short Running Title: DTPs versus Outpatient Care

Sarrah I. Ali[1], Emma Bodnar[1†], Susan Gamberg[1,2,3], Sara J. Bartel[3], Glenn Waller[4], Abraham Nunes[2], Laura Dixon[1], Aaron Keshen[1,2,3]

[1]Eating Disorder Program, Nova Scotia Health Authority, Halifax, Nova Scotia, Canada

[2]Department of Psychiatry, Dalhousie University, Halifax, Nova Scotia, Canada

[3]Department of Psychology and Neuroscience, Dalhousie University, Halifax, Nova Scotia, Canada

[4]Department of Psychology, University of Sheffield, Sheffield, UK

[†]Sarrah Ali and Emma Bodnar should be considered joint first author.

Word count

Abstract: 181

Main text: 2000

Data Availability Statement

Data sharing is not applicable to this article as no new data were created or analyzed in this study.

Acknowledgments

This review was unfunded.

Conflict of Interest Statement

AK has been a member of scientific advisory boards, participated in speaker events and received educational grant support from Takeda Inc. and Otsuka/Lundbeck.

Abstract

Outpatient care (e.g., individual, group, or self-help therapies) and day treatment programs (DTPs) are common and effective treatments for adults with eating disorders. Compared to outpatient care, DTPs have additional expenses and could have unintended iatrogenic effects (e.g., may create an overly protective environment that undermines self-efficacy). However, these potential downsides may be offset if DTPs are shown to have advantages over outpatient care. To explore this question, our team conducted a scoping review that aimed to synthesize the existing body of adult eating disorder literature a) comparing outcomes for DTPs to outpatient care, and b) examining the use of DTPs as a higher level of care in a stepped care model. Only four studies met the predefined search criteria. The limited results suggest that the treatments have similar effects and that outpatient care is more cost-effective. Furthermore, no studies explored the use of DTPs as a higher level of care in a stepped care model (despite international guidelines recommending this approach). Given the clear dearth of literature on this clinically relevant topic, we have provided specific avenues for further research.

Keywords: scoping review, eating disorders, day treatment programs, outpatient treatment, stepped care, adults, psychotherapy

Introduction

Outpatient care (e.g., individual, group, or self-help therapies) and day treatment programs (DTPs) are common treatments for adults with eating disorders (EDs). International treatment guidelines generally recommend Cognitive Behavioral Therapy and Interpersonal Psychotherapy as first line outpatient care for anorexia nervosa, bulimia nervosa and binge eating disorder (Hilbert, Hoek, & Schmidt, 2017). In contrast to outpatient care, which typically comprises weekly one-hour sessions over 20-40 weeks, DTPs usually provide an eclectic variety of therapies (often in group formats) and meal support, and operate 6-10 hours/day, 4-5 days/week (Matthews, Gordon, van Beusekom, Sheffield, & Patterson 2019). International treatment guidelines recommend DTPs for medically compromised patients or as a higher level of care when outpatient care is deemed insufficient (Anderson et al., 2017). Recently, DTPs have emerged as an important treatment option that can bridge the gap between outpatient care (low intensity) and inpatient or residential treatments (very high intensity; Freidman et al., 2016).

Although DTPs are efficacious (Hepburn & Wilson, 2014) and recommended as a higher level of care for patients who require more intensive treatment (without the necessity for inpatient/residential care), there are potential downsides to consider. First, DTPs are costly because they require a diverse staff of specialists, are time-intensive, and often include the added expense of food for meal support groups. In contrast, outpatient care is generally limited to weekly one-hour sessions for an average of 20 weeks and only one therapist is required to deliver the treatment.

Another potential disadvantage of DTPs is that they may unintentionally contribute to some of the maintaining factors of EDs (Treasure, Crane, McKnight, Buchanan, & Wolfe, 2011). DTPs are structured programs with strict schedules and predictable menus, which may reinforce

inflexibility. Further, isolation from family and friends is a common negative experience of ED patients (McKnight & Boughton, 2009). After months in a DTP, some come to rely upon fellow patients for social activities and support and are vulnerable to loneliness when they return to their lives.

Nonetheless, the potential cost differential and risk of iatrogenic maintaining factors may be offset if DTPs are shown to have advantages over outpatient care. Therefore, our team conducted a scoping review that aimed to synthesize the existing body of adult ED literature a) comparing outcomes for DTPs to outpatient care, and b) examining the use of DTPs as a higher level of care in a stepped care model.

Scoping Review

Identification of the Literature

The review protocol was based on the PRISMA guidelines and the Joanna Briggs Institute Reviewers Manual. Search terms were entered into PsycINFO, PubMed, and Embase (See Supplemental File for search terms). Eligible studies were those published up to January 2021. To uncover unpublished studies, search terms were entered into the ProQuest database.

Studies were included if (1) the participant sample consisted of adult ED patients, and (2) a clear comparison between DTPs and outpatient care outcomes was present OR outcomes of DTP as a higher level of care in a stepped care model were examined. Given that ED treatment recommendations usually differ between adults and adolescents, studies were excluded if they had a majority adolescent sample OR if they did not include a DTP.

Search results were exported to Covidence for independent review by EB and SA. EB screened the titles and abstracts for duplicates and clear exclusions, then EB and SA independently screened the full texts. Consensus was reached through discussion with final input

by AK. Data extraction was performed individually by reviewers. A narrative synthesis of the following themes was completed: (1) Study Outcomes: ED Symptomatology, and (2) Study Outcomes: Cost-Effectiveness.

Characteristics of Included Studies

Four published studies were identified and included in the synthesis (see PRISMA diagram in Supplemental File for details on the search/selection process; zero unpublished studies were uncovered). These studies vary across several methodological and demographic characteristics, and examined heterogenous forms of DTPs and outpatient care (see Table 1). Notably, only Kong (2005) used random assignment; Högdahl, Birgegård, and Björck (2013) used a convenience sample; Van den Berg et al. (2020) separated by cohort; Ben-Porath, Wisniewski, and Warren (2010) placed patients requiring medical monitoring and structure in the DTP group.

Zero studies examining outpatient care and DTPs in a sequential stepped care approach were identified.

_____

Insert Table 1 about here

_____

Narrative Synthesis

Study outcomes: ED symptomatology.

The studies used a variety of instruments to assess ED symptomatology. All studies used the Eating Disorder Examination Questionnaire (EDE-Q; Fairburn & Beglin, 1994), and the Eating Disorder Inventory-2 (Garner, 1991) was used by Kong (2005), Ben-Porath et al. (2010), and Högdahl et al. (2013). Additionally, each study assessed other outcomes using a variety of

instruments (see Table 2), therefore direct comparison of outcomes across studies is difficult.

Overall, in Kong (2005) both DTP and outpatient treatment led to decreases in symptoms across the timepoints (score decreases across timepoints). In all measures except perfectionism, DTP showed significantly greater improvements in ED outcomes compared to outpatient treatment. For Ben-Porath et al. (2010), both the DTP and outpatient group showed significant decreases across most outcomes; however, only DTP showed significant changes in the Beck Depression Inventory-2 score (BDI-2; Beck, Steer, & Brown, 1996). Although the treatment groups were not directly compared, there was a greater percentage of ED 'recovered' participants (as assessed with clinical significance classifications) in the outpatient treatment group than the DTP group, which may indicate a trend supporting outpatient treatment. In Högdahl et al. (2013), both CBT-GSH and DTP led to significant decreases in symptoms across the timepoints. Effect sizes tended to be larger for the DTP group, but there were no significant differences between group outcomes. For Van den Berg et al. (2020), both DTP and CBT showed significant improvements in all outcomes. Apart from those in the DTP group who had significantly fewer binge episodes after treatment, no other significant differences were found.

_____

Insert Table 2 about here

_____

Study outcomes: cost-effectiveness.

The studies included in this scoping review provide some insight into the cost of treatment. Högdahl et al. (2013) did not directly compare prices of treatment but noted that CBT-GSH took approximately 11 therapist hours/patient, while the DTP required over 200 hours, which would clearly increase the cost of treatment with similar outcomes. Van den Berg et al.

(2020) approximated the price per remission to be much lower in the outpatient group compared to the DTP group. Neither Kong (2005) nor Ben-Porath et al. (2010) considered cost-effectiveness.

Call to Action: Our Idea Worth Researching

The most noteworthy outcome of this scoping review is the paucity of research in this potentially critical clinical area. Consequently, we have demonstrated a significant gap in our understanding of how outpatient care and DTPs best fit into the array of ED treatment options. While meta-analyses suggest that both outpatient care and DTPs are effective treatments for EDs (Hepburn & Wilson, 2014; Hilbert et al., 2017), very little is known about their *comparative* effectiveness, or whether 'stepping up' to DTPs as a higher level of care is an effective approach for managing patients who do not respond to outpatient care. Three of the four studies included in this review describe similar treatment outcomes for DTPs and outpatient care, and both studies that examined cost effectiveness describe a cost advantage for outpatient care (Högdahl et al., 2013; Van den Berg et al., 2020). However, it is difficult to make treatment recommendations based on these studies, which are limited in number and have mostly uncontrolled designs.

Furthermore, *no studies* have examined outpatient care and DTPs as sequential elements of a stepped care approach. This finding is particularly striking since international guidelines recommend implementing DTPs as a higher level of care when outpatient care is ineffective. Given these clear gaps in the literature, we suggest that it is a matter of urgency to compare these two clinical approaches in head-to-head trials, and as components of a stepped care model. Without research to guide clinical care pathways, individual clinicians and health care systems are vulnerable to biased and subjective decisions (e.g., avoidable admissions to expensive 'for-

profit' DTPs or risk-averse health care systems prematurely recommending higher levels of care due to fear of litigation; Crow & Schmidt, 2008). Indeed, admissions to costly DTPs when outpatient care could be equally effective (for some individuals) may unnecessarily strain scarce resources and exacerbate already limited access to services. We recommend specific avenues for future research that will help close these knowledge gaps.

Comparisons Within and Between Services

Researchers could use several research designs to compare DTPs with outpatient care within and between services, evaluating patient outcomes and treatment costs. First, studies could randomly assign patients within a service who would normally be assigned to a DTP (e.g., moderate-severe symptom severity and degrees of medical instability) to outpatient care *or* DTP, rather than assume that the DTP will be more effective as a first line option as per practice guidelines (e.g., APA [Yager et al., 2006]). Of note, patients with very severe degrees of medical instability would need to be excluded from such a study because it would be unethical to withhold intensive treatments (e.g., inpatient care). Second, comparisons between *different* services could be conducted. Prospective cohort designs could be utilized to compare services and determine if there are differences in outcomes based on different styles of treatment (e.g., DTP versus outpatient care), considering any differences in pre-treatment characteristics (e.g., body mass index, age, eating attitudes).

Stepped Care Design

As an alternative to head-to-head comparisons of outpatient care and DTP, a stepped care approach could be studied. This design has the advantage of emulating 'real world' practice (i.e.,

DTPs are often recommended for non-responders who require a higher level of care). One research design could have participants undergo outpatient care, and then non-responders could be randomized into two groups: DTP or treatment termination with the option to return to outpatient care if autonomous motivation improves (i.e., 'strategic withdrawal'). Waller (2012) describes several approaches for 'strategic withdrawal' (e.g., 'disability training') that aim to enhance autonomous motivation rather than perpetuate the principle that more intensive or alternative forms of therapy are *always* the most effective solution for non-response to treatment. Another research design related to stepped care is starting with a DTP (for those who are deemed to require a higher level of care) and then randomizing participants into different 'step down' options (e.g., varying lengths and intensities of outpatient care). This would help us understand when it is most appropriate to step down to a lower intensity treatment after participating in a DTP and what level of outpatient care is most effective.

Predictors of Treatment Response

Identifying predictors of treatment response is an important goal, which must begin by identifying plausible candidate variables. One approach consists of using features identified a priori by domain-specific literature review, such as that of Vall and Wade (2015). Applying machine learning to many candidate variables may lead to stronger predictive performance, as has been demonstrated for other psychiatric disorders (Nunes et al., 2020). Predictions may be further improved by augmenting clinical data with other modalities such as neuroimaging, smartphone-based assessments (Linardon, Shatte, Rosato, & Fuller-Tyszkiewicz, 2020), or genomics, which has been demonstrably effective elsewhere (Nunes et al., 2021). Finally, computational modeling of person-specific psychological processes may identify specific targets

for psychological intervention in EDs (Voon et al., 2015; Foerde et al., 2021). Incorporating such information into randomized trials as additional mediator and moderator studies could improve our understanding of the mechanisms by which psychotherapies improve ED outcomes (Sivyer et al., 2020).

Conclusion

In conclusion, although outpatient care and DTPs are both efficacious treatments for adults with EDs, there is a dearth of literature directly comparing the two, and examining them as components in a stepped care model. As such, we have provided specific avenues for further research on this topic, with the goal of generating research that will close this knowledge gap. Research that is generated on this topic will help clinicians and services better evaluate whether and when DTPs have advantages over outpatient care (e.g., initial faster change) that offset some of their potential disadvantages (e.g., potential iatrogenic effects and/or higher costs).

References

Anderson, L. K., Reilly, E. E., Berner, L., Wierenga, C. E., Jones, M. D., Brown, T. A., ... & Cusack, A. (2017). Treating eating disorders at higher levels of care: Overview and challenges. *Current Psychiatry Reports*, *19*(8), 1-9. https://doi.org/10.1007/s11920-017-0796-4

Beck, A. T., Steer, R. A., & Brown, G. K. (1996). *Manual for Beck Depression Inventory-II.* San-Antonio, TX: Psychological Corporation.

Ben-Porath, D., Wisniewski, L., & Warren, M. (2010). Outcomes of a day treatment program for eating disorders using clinical and statistical significance. *Journal of Contemporary Psychotherapy*, 40(2), 115-123.https://doi.org/10.1007/s10879-009-9125-5

Crow, S., & Schmidt, U. (2008) Complex treatments for eating disorders. In Tyrer, P. & Silk, K. (Eds.), *Cambridge textbook of effective treatments in psychiatry* (pp.647-656). Cambridge: Cambridge University Press.

Fairburn, C. G. (2013). *Overcoming binge eating: The proven program to learn why you binge and how you can stop*. Guilford Press.

Fairburn, C. G., & Beglin, S. J. (1994). Assessment of eating disorders: Interview or self-report questionnaire? *International Journal of Eating Disorders*, *16*(4), 363-370. https://doi.org/10.1002/1098-108X(199412)16:4<363::AID-EAT2260160405>3.0.CO;2-%23

Foerde, K., Daw, N. D., Rufin, T., Walsh, B. T., Shohamy, D., & Steinglass, J. E. (2021). Deficient goal-directed control in a population characterized by extreme goal pursuit. *Journal of Cognitive Neuroscience*, *33*(3), 463–481. https://doi.org/10.1101/19002089

Friedman, K., Ramirez, A. L., Murray, S. B., Anderson, L. K., Cusack, A., Boutelle, K. N., &

Kaye, W. H. (2016). A narrative review of outcome studies for residential and partial hospital-based treatment of eating disorders. *European Eating Disorders Review*, *24*(4), 263-276. https://doi.org/10.1002/erv.2449

Garner, D. M. (1991). *Eating Disorder Inventory-2. Professional manual.* Psychological Assessment Resources, Odessa.

Hepburn, Z., & Wilson, K. (2014). Effectiveness of adult day treatment for eating disorders. *Mental Health Review Journal*, *19*(2), 131-144. https://doi.org/10.1108/MHRJ-01-2013-0003

Hilbert, A., Hoek, H. W., & Schmidt, R. (2017). Evidence-based clinical guidelines for eating disorders: International comparison. *Current Opinion in Psychiatry*, *30*(6), 423-437. https://doi.org/10.1097/YCO.0000000000000360

Högdahl, L., Birgegård, A., & Björck, C. (2013). How effective is bibliotherapy-based self-help cognitive behavioral therapy with Internet support in clinical settings? Results from a pilot study. *Eating and Weight Disorders-Studies on Anorexia, Bulimia and Obesity*, *18*(1), 37-44. https://doi.org/10.1007/s40519-013-0005-3

Kong, S. (2005). Day treatment programme for patients with eating disorders: Randomized controlled trial. *Journal of Advanced Nursing*, 51, 5–14. https://dio.org/10.1111/j.1365-2648.2005.03454.x

Linardon, J., Shatte, A., Rosato, J., & Fuller-Tyszkiewicz, M. (2020). Efficacy of a transdiagnostic cognitive-behavioral intervention for eating disorder psychopathology delivered through a smartphone app: a randomized controlled trial. *Psychological Medicine*, 1-12. https://doi.org/10.1017/S0033291720003426

Linardon, J., Wade, T. D., de la Piedad Garcia, X., & Brennan, L. (2017). The efficacy of

cognitive-behavioral therapy for eating disorders: A systematic review and meta-analysis. *Journal of Consulting and Clinical Psychology, 85*(11), 1080–1094. https://doi.org/10.1037/ccp0000245

Matthews, K., Gordon, L., van Beusekom, J., Sheffield, J., & Patterson, S. (2019). A day treatment program for adults with eating disorders: staff and patient experiences in implementation. *Journal of Eating Disorders*, *7*(1), 21. https://doi.org/10.1186/s40337-019-0252-4

McKnight, R., & Boughton, N. (2009). A patient's journey. Anorexia nervosa. *British Medical Journal*, 339. https://doi.org/10.1136/bmj.b3800

Nunes, A., Ardau, R., Berghöfer, A., Bocchetta, A., Chillotti, C., Deiana, V., Garnham, J., Grof, E., Hajek, T., Manchia, M., Müller-Oerlinghausen, B., Pinna, M., Pisanu, C., O'Donovan, C., Severino, G., Slaney, C., Suwalska, A., Zvolsky, P., Cervantes, P., … Alda, M. (2020). Prediction of lithium response using clinical data. *Acta Psychiatrica Scandinavica, 141*(2), 131–141. https://doi.org/10.1111/acps.13122

Nunes, A., Stone, W., Ardau, R., Berghöfer, A., Bocchetta, A., Chillotti, C., Deiana, V., Degenhardt, F., Forstner, A. J., Garnham, J. S., Grof, E., Hajek, T., Manchia, M., Mattheisen, M., McMahon, F., Müller-Oerlinghausen, B., Nöthen, M. M., Pinna, M., Pisanu, C., … Alda, M. (2021). Exemplar scoring identifies genetically separable phenotypes of lithium responsive bipolar disorder. *Translational Psychiatry, 11*(1). https://doi.org/10.1038/s41398-020-01148-y

Sivyer, K., Allen, E., Cooper, Z., Bailey-Straebler, S., O'Connor, M. E., Fairburn, C. G., & Murphy, R. (2020). Mediators of change in cognitive behavior therapy and interpersonal psychotherapy for eating disorders: A secondary analysis of a transdiagnostic randomized

controlled trial. *International Journal of Eating Disorders, 53*(12), 1928–1940. https://doi.org/10.1002/eat.23390

Treasure, J., Crane, A., McKnight, R., Buchanan, E., & Wolfe, M. (2011). First do no harm: iatrogenic maintaining factors in anorexia nervosa. *European Eating Disorders Review*, *19*(4), 296-302. https://doi.org/10.1002/erv.1056

Vall, E., & Wade, T. D. (2015). Predictors of treatment outcome in individuals with eating disorders: A systematic review and meta-analysis. *International Journal of Eating Disorders*, *48*(7), 946-971. https://doi.org/10.1002/eat.22411

Van den Berg, E., Schlochtermeier, D., Koenders, J., de Mooij, L., Goudriaan, A., Blankers, M., ... & Dekker, J. (2020). Implementing cognitive behavioral therapy-enhanced in a routine inpatient and outpatient setting: Comparing effectiveness and treatment costs in two consecutive cohorts. *International Journal of Eating Disorders*, *53*(3), 461-471. https://doi.org/10.1002/eat.23229

Voon, V., Derbyshire, K., Rück, C., Irvine, M. A., Worbe, Y., Enander, J., Schreiber, L. R. N., Gillan, C., Fineberg, N. A., Sahakian, B. J., Robbins, T. W., Harrison, N. A., Wood, J., Daw, N. D., Dayan, P., Grant, J. E., & Bullmore, E. T. (2015). Disorders of compulsivity: A common bias towards learning habits. *Molecular Psychiatry, 20*(3), 345–352. https://doi.org/10.1038/mp.2014.44

Waller, G. (2012). The myths of motivation: time for a fresh look at some received wisdom in the eating disorders? *International Journal of Eating Disorders*, *45*(1), 1-16. https://doi.org/10.1002/eat.20900

Yager, J., Devlin, M. J., Halmi, K. A., Herzog, D. B., Mitchell, J. E., Powers, P., & Zerbe, K. J. (2006). Practice Guideline for the Treatment of Patients with Eating

Disorders, 3rd Edition. Washington, DC: APA Practice Guidelines.