Center for Advanced Studies in Child Welfare

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RESEARCH BRIEF

Outcomes of Children Receiving Mental Health Services from Washburn Center for Children

Purpose of the Study

The purpose of this study was to evaluate children's functioning over time as a result of receiving treatment at Washburn Center for Children. The evaluation focused on understanding how children's behavior and symptomology (as measured by the Strengths and Difficulties Questionnaire [SDQ]) changed over time. In addition, children's functioning in other areas of life, including school and the community were examined.

Background & Purpose

In Minnesota, one in five children experiences mental health challenges, yet only 20% receive the help they need (DHS, 2015). Washburn Center for Children is the state's leading mental health center, caring for a variety of children's needs (Washburn Center for Children, 2015). Washburn Center is deeply committed to delivering high-quality assessment, treatment, and training that improves the lives of the 2,700 children and 8,100 families served.

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As part of its regular treatment program, Washburn Center works with caregivers to complete a tool called the Strengths and Difficulties Questionnaire (SDQ). The SDQ is used to examine improvements in functioning, behavior, and symptomology of children. The SDQ is a brief questionnaire that assesses common areas of social, emotional, and behavioral strengths and difficulties by caregiver report in six domains: emotions, conduct, hyperactivity, peer relationships, prosocial skills, and overall impact (Goodman et al., 2000). The Total Difficulties score was used in this evaluation to determine symptom change over time, which is comprised of the first four areas of functioning. The SDQ is used to communicate between clinical staff and caregivers about the level of a child's functioning.

This study answered the following research questions, prioritizing clinical change among children served by Washburn Center:

1. ***Do children served by Washburn Center show progress through reduced symptoms over time as measured by the SDQ total score and sub-scale domains (i.e., emotions, conduct, hyperactivity, peer relationships, pro-social skills, and overall impact)?***
   a. ***Are significant reductions in symptomology evident for children who complete treatment as well as those who do not complete?***
   b. ***Are significant reductions in symptomology evident across all program types?***
2. ***What factors predict treatment completion among children served by Washburn Center?***
3. ***Do children served at Washburn Center show improved functioning compared to their peers on academic achievement, reductions in CPS involvement, and juvenile court involvement?***

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Methods

The first, highest, and last SDQ scores (from one treatment episode) of a cohort of children who received services from Washburn Center were used to evaluate changes in symptomology over time. Changes in symptomology were compared by program completion status and program type. Performance on math and reading tests and involvement in CPS and juvenile courts were also used to assess functioning.

Through Minn-LInK, Washburn Center service records from a cohort of children who received treatment between July 1, 2007 and June 30, 2012 were matched to data from the Minnesota Department of Education (95% match rate; Table 1). Department of Human Services data and Juvenile court records from the State Court Administrator's Office were also matched to Washburn Center data. Children's records were coded in accordance with their treatment completion (*n*=885) or lack thereof (*n*=495) with guidance from Washburn Center staff based upon clinician-reported discharge reasons. Records were also coded by program type (Outpatient, School Based, and Intensive Programs). The first, highest, and last SDQ scores (from one treatment episode) were used to calculate two change scores by subtracting 1) the first score from the last score and, 2) the highest score from the last score. Paired t-tests were used to assess symptomology change over time for the entire cohort as well as sub-samples identified through treatment completion and program type. Effect sizes were calculated to determine the magnitude of change using Cohen's *d* (mean change divided by standard deviation). Logistic regression was used to determine predictors of treatment completion. School and community functioning were assessed using Generalized Estimating Equations (GEE) and Chi-square analysis.

Table 1: Washburn Center Child Characteristics (n=1338)

	Percent (%)
Gender	
Male	60.3%
Female	39.7%
Race/ethnicity	
White	53.7%
Black	31.9%
Hispanic	8.5%
Asian	2.2%
Native American	3.7%
Free/Reduced Price Lunch Receipt	48.8%
Special Education Receipt	35.3%
Homeless/Highly Mobile	5.0%
Limited English Proficient	3.1%

Findings

Regardless of program type or clinician-based completion status, children benefited greatly from their treatment services at Washburn Center, as evidenced by improvements in symptomology as measured by the Strengths and Difficulties Questionnaire. Further analysis into demographic contributions to completion revealed that children, on average, improved their SDQ scores, regardless of race/ethnicity or other characteristics.

Overall, this evaluation identified that children served by Washburn Center benefited greatly from their treatment services, as evidenced by significant reductions in symptomology (Table 2). Based on improvement in symptoms, children, on average, moved from the abnormal range of symptoms (*M*=18.2; a score of 17 and above on the SDQ) into the lower borderline range of symptoms (*M*=15.4; a score of 14-16 on the SDQ) in conjunction with their treatment. SDQ scores decreased, on average, from the first to last (*M*=-2.7) and highest to

Table 2. Total Difficulties by Program Type and Completion Status

	Total Difficulties									
	N	First SDQ	Last SDQ	High SDQ	Δ Last First	SD	Δ Last High	SD	LF Effect size[a]	LH Effect size[b]
All	1338	18.2	15.4	20.5	-2.7*	6.0	-5.1*	5.1	0.45	1.00
Outpatient	495	16.1	13.5	18.2	-2.6*	6.0	-4.7*	4.8	0.43	0.98
School Based	392	16.7	14.2	20.1	-2.4*	6.1	-5.8*	7.0	0.39	0.83
Intensive Programs	451	21.7	18.6	23.7	-3.1*	6.0	-5.1*	4.8	0.52	1.06
All Completers	885	18.0	14.6	20.2	-3.4*	6.1	-5.6*	5.1	0.56	1.10
Outpatient	304	14.7	11.7	18.8	-3.1*	6.2	-5.1*	5.1	0.50	1.00
School Based	208	15.9	12.2	19.3	-3.7*	6.2	-6.6*	5.3	0.60	1.25
Intensive Programs	373	21.7	18.2	23.7	-3.5*	6.0	-5.5*	4.9	0.58	1.12
All Non-Completers	453	18.6	17.1	21.3	-1.5*	5.7	-4.2*	4.2	0.26	1.00
Outpatient	191	18.4	16.4	20.5	-2.0*	5.6	-4.1*	4.3	0.36	0.95
School Based	184	17.5	16.5	21.0	-1.0***	5.7	-4.5*	4.2	0.18	1.07
Intensive Programs	48	21.5	20.3	23.9	-1.2	3.1	-3.6*	3.9	0.39	0.92

*p<.001 **p<.01 ***p<.05

[a]Effect size (Cohen's d) is the effect size of the Last SDQ score - First SDQ score divided by the pooled standard deviation.

[b]Effect size (Cohen's d) is the effect size of the Last SDQ score - Highest SDQ score divided by the pooled standard deviation.

last scores (*M*=-5.1), indicating a significant improvement in symptoms among children who received services. This progress was also evident by an average decrease among all SDQ sub-scales (see Supplemental Tables A-F).

Improvements in symptomology were associated with moderate (*d*>0.5) to large (*d*>0.8) effect sizes (Table 2). Moderate, significant effects were evident in mean change from first to last score across the entire cohort and by program type. Large, significant effects were seen primarily in the highest to last change in scores across the entire cohort and by program type.

Symptomology changes between the highest and last scores were larger than changes between the first and last scores, indicating that children's symptoms peaked post-intake (Cohen, 1992; Table 2). However, this peak (a trend apparent across all SDQ subscales; Supplemental Tables A-F) occurred at different points in children's treatment.

On average, symptoms improved for children who received services (regardless of program type), although children who received treatment in Intensive Programs experienced the greatest gains in symptom reduction from the first to the last SDQ.

On average, symptoms improved for children who received services (regardless of program type), although children who received treatment in Intensive Programs experienced the greatest gains in symptom reduction from the first to the last SDQ (*M*=3.1; Table 2). Children who received treatment in School Based programs experienced the greatest gains in symptom reduction from the highest to last SDQ (*M*=-5.1). (Patterns of change across SDQ subscales by program type are presented in Supplemental Tables A-F.)

Children who (by clinician report) completed treatment at Washburn Center experienced larger improvements in symptomology than children who did not complete treatment (Table 2). This was evident in symptom reduction from the first to last SDQ (*M*=-3.4 vs. *M*=-1.5) as well as in symptom reduction from the highest to last SDQ (*M*=-5.6 vs. *M*=-4.2). This trend was evident for the entire cohort as well as by program type.

Using a process developed by the SDQ called *Added Value score*, additional analyses were performed to compare the improvement in symptoms of children at Washburn Center compared to predicted improvement assumed by SDQ standards. The added value score was developed using the first SDQ score and the SDQ score at or around six months (between four and eight months) of children who received Outpatient treatment (a treatment option whose treatment length permitted this analysis). Findings of this analysis revealed that Washburn Center children improved by 0.5

points beyond predicted algorithm score (predicted *M*=14.8; actual *M*=14.3); children who completed treatment improved their score 0.8 points beyond the predicted value (predicted *M*=13.6; actual *M*=12.8), and the mean score of children who did not complete treatment was the same as that of the predicted value (*M*=16.6).

Logistic regression was used to determine significant predictors of treatment completion among children served by Washburn Center. Significant predictors were primarily treatment-related indicators. Children whose SDQ change scores decreased on both the first to last and highest to last scores were 1.8 times more likely to complete (p<.001) and children who received treatment more than six months were 1.9 times more likely to complete (p<.001). Children who demonstrated satisfactory school attendance (>90%) were 1.3 times more likely to complete treatment (p<.05), while children who experienced out-of-home placement were 1.5 times less likely to complete treatment (p<.05). Across all regression models, White children were 1.6 times more likely to complete treatment than non-White children (p<.001). Based on this finding, SDQ scores were re-examined to determine clinical progress of children by race/ethnicity. Findings indicated that regardless of all other factors and across sub-scales, all children improved their scores similarly, despite differences in mean scores by race/ethnicity. It was also important to note that completion was defined by a clinician, yet improvement in symptomology was assessed by a parent or caregiver.

While this study primarily focused on symptomology, children's school and community functioning were also of interest. Children treated at Washburn Center performed similarly on the Minnesota Comprehensive Assessments (MCA) as their matched peers, yet children who completed treatment performed higher on the MCAs than those who did not complete. Children with a history of Child Protective Service (CPS) involvement experienced lower, non-significant rates of post-treatment CPS involvement than their peers. Washburn Center children experienced contact with the juvenile court system at nearly identical rates as their peers (11.3% and 10.3%, respectively).

Conclusion

This evaluation sought to better understand the outcomes of children served by Washburn Center for Children, as determined by changes in symptomology and functioning over time. Children receiving services at Washburn Center experienced significant, meaningful change (i.e., improvement in symptomology as measured by the SDQ) in conjunction with treatment. Reductions in children's symptomology were significant regardless of the SDQ change score used (e.g., first to last score or highest to last score). Improvements in symptomology were also larger than predicted; effect sizes were moderate to large and surpassed what was expected given SDQ parameters (Ford et al., 2009). It is important to note that these improvements in symptomology were evident regardless of the program in which children received services or whether the children reached a successful treatment completion status (as reported by clinician discharge indicators).

Limitations

Although mean SDQ change was calculated for first to last and highest to last scores, the highest score may also have been a first or last score. Variations existed in the occurrence of SDQ peaks (highest score) and quantitative data did not provide insight into why this phenomenon occurred. Additionally, this study did not account for subsequent treatment episodes; children may have entered Washburn Center for treatment more than once.

Findings of this evaluation revealed that children's scores peak mid-treatment, after their intake at Washburn Center. This could suggest that children's presenting symptomology is underestimated by caregivers or that the process of treatment itself may bring out additional symptoms not previously reported by caregivers. For example, children may feel freer to express their symptoms to caregivers while receiving treatment than they felt prior to beginning treatment at Washburn Center.

Although all Washburn Center children experienced benefit from treatment, those who completed their treatment experienced larger reductions in symptomology than children who didn't complete treatment. Significant predictors of treatment completion were primarily treatment-related indicators; characteristics and experiences of children were less significant predictors of treatment completion.

When compared to similarly situated peers on academic achievement, child protection report recurrence, and juvenile court-involvement, results did not show consistent significant differential relationships over time. The effect of treatment on a child's mental health symptomology, however, did show consistent, significant effects in regard to an amelioration of clinical symptoms.

The role of Washburn Center for Children is incredibly important and has a large impact on the well-being of children in Minnesota. Through its partnership with the Center for Advanced Studies in Child Welfare, Washburn Center has tested a way of using children's mental health service data to inform treatment and service delivery for future use by practitioners. In this way, Washburn Center may serve as a model for other children's mental health centers and be poised to use this information to support improvements in policy and practice across the state of Minnesota.

References

Cohen, J. (1992). A power primer. *Psychological Bulletin, 112* (1), 155-159.

Ford, T., Hutchings, J., Bywater, T., Goodman, A., & Goodman, R. (2009). Strengths and Difficulties Questionnaire Added Value Scores: Evaluating effectiveness in child mental health interventions. *The British Journal of Psychiatry, 194*, 552-558.

Goodman, R., Ford, T., Simmons, H., Gatward, R., & Meltzer, H. (2000). Using the Strengths and Difficulties Questionnaire to screen for childhood psychiatric disorders in a community sample. *British Journal of Psychiatry, 177*, 534-539.

Minnesota Department of Human Services. (2015, October). Children's mental health: Transforming services and supports to better meet children's needs. Retrieved from https://edocs.dhs.state.mn.us/lfserver/Public/DHS-5051-ENG

Washburn Center for Children. (2015). Washburn Center for Children: About us. Retrieved from http://washburn.org/about-us

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