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Treatment Foster Care Oregon (TFCO): Preliminary Results from a Study among Norwegian Youths

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Abstract: Treatment Foster Care Oregon (TFCO) is a comprehensive and evidence-based program focusing on youths with serious problem behaviors and their families. The program was developed in the US, and studies indicate that TFCO is an effective treatment program for youths with serious behavioral and emotional problems. The present study aimed to examine treatment changes in behavioral and emotional problems in a sample of 76 Norwegian youths (57.9% boys, mean age = 14.93) who were assigned to TFCO. Data were retrieved from the Routine Outcome Monitoring (ROM) system, used to ensure the program's national quality, and included measures of risk factors (YLS/CMI), internalizing and externalizing behaviors (ASEBA), in addition to five nationally defined outcome goals. The study included data from intake and the end of treatment. The results showed significant reductions in risk factors and externalizing and internalizing problems. The number of youths who completed all five outcome goals increased over the course of therapy. The results suggest that TFCO might be an effective treatment program for Norwegian youths with severe problem behaviors.

Keywords: TFCO; problem behaviors; risk factors; out-of-home care; YLS/CMI; ASEBA

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1. Introduction

Adolescents with persistent and severe problem behaviors show an increased risk for school drop-out, exclusion from work life, criminal behavior, drug abuse, and psychopathology [1,2]. Findings also show that youth conduct problems often associate with anxiety, depression, trauma, and learning disorders [3]. Compared to children, youth problems tend to be more segmented, severe, and complex, reflecting an early debut and accumulated problems [4]. Altogether, this makes it challenging and costly to treat these youths [5,6].

When parents are not able to cope with a youth's problem behaviors, the solution has usually been placement in a child welfare institution or foster care. This is often an expensive and temporary solution. Findings indicate that placing youths in out-of-home settings with other youths facing the same challenges often results in placement breakdowns, and the acceleration of serious problem behaviors [7,8]. This emphasizes the need for more comprehensive treatments towards this group of youths and the affected families. The Treatment Foster Care Oregon (TFCO) is an out-of-home treatment developed in the US and aimed towards youths with severe and complex behavioral problems and their families [9]. So far, few studies have evaluated the TFCO outside the US, and more research about its efficacy and transferability to other countries is warranted. In the present study, we aimed to extend previous findings by examining changes following TFCO in a sample of Norwegian youths.

1.1. The Treatment Foster Care Oregon Model

TFCO is a multisystemic and intensive Blueprint treatment program for youths with severe behavior and emotional problems, including delinquency, aggression, substance abuse, truancy, violence, and poor social skills [9]. The program was developed in 1983, after

the closing of several juvenile homes in the US, and subsequent studies at the Oregon Social Learning Center. TFCO was created as an alternative to institutional, residential, and group care placements for antisocial youths aged 12 to 18 years [10–12] using a comprehensive, multisystemic and coordinated approach that targets different settings in the youth's life (community, family, school, peers).

Theoretically, TFCO is based on Bronfenbrenner's [13] ecological systems theory, in which a child's development is considered both multi-leveled and complex. As such, the child is affected by several surrounding relationships and environments, from immediate settings constituting family and school, to the broader context of cultural values, laws, and customs. TFCO addresses known risk and protective factors in the different social arenas (community, home, school, peers), and thus constitutes a family- and community-based treatment towards youth problem behaviors [12]. In addition, it draws upon Patterson's [14] model of coercive family processes that shows how conduct problems develop and sustain through conflict spirals of stress and negative emotions between the family members. As a consequence, the youth learns negative strategies about how to get what they want, and how to avoid demands. Ultimately, the whole family system develops in a negative downward spiral [15] that leads to loss of relationships and commitments. This is further expressed through severe youth emotional and behavioral problems. Finally, TFCO is founded on social learning [16] and attachment theory [17] that emphasize the importance of positive relationships, and that parents are key agents in child development as well as in the process of changing youth behavior [18,19].

Treatment in TFCO is provided by a team consisting of a team leader, a family therapist, an individual therapist, a skills coach, and a foster parent recruiter. The TFCO team is available 24/7 for support and guidance to the youth, the foster parents, and the family of origin. The team works together to provide the key treatment components of TFCO: family therapy, individual therapy, skills training and interventions targeting the school system and the local community. The whole team undergoes a four-day-long training program and are provided continuous consultation and ongoing training. The foster parents receive initial and ongoing training, as well as daily contact, weekly group meetings, and in-the-moment coaching. The TFCO program has a certification protocol that provides standardized measurements of the TFCO model components, and detailed feedback is provided regarding program strengths and areas in need of improvement.

During treatment, the youth lives in a temporary treatment home (foster home) that takes one youth at a time. At the beginning of treatment, the TFCO team provides appropriate safety planning when necessary, and conducts thorough multisystemic and ecological assessments of individual, familial, peer, school, and community-related risk and protective factors. These assessments are used to carefully prioritize, design and tailor the intervention in the various treatment modalities (family therapy, individual therapy and skills training). Weekly clinical meetings are used to review progress towards treatment goals, and revise and re-prioritize interventions based on the needs of each youth. Throughout treatment, the parents and the youth meet regularly in family therapy, in addition, the youth receives both individual therapy and skills training. Parents' individual issues are addressed in parallel with problems related to parenting (like communication, planning and negotiation). The therapists work with increasing family warmth, cohesion, and responsible behavior to improve youth-parent interactions and cooperation in concert with reducing the risk factors [11,18]. Gradually, during the course of treatment, the youth increases the frequency of home visits, and ultimately, they can move back permanently. Typically, treatment lasts between 9 and 12 months.

TFCO has been found to reduce youth risk factors, promote positive youth development, and avoid permanent placement out of home, which has been documented in knowledge summaries [7,20,21] and international studies [10,11,22,23]. Moreover, TFCO has been found to reduce severe problem behaviors, placements in institutions, disruptions in institution placements, use of foster parents [24–27] and to be a cost-effective alternative to other treatments [28]. Notably, only a handful of the studies derive from

Scandinavia [27,29,30]. These are all Swedish studies that compared TFCO with usual treatment, and results indicate that TFCO reduces externalizing problems [27], violence, incarceration, and criminality behavior [29], but not youth's general symptom-level [30]. Overall, it is less known to what extent the results of TFCO can be generalized to other countries outside the US context.

1.2. Multi-Informant Approach

A multi-informant approach is considered advantageous in the assessment of behavioral problems in children and adolescents [31–34]. In this study, we had access to assessments of externalizing and internalizing problems from both parents and the youth, in addition to therapist-reported problem behaviors and risk factors. Previous findings have however found that different respondents tend to provide different information regarding a youth's symptom picture [31,34,35]. This may relate to the fact that the respondents generate information from different contexts [36]. Although less research has been conducted on inter-parental agreement, findings indicate that mothers and fathers are not always congruent. However, mothers and fathers tend to agree more when child problems are externalizing in nature and the symptom pressure is high [31–34]. Fathers often evaluate child behavior more positively than mothers [33], but are often under-represented in clinical studies. This is an issue that warrants further investigation, especially in intervention research, where reports from parents can be crucial with regard to intake to treatment as well as termination.

1.3. The Present Study

The aim of this study was to evaluate treatment changes related to TFCO, in a sample of Norwegian youths with severe problem behaviors. The first Norwegian TFCO team was established in 2009, and at the time of this study, three TFCO teams were in operation, but only two of them were included in this study, due to the fact that the third team had just begun treating their first youths. The two other teams had offered treatment to 18 and 58 youths, respectively.

Specifically, we were interested in whether TFCO supports youth's achievements of the overarching treatment goal, in terms of completion of the five nationally defined outcome indicators (lives at home, attends school/work, law-abiding, drug-free, and does not use violence/threats). However, to examine their relation to environmental risk factors and emotional and behavioral problems, we chose to reverse the indicators and create an additive risk behavior index.

The purpose of this study was twofold. First, we wanted to examine to what extent the assessed risk factors associated with internalizing and externalizing problems, as reported by the youths and both parents, and the team leader. This would reveal to what degree the risk factors are connected to youth's emotional and behavioral problems, in line with Bronfenbrenner's theory [13]. In addition, we were interested to what extent different respondents agreed in their evaluations of the youths. Second, we wanted to examine changes in risk factors and emotional and behavioral problems over the course of treatment, and youth's achievements of the overarching treatment goal. Completion of the five indicators reflects the overarching treatment goal for TFCO in Norway; therefore, this was considered an important outcome in this study. Based on previous research, we expected TFCO to reduce risk factors and youth's externalizing and internalizing problems, and increase their accomplishment of the overarching treatment goal.

2. Methods

2.1. Participants and Procedure

Participants were 76 Norwegian youths aged 12–18 years (57.9% boys, M_{age}= 14.93) and their parents, who were enrolled for participation in TFCO. The families were recruited from health regions South (n = 18) and East (n = 58) in Norway. In line with standard procedures in Norwegian childcare services, intake was based on a formal screening

and each practitioner's clinical judgment [18]. An important aspect that influences on the practitioner's clinical judgment is whether other home-based treatments have been tried before.

Data stemmed from the Routine Outcome Monitoring (ROM) system, which includes broadband measures of risk factors, internalizing and externalizing problems, and registrations of the nationally defined outcome goals. This is a national program of data collection and an integral part of the continuous quality improvement system for TFCO in Norway [18]. The present study had a single-group pre-post design, and the data included measures from the start and the end of treatment.

2.2. Measurements

Risk factors. The leader of the youth's therapeutic team reported on risk factors in the youth's surroundings (i.e., neighborhood, family, friends, and school) using the Youth Level of Service/Case Management Inventory—Part I (YLS/CMI) [37]. The measurement includes 42 items and provides a generic assessment of risk and need factors. These include criminal history and seven malleable or dynamic risk factors: family circumstances/parenting, education/ employment, peer relations, substance abuse, leisure/recreation, personality/behavior, and attitudes/orientation, which are found to be sensitive to change in risks [37]. Altogether the factors are referred to as the "big eight". The measurement is validated and found to be predictive for, e.g., risk of recidivism [38–40].

Emotional and behavioral problems. The Achenbach System of Empirical Based Assessment (ASEBA) [41] was used to assess emotional and behavioral problems. ASEBA is designed to measure a range of child emotional and behavioral difficulties from different perspectives. The ASEBA is a widely used instrument in Norway [42], and has shown good validity across various countries and cultures [41,43]. In this study, ASEBA was used to measure internalizing and externalizing problems. Data included assessments from the youths (Youth Self Report; YSR) and both parents (Child Behavior Checklist; CBCL). The YSR encompasses 112 items, whereas the CBCL contains 113 items. All symptoms are evaluated on a 3-point scale (not true = 0, somewhat or sometimes true = 1, and very true or often true = 2).

National outcome indicators. The leader of the therapeutic team reported on five nationally defined outcome goals. These are dichotomous (yes/no) indicators and comprised the following behaviors: (1) lives at home vs. does not live at home, (2) attends school or work (min 50% work attendance) vs. does not attend school/work, (3) does not use violence/threats vs. uses violence/threats, (4) law-abiding vs. crimes and/or misconduct, and (5) drug-free vs. substance use. The overarching treatment goal is defined as the achievement of all five non-risk outcomes. Originally, positive (non-risk) outcomes were coded as 1 and negative outcomes as 0, but to investigate the presence of risk behaviors, this coding was reversed (1 = risk), and we created an additive index reflecting risk behaviors.

Covariates. A number of characteristics related to the youth and the parents were included: youth age and gender (0 = girl, 1 = boy), ethnic background (Norwegian, immigrant, or immigrant parents), health region (South or East), and registrations of earlier attended treatment programs, including the Parental Management Training, the Oregon model (PMTO) [44], Multisystemic treatment (MST) [45]. PMTO and MST are both national programs towards youth with problem behaviors, but less comprehensive compared with TFCO.

2.3. Statistical Analyses

All analyses were conducted in SPSS [46] and JASP [47]. Descriptive analysis included mean levels and associations between variables (Spearman's correlations). The chi-squared test was used to analyze group differences in categorical variables, and p-values less or equal to 0.05 were considered significant. Changes in risk factors and outcomes from intake to end of treatment were addressed using paired sample t-tests. By convention, effect sizes are reported as small, medium, and large when d approaches 0.2, 0.5, and

0.8, respectively [48]. To investigate the occurrence of risk behaviors, the five nationally defined indicators were reversed (e.g., 1 = risk behavior) and summarized into an overall risk–behavior index.

Binary logistic regression analyses were performed to examine whether variables (background, externalizing and internalizing problems at intake, dynamic risks) were predictive of youth's completion of the overarching treatment goal at end of treatment (i.e., no risk behaviors). Youth gender (male = 1), age, and number of treatment days were entered in the first block of variables, whereas the second block included internalizing and externalizing behaviors as reported by mothers at intake. The third block included treatment change in the dynamic YLS/CMI score. Odds ratios (OR) and 95% confidence interval (CI) were estimated, where the OR represents the odds for a youth to fulfill the overarching treatment goal.

3. Results

3.1. Attrition

Seventy-six youths were assessed at intake, whereas sixty-eight (89.5%) were assessed at the end of treatment. Comparisons between the attrition and the completer group showed no differences in youth's age ($p = 0.22$), gender ($p = 0.78$), overall risk-level ($p = 0.21$), or in the YLS/CMI risk factors ($p = 0.10$).

3.2. Descriptive Statistics

Descriptive statistics are provided in Table 1. At intake, the mean age of the sample was 14.93 years (SD = 1.35, range: 12–18) and 57.9% were boys. The majority of the participants were from the Eastern part of Norway (76.3%). The average number of treatment days was 290 days (SD = 124.03, range: 20–668), but the large standard deviation reflects substantial variations in treatment time. About half of the sample had previously received other treatments (PMTO, MST, or both) before they were assigned to TFCO. Most youths (82.9%) did not attend school or work, they showed violent behavior or threatened with violence (81.6 %), used drugs (71.1%), and/or they were involved in criminal activity (77.6%). The risk behavior index showed a mean score of 3.87 (SD = 1.17), and 32 (42.1%) youths displayed all risk behaviors. All youths showed a moderate or high level on the YLS/CMI risk scale classification [37]. Notably, mothers reported a higher total score (M = 88.44, SD = 25.16) on the CBCL compared with fathers (M = 83.31, SD = 26.37). Youths, on the other hand, reported a lower YSR total score compared with both parents (M = 61.97, SD = 26.02). Findings showed that the means were all statistically different from each other ($p < 0.05$).

Table 1. Sample characteristics.

Characteristic	*n* (%)	M (SD)
Gender		
Boy	44 (57.9)	
Girl	32 (42.1)	
Age		14.93 (1.37)
Region		
East	58 (76.3)	
South	18 (23.7)	
Ethnicity		
Norwegian	63 (82.9)	
Immigrant	8 (10.5)	
Immigrant parents	5 (6.6)	

Table 1. *Cont.*

Characteristic	*n* (%)	M (SD)
Treatment day		289.71(124.03)
Earlier treatment		
None	37 (48.7)	
MST	26 (34.2)	
PMTO	5 (10.5)	
MST and PMTO	8 (10.5)	
Problem behaviors		
Placed by childcare services	56 (73.7)	
Not attending school/work [1]	63 (82.9)	
Use violence/threats	62 (81.6)	
Drug abuse	54 (71.1)	
Criminal behavior	59 (77.6)	
Number of risks		3.87 (1.17)
YLS risk levels		
Low	-	
Moderate	42 (55.3)	
High	34 (44.7)	
Very high	-	
YLS total		22.50 (3.81)
CBCL/YSR total scores		
Mother reports		88.44 (25.16)
Father reports		83.31 (26.37)
Youth reports		60.97 (26.02)

Note. M = mean, SD = standard deviation. YLS risk levels: low = 0–8, moderate = 9–22, high = 23–34, very high = 35–42 (Hoge and Andrews. 2002). [1] Not attending school or working min 50% full time. CBCLs were evaluated by $n = 64$ mothers and $n = 42$ fathers. YSR was scored by $n = 71$ youths.

3.3. Correlations between Risk Factors and Outcomes

Table 2 shows correlations between the study variables at intake. The YLS/CMI dynamic and total risk scores correlated significantly with risk behaviors ($r = 0.47$ and $r = 0.54$, $p < 0.001$), and with externalizing problems as reported by mothers ($r = 0.39$–0.40, $p < 0.001$) and youths ($r = 0.33$–0.29, $p < 0.05$), but not with father reports. Externalizing and internalizing problems correlated significantly within same respondents ($r = 0.26$–0.41, $p < 0.05$). Internalizing problems were unrelated across parents, but overlapped in reports of externalizing problems ($r = 0.63$, $p < 0.001$). Youth self-reports correlated with mother reports ($r = 0.51$ for internalizing and $r = 0.45$ for externalizing, both $p < 0.001$), but not with father reports. Youth gender (1 = male, 0 = female) was unrelated to all variables, except from youth's self-reports. Age correlated negatively with externalizing problems as reported by both parents (mothers: $r = -0.29$, $p < 0.05$ and fathers: $r = -0.34$, $p < 0.05$).

Table 2. Correlations between variables at intake.

	1	2	3	4	5	6	7	8	9	10
1. M—Internalizing	-									
2. M—Externalizing	0.26 *	-								
3. F—Internalizing	0.06	0.03	-							
4. F—Externalizing	−0.24	0.63 **	0.41 **	-						
5. Y—Internalizing	0.51 **	0.06	0.00	−0.34 *	-					
6. Y—Externalizing	0.18	0.45**	0.08	0.18	0.38 **	-				
7. T—YLS/CMI_dynamic	−0.06	0.39 **	−0.17	0.23	−0.04	0.33 **	-			

Table 2. *Cont.*

	1	2	3	4	5	6	7	8	9	10
8. T—YLS/CMI_total	−0.15	0.40 **	−0.18	0.28	−0.11	0.29 *	0.97 **	-		
9. T—Problem behaviors	0.09	0.37 **	−0.08	0.48 **	−0.13	0.14	0.47 **	0.54 **	-	
10. Gender (Male = 1)	−0.18	−0.24	−0.04	−0.13	−0.34 **	−0.25 *	0.00	0.03	0.00	-
11. Age	−0.13	−0.29 *	−0.14	−0.34 *	0.05	−0.06	−0.12	−0.07	−0.01	−0.06

Note. ** $p < 0.001$, * $p < 0.05$. M = Mother reports, F = Father reports, Y = Youth self-reports, T = Therapist reports. Problem behaviors is shown as the additive index of the 5 problem indicators.

3.4. Treatment changes from Intake to End of Treatment

3.4.1. Changes in Risk Factors

Table 3 displays changes in risk factors from intake to end of treatment. As shown, significant reductions were found in all eight risk domains. Especially large reductions were found for the factors Family/parenting (d = 1.62, CI: 1.26–1.98), Education/employment (d = 1.60, CI: 1.24–1.95), and Personality/behavior (d = 1.54, CI: 1.18–1.89). Both the dynamic and total YLS/CMI scores showed changes of large effect sizes (d = 1.9, CI: 1.5–2.3).

Table 3. Treatment changes in YLS/CMI risk scores.

	Intake		End of Treatment		Difference		
	M	SD	M	SD	t-Value	*d*	(95% CI)
Static Risk							
Offenses/Dispositions	1.11	0.97	0.21	0.41	7.49 **	0.91	(0.62–1.19)
Dynamic Risks							
Family/Parenting	4.84	1.06	1.56	1.71	13.36 **	1.62	(1.26–1.98)
Education/Employment	4.75	1.42	1.75	1.58	13.17 **	1.60	(1.24–1.95)
Peer Relations	2.49	1.10	1.15	1.21	7.89 **	0.96	(0.67–1.24)
Substance Abuse	1.67	1.35	0.53	0.91	7.09 **	0.86	(0.58–1.14)
Leisure/Recreation	1.89	0.62	1.01	0.86	7.55 **	0.92	(0.63–1.20)
Personality/Behavior	3.99	1.47	1.50	1.64	12.67 **	1.54	(1.18–1.89)
Attitudes/Orientation	1.76	1.06	0.62	1.01	7.80 **	0.95	(0.66–1.23)
∑Dynamic risk factors	21.39	3.43	8.12	6.58	15.43 **	1.87	(1.47–2.26)
∑Total risk factors	22.50	3.81	8.32	6.85	15.63 **	1.90	(1.49–2.29)

Note. ** $p < 0.001$. $N_{intake} = 76$, $N_{post} = 68$. Cohen's d = the difference between the means divided by the pooled SD (JASP, 2020).

3.4.2. Changes in Internalizing and Externalizing Problems and Risk Behaviors

Table 4 shows changes in internalizing and externalizing behaviors (parent- and youth-reported) and risk behaviors (therapist-reported). The results show significant reductions in both internalizing and externalizing problems across respondents from intake to end of treatment. Mothers reported most internalizing problems, followed by fathers and youths. Paired-samples t-tests showed that the difference between mothers and fathers (M_{diff} = 2.08, p = 0.37) and between fathers and youths (M_{diff} = 2.34, p = 0.35) were non-significant, but that mothers reported significantly higher levels than youths (M_{diff} = 4.41, $p < 0.001$). Fathers reported somewhat more externalizing problems than mothers did, whereas youths reported the fewest problems. Fathers and mothers did not report different levels of externalizing problems (M_{diff} = 1.97, p = 0.31), but both parents reported more externalizing problems than the youths did ($p < 0.001$). The overall level of problem behaviors as reported by the therapists decreased significantly during treatment. At intake, therapists reported a mean level of 3.87, i.e., on average, youths displayed about four of five risks. At the end of treatment, the mean was 0.68, and there was a significant reduction in problem behaviors ($p < 0.001$).

Table 4. Treatment changes in internalizing and externalizing problems.

	Intake		End of Treatment		Difference		
	M	**SD**	**M**	**SD**	**t-Value**	***d***	**(95% CI)**
Mother reports							
Internalizing	20.02	8.67	11.60	7.431	6.65 **	0.95	(0.61–1.28)
Externalizing	37.22	11.96	19.36	12.526	11.81 **	1.69	(1.25–2.12)
Father reports							
Internalizing	17.71	10.80	8.22	4.78	6.98 **	1.42	(0.84–1.99)
Externalizing	38.48	14.40	16.85	12.45	7.43 **	1.52	(0.92–2.10)
Youth reports							
Internalizing	14.89	10.88	9.74	9.30	5.79 **	0.83	(0.50–1.15)
Externalizing	23.70	10.02	14.22	8.39	6.95 **	0.99	(0.65–1.33)
Therapist reports							
Risk behaviors	3.87	1.17	0.68	1.25	16.65 **	1.96	(1.56–2.36)

Note. ** $p < 0.001$. Reports are based on $n = 64/50$ mothers, $n = 42/27$ fathers, $n = 71/50$ youths and $n = 76/72$ therapist at intake/end of treatment.

3.5. Logistic Regression Analyses

At the end of treatment, 64.5% ($n = 49$) of the youths had completed the overarching treatment goal, that is, they displayed none of the risk behaviors. A logistic regression model was used to investigate youths who completed the treatment goal vs. those who did not, and the effects of the following variables: gender (male = 1), age, number of treatment days, mother-reported internalizing and externalizing problems at intake, and change in dynamic risk factors. Table 5 shows the odds (ORs) for achieving the overarching treatment goal, and as seen, gender, age, number of treatment days, and mother-reported internalizing and externalizing problems were all non-significant. The YLS/CMI dynamic change factor appeared as a highly significant predictor ($p \leq 0.001$) on the completion of the overarching outcome goal. The final model showed $R^2 = 0.53$ (Cox and Snell) with 89.7% correct classification.

Table 5. Logistic regression model.

Predictors	**B**	**Wald**	**OR**	**(95% CI)**
1. Gender (male = 1)	0.260	0.075 ns	1.297	(0.20–8.28)
Age	−0.008	0.004 ns	0.992	(0.79–1.25)
Treatment days	0.005	1.092 ns	1.005	(1.00–1.01)
2. M—Internalizing	−0.020	0.128 ns	0.980	(0.88–1.09)
M—Externalizing	−0.079	3.662 ns	0.924	(0.85–1.00)
3. ΣDynChange	0.256	10.282 **	1.292	(1.10–1.51)

Note. ** $p \leq 0.001$. M = mother reports, $\sum$ DynChange = change in dynamic risk score from intake to end of treatment. OR: Odds Ratio; CI: Confidence Interval.

4. Discussion

The purpose of the present study was to examine treatment changes in risk factors and behavioral and emotional problems, in a sample of Norwegian youths assigned to TFCO. First, we investigated correlations between the assessed risk factors and emotional and behavioral problems. We were also interested in correspondence between different respondents. Second, we examined treatment changes from intake to end of therapy, in risk factors and outcomes. We were especially interested in whether background and risk factors related to youth's accomplishment of the overarching treatment goal, that is, completion of the five *national outcome indicators*. The results showed that the risk factors correlated positively and significantly with externalizing problems (mother- and youth- reported) and risk behaviors (reported by the team leader). The youths showed significant reductions in risk factors and emotional and behavior problems over the course of treatment. Change in the dynamic risk factor associated significantly with the completion of the overarching treatment goal.

4.1. Risk factors and Emotional and Behavioral Problems at Intake

The youths displayed severe emotional and behavioral problems at intake, and we assumed that these were linked to risk factors in the youth's environment, in line with Bronfenbrenner's theory [13]. Consistent with this assumption, we found that both the dynamic and the total risk-scores (YSL/CMI) correlated with youth externalizing problems, as well as the overall index of problem behaviors. However, we found no significant correlations between the risk factors and internalizing problems. This finding was consistent across parent and youth reports, and it suggests that the overall YLS/CMI risk score primarily catches risks associated with externalizing behaviors. It could be that externalizing and internalizing problems do not share the same risk factors in this group of youths, but follow different etiological pathways. However, it is also possible that the additive total and dynamic risk scales suppress the impact of unique risk factors that are related to internalizing problems. How each of the YLS/CMI risk domains relates to externalizing and internalizing problems specifically, is an issue that warrants further investigation.

The results suggest that externalizing and internalizing problems associate within respondents (r = 0.26–41, $p < 0.001$), but not necessarily between respondents. Mothers and fathers did not show correspondence in their reports on youth internalizing problems (r = 0.06, p = ns), but in their reports of externalizing problems (r = 0.63, $p < 0.001$). These findings are in line with other findings that suggest higher inter-parental correspondence when it comes to child externalizing problems than internalizing problems [31,34]. The overlap in externalizing problems may reflect that this type of behavior is easily observable in nature, and probably an issue of conflict for both parents. Notably, only mother-reported internalizing and externalizing problems showed correspondence with youth-reported problems (internalizing, r = 0.51, $p < 0.001$ and externalizing, r = 0.45, $p < 0.001$). We can only speculate why this is the case, but it could be that mothers spend more time with the youngsters than fathers do. However, research indicates that inter-parental agreement may be moderated by factors like child gender, parental stress, and ethnicity, which further impact on parents' sensitivity to child symptoms [49].

4.2. Changes in Risk Factors and Emotional and Behavioral Problems

The results showed significant reductions in all eight YLS/CMI risk domains from intake to end of treatment. Especially large reductions were found for the scales Family/parenting, Education/employment and Personality/behavior. This result is not surprising, given that these are treatment targets in TFCO throughout the weekly meetings in the foster home, and in the daily contact with the young people's school or job. As previously described, the TFCO team intervenes and gives both the youth and the parents new skills to cope with their daily challenges. The results identify Family/parenting, Education/employment, and Personality/behavior as important risk factors in the youths' environment. Furthermore, it illustrates that the domains can be targeted and changed through treatment.

It should be noted that the youth lives in a temporary foster-home during treatment, and consequently, they are removed from the driving risk factors for a period of time. From a distance, it is easier to work on the risk factors. Another contributing aspect is the weekly family therapy with the youth's original family. They receive therapy with the specific goal of reducing key risk factors in the family context. At the same time, the youth and family progressively expand their time together, sometimes after only 3–4 weeks in treatment. Altogether, these efforts make it possible to build positive relationships and establish new skills for both the parents and the youth. The results also show the positive effects of reducing the dynamic risk factors in the youth's surroundings, as this increased the young people's likelihood to achieve the overarching treatment goal. However, age, gender, and number of treatment days were not associated with the completion of the treatment goal.

Notably, the results showed that youths evaluated themselves to have significant less externalizing and internalizing problems than their parents do. This difference may relate to that youths are in a developmental stage where the capacity to view their own actions

with clarity is heavily influenced by their peers. The youth population in TFCO is often seen with peers that have a negative influence, where for example antisocial behaviors become normalized and tolerated, which can further lead to a self-report bias. Targeting both the significance of positive peer relationships, as well as socially acceptable behaviors, are important goals in therapy. Therapy also addresses the consequences of behaviors that negatively influence the dynamics in the family, with peers and in school, including criminal and offending behaviors. However, we cannot exclude the fact that parents also experience hardship over time, often being exhausted, that may lead to over-reporting of youth problems.

4.3. Strengths and Limitations

The present study is the first to examine treatment changes in Norwegian youths receiving TFCO. Relying on multi-informant ROM data, the present findings indicate that TFCO could be a valuable treatment for youths with severe problem behaviors in Norway. An important limitation of the study is the single group pre-post design. Consequently, causal effects of TFCO cannot be established. Without a comparison group, we cannot exclude that changes in treatment may be caused by other factors than the treatment (history, maturation, regression to the mean, etc.). Future studies of TFCO in Norway should include a control group to reduce the chances of spurious causality and bias in results. It would also be advantageous to include longitudinal data, which could establish whether TFCO has long-term treatment effects. Second, it should be noted that at the time of data collection there were only two TFCO teams in Norway; thus, we had few participants. This fact limits the statistical power of the results, and effects should be interpreted with caution. Third, participants stemmed from the South-Eastern part of Norway, and greater dissemination of TFCO to other regions would increase the sample size and the generalizability of the results. Furthermore, the data in this study were retrieved from the ROM, which only includes broadband assessments. Consequently, we were unable to evaluate the psychometric properties (e.g., reliability) of the measurement scales. It should also be noted that the YLS/CMI measurement of prior and current offenses/dispositions can by nature only increase in level over time, but did in fact decrease in our reports. We believe the reason is that the measurement does not provide obvious alternatives when evaluated over time, and we believe it was interpreted without the youth's history in mind, but in relation to whether new offenses/dispositions had occurred during the treatment. Finally, it should be noted that the analyses focused on youth's achievement of the overarching goal, since this is the national goal for TFCO in Norway. The results would probably be different if the overarching goal was less rigorously defined. Overall, we suggest that future studies should include a larger sample, item-level data, a control group, and follow-up data, because this would address important limitations of this study.

5. Conclusions

Despite the limitations of the study, the results provide important new insights about TFCO in Norway, and it has several implications for research and clinical practice. Overall, the results showed significant reductions in all YLS/CMI risk domains, externalizing and internalizing problems, and overall problem behaviors. Although the study design implies that we cannot tell whether changes during treatment are due to TFCO only, these preliminary results indicate that TFCO may be an effective treatment towards Norwegian youths with severe emotional and behavioral problems. However, more research is needed to make more sound conclusions about the efficacy of TFCO.

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