

The role of race, socioeconomic status, and System of Care services in placement decision-making



Jeff H. Sieracki, Anne K. Fuller, Scott C. Leon*, Grace Jhe Bai, Fred Bryant

Loyola University Chicago, Department of Psychology, Chicago, IL, United States

ARTICLE INFO

Article history:

Received 4 September 2014

Received in revised form 12 December 2014

Accepted 14 December 2014

Available online 8 January 2015

Keywords:

Child welfare

Placement decisions

System of Care

ABSTRACT

A $2 \times 2 \times 2$ experimental design was used to examine the potential influence of race (African American vs. Caucasian), socioeconomic status of the foster care environment (Low vs. High), and System of Care (SOC) services (System of Care/Wraparound Services vs. Treatment as Usual) on social workers' placement decisions within the child welfare system. Two hundred thirty-one social workers from Illinois (86.8% female, 85.4% European-American; mean age of 50.6 years) read a vignette of a child in foster care and were asked to recommend whether the child should remain in his current community-based foster care placement or be stepped up to a residential placement. Workers then completed a demographic form and rated the child's clinical and treatment needs. No main effects of race, SES of the foster care environment, or treatment history on placement decisions were found. Subsequent exploratory analyses indicated that clinical factors, environmental factors, participants' experience in child welfare, and vignette condition interacted in nuanced ways to predict placement recommendations. While clinical variables were the primary factors that social workers considered when making placement decisions, the decisions were also influenced by perceptions of the availability of community and family resources. Future research should consider using more open-ended approaches in order to further assess the processes by which social workers make placement decisions in the child welfare system.

© 2014 Elsevier Ltd. All rights reserved.

1. Introduction

Child welfare placement decisions can have significant implications for both children and society (Courtney, 1998). These decisions often involve a complex consideration of the youth's child welfare goals (e.g., permanency plan) and his or her mental health needs. In response to these placement decision-making challenges and evidence that many children were not receiving necessary care or were placed in inappropriate settings (Knitzer, 1982), the System of Care (SOC) approach to treating children and adolescents with behavioral and emotional difficulties was introduced (Stroul & Friedman, 1986; Stroul & Friedman, 1994). The SOC approach promotes coordination between multiple agencies and the family or foster family in order to emphasize the best interests of the child when making decisions. Ideally, SOC seeks to achieve placement permanency for children within their own communities whenever appropriate. Though more intensive services may become necessary in some cases, decision-making in the SOC approach is guided by the least restrictive environment criterion. For example, children should only be placed in residential treatment following unsuccessful attempts at community-based care.

The SOC approach and its focus on community-based, least restrictive, family-centered placement decision-making is now the prevailing philosophy in many communities in the U.S. Within this approach, demographic variables should have little influence on placement decisions, as they are unrelated to youths' treatment needs. However, research indicates that non-clinical factors such as race/ethnicity and socioeconomic status (SES) may in fact influence the placement decision-making process. For example, prior research has indicated that African-American or non-white children are more likely to be in out-of-home care for longer periods of time compared to Caucasian children (Finch, Fanshl, & Grundy, 1986; Glisson, Bailey, & Post, 2000; Jenkins & Diamond, 1985; McMurtry & Lie, 1992; Olsen, 1982), less likely to be adopted (Finch et al., 1986) and more likely to be considered for treatment foster care, a more intensive alternative to other community placements (Courtney, 1998). Though other studies have not found significant effects of race on decisions regarding return to biological parent versus out-of-home care (Zuravin & DePanfilis, 1997) or on time in state custody (see Glisson et al., 2000), on the whole, race appears to be a significant non-clinical factor in placement decisions. Similarly, socioeconomic status of the foster care environment is another demographic variable that may influence placement decisions. Previous research on the relationship between SES and income and decision-making has been limited to the biological family's SES, as prior studies have primarily examined the influence of SES on decisions regarding maintaining children in the child welfare system or returning them to

* Corresponding author at: Department of Psychology, Loyola University Chicago, 1032 West Sheridan Road, Coffey Hall, 203, Chicago, Illinois 60626, United States.
E-mail address: sleon@luc.edu (S.C. Leon).

their biological parents (Britner & Mossler, 2002; Lindsey, 1991; Zuravin & DePanfilis, 1997). While there is evidence that biological family SES predicts placement decisions (Lindsey, 1991), to date no research has explored the role of SES of the foster care environment on child welfare placements.

In addition to demographic variables, caseworkers may consider children's prior service involvement when making placement decisions. As previously noted, the dominant model in community-based treatments of children and adolescents in the child welfare system is the System of Care (SOC) approach (Stroul & Friedman, 1986; Stroul & Friedman, 1994). SOC and Wraparound Services encourage inter-agency coordination, involve the foster families as treatment team members, and are centered on the child's individual needs. Despite findings that children and adolescents assigned to SOC versus "Treatment as Usual" do not differ with regard to clinical outcomes (Bickman, Noser, & Summerfelt, 1999), because of the popularity and perceived treatment intensity of the SOC model in today's child welfare system, it is likely that children and adolescents who receive community-based SOC services yet continue to demonstrate emotional or behavioral disturbances are more likely to be recommended for residential treatment (due to apparently greater treatment needs) than children who have not received these services. Similarly, professionals may be more likely to recommend children who are not receiving SOC services to these more intensive levels of community-based treatment as opposed to stepping up to residential care. Thus far, however, research has not tested the hypothesis that current services received within the community-based SOC will influence future placements. Thus, the present study includes receiving SOC services as one of three experimentally manipulated variables.

In addition to these demographic and service variables of children and their foster care placements, caseworkers' characteristics may also play a role in placement decisions. Although research in this area is limited and has yielded mixed results, there is some evidence to suggest that individuals with more experience in child welfare are less likely to recommend that children be removed from their homes and more likely to prioritize children's clinical characteristics over other factors when making placement decisions (Britner & Mossler, 2002; Mandel, Lehman, & Yuille, 1995). For example, in a study examining child welfare professionals' (including social workers) decisions to place children in out-of-home care after an experience of child abuse, Britner and Mossler (2002) found that those with more years of experience placed less importance on the availability of quality placement options relative to their less experienced counterparts.

While previous research clearly points to the influence of non-clinical factors on placement decisions in child welfare, much of this work has been naturalistic, making it difficult to draw conclusions regarding causality. Most often, these studies rely on descriptive statistics to evaluate placement decisions retrospectively (Zuravin & DePanfilis, 1997). As a result, it is not possible to assess possible influences of confounding variables that may account for apparent effects of non-clinical factors. For example, confounding clinical factors may be responsible for observed racial differences in placement decisions; alternatively, race may influence clinical severity ratings, with a tendency toward over-pathologizing ethnic minority individuals (Lopez, 1989). Thus, experimental research is needed to clarify the role of race and other non-clinical factors in caseworkers' placement decisions by directly manipulating these variables. Moreover, research on decision-making has tended to address variables that influence remaining in the foster care system versus exiting the system (Britner & Mossler, 2002; Brooks, James, & Barth, 2002; Drury-Hudson, 1999; Earth, 1997; Lindsey, 1991; Lindsey, 1992; Pellegrin & Wagner, 1990; Snowden, Leon, Bryant, & Lyons, 2007; Zuravin & DePanfilis, 1997). In contrast, the present study manipulates children's demographic characteristics to examine their influence on decisions regarding placement within

the foster care system; thus, it seeks to address two gaps in the literature.

2. Method

2.1. Participants

One thousand licensed clinical social workers in the state of Illinois who are members of the National Association of Social Workers (NASW) were recruited for participation in this study out of a total of 8100 members of the NASW Illinois Chapter (12.3%). The study oversampled for social workers who indicated specialization in child/family welfare. Five hundred social workers who specialized in child/family welfare were randomly selected for solicitation to participate (51.4% of those who indicated the child/family welfare specialization), and 500 social workers who specialized in other areas or did not indicate a specialization were randomly selected for solicitation to participate (7% of the remaining population of Illinois NASW social workers). Because a large portion of members did not indicate a specialty, it is likely that some of the members who were randomly selected for inclusion from the non-child welfare specialty still work in child welfare. Demographic information of the participants, including age, length of time at job, and experience with child welfare (including experiences making placement decisions), and response rate details were collected.

Two participants were excluded from the study because they participated in the development of the vignette, and one participant was excluded because he had collaborated extensively with the author on several clinical cases. Of the 997 surveys mailed to participants, 232 were returned, yielding a response rate of 23.5%, which was below the expected rate (approximately 30–40%) based on previous studies utilizing a similar methodology (Dillman, 2000; Kaplowitz, Hadlock, & Levine, 2004; Stevanovic & Rupert, 2004). One survey was returned but not completed, and two surveys had extensive missing data, resulting in a final sample of 229 surveys included in all data analyses. The response rate did not differ based on the assigned experimental condition $\chi^2(7, N = 231) = 3.49, p = ns$.

The sample was largely female ($n = 198, 86.8\%$) and European-American ($n = 194, 85.4\%$). Further ethnic breakdown was as follows: African-American ($n = 12; 5.3\%$), biracial/multiracial ($n = 7; 3.1\%$), Latino/a ($n = 6; 2.7\%$), Asian-American ($n = 4; 1.8\%$), Native-American ($n = 1; .4\%$), not reported ($n = 2; .8\%$). The average age of the participants was 50.6 ($SD = 15.3$, range 24–80). Participants reported working in the following regional areas: Chicago suburbs ($n = 99; 43.4\%$), Chicago ($n = 72; 31.9\%$), central Illinois ($n = 26; 11.5\%$), southern Illinois ($n = 8; 3.5\%$), out of state ($n = 4; 1.8\%$), Rockford area ($n = 4; 1.8\%$), St. Louis region ($n = 4; 1.8\%$), other/unemployed/retired ($n = 10; 4.4\%$). The majority of participants reported their highest degree as an MSW/master's level degree ($n = 201; 88.1\%$), 19 participants (8.4%) possessed doctoral level degrees, and 7 participants (3.0%) reported that their highest degree was a BA/BS.

The participants reported an average of 21.1 years in the social work field ($SD = 14.5$); they had been at their current jobs for an average of 9.4 years ($SD = 10.3$). Ninety-one participants (39.9%) reported zero years' experience in child welfare. Among those that had at least one year of experience in child welfare, the mean was 15.0 years ($SD = 14.0$).

The majority of participants had never made a child welfare placement decision either in their career ($n = 118; 53.6\%$), or in the past year ($n = 193; 85.4\%$). The average number of career-to-date placement decisions made among the participants was 65.32 ($SD = 221.4$); when just including individuals who had made at least one placement decision in their careers, the mean was 140.9 ($SD = 309.1$). The average number of placement decisions made in the past year was 2.12 ($SD = 10.8$); when just including individuals who had made at least one placement decision in the past year, the mean was 14.55 ($SD = 25.26$). Ten participants (4.4%) were currently working for the Department of

Children and Family Services (DCFS), 26 (11.4%) had worked for DCFS in the past, and the remainder ($n = 192$; 84.2%) had never worked for DCFS.

2.2. Materials and design

2.2.1. Introductory letter

An introductory letter was mailed to the potential participants. The letter explained to the potential participants that they would be receiving a short survey in a couple of days, provided a brief summary of the project, and explained how participants were selected for inclusion.

2.2.2. Cover letter of study

Four days after the mailing of the introductory letter, the potential participants received the second mailing. The second mailing consisted of a cover letter, the vignette, the questionnaire, and a self-addressed stamped envelope. The cover letter functioned as a de facto informed consent. It indicated that the purpose of the study was to assess how social workers and other professionals made judgments regarding placement. The cover letter stated that the study would take around 5 min to complete and that there are no known risks inherent in participation. In addition, it noted that it is acceptable if the professional has little experience in child welfare and/or making placement decisions, and that experience in decision making was one of the variables to be studied. The consent ensured that the participants remain anonymous and that the questionnaires and return envelopes would be destroyed once the study was completed. Participants were instructed to return the survey in the prepaid envelope. Contact information for the study coordinator was also provided.

2.2.3. The vignette

The study consisted of a single vignette with three experimentally manipulated variables, resulting in a total of eight randomly assigned conditions (see Table 1). The full vignette, with all of the possible experimentally manipulated conditions, is reproduced in Appendix A. As discussed previously, subjects were randomly assigned to a condition. The experimentally manipulated, independent variables were race of the child (African American vs. Caucasian), SES of the foster care environment (Low vs. High), and community treatment (SOC/Wraparound Services vs. Treatment as Usual). All other clinical and demographic information was held constant throughout the conditions.

The vignette was constructed based on the recommendations provided by Taylor (2006) in an article on using vignettes to study professional judgment in social work. These recommendations include using true-to-life case scenarios, randomly assigning the independent variable (the experimentally manipulated variables) and removing any unrealistic scenarios. The vignette was carefully designed to be similar to a scenario involving placement decisions that child welfare professionals have to make on a daily basis. Prior to the construction of the vignette, a casebook on placement decisions was consulted (Brown, 2002). The vignette is an amalgamation from the various cases presented in the child welfare casebook, combined with new details regarding the experimentally manipulated variables. Following completion of the initial draft and prior to the distribution of the questionnaire to the participants, several experts in child welfare, including clinical psychology professors, practicing social workers, and a DCFS contract worker reviewed the vignette and provided additional feedback to the author about the realism of the scenario.

2.2.4. Placement questions following the vignette

After reading the vignette, participants were asked a series of questions. The central dependent variable was a dichotomous placement choice: Community placement versus residential treatment. The dichotomous option was utilized because it was considered to be a realistic decision-making paradigm. Child welfare professionals are less likely to decide between multiple placement options with wide ranging levels

of restrictiveness (psychiatric hospitalization, residential care, treatment foster care, foster care, etc.) for one particular case. Instead, it is far more likely that the decision would be between two different levels within the continuum of restrictiveness. In addition, individuals with little child welfare experience may not fully know the differences between the more specific levels of care (e.g., treatment foster care, wraparound care); therefore, including the specific levels of care would be inappropriate for this study.

2.2.5. The Child and Adolescent Needs and Strengths (CANS)

After reading the vignette and completing the placement recommendation, participants were asked to complete a portion of the Child and Adolescent Needs and Strengths measure for the hypothetical child in the vignette (CANS; Lyons, 1999). The CANS was created to assess clinical and environmental factors related to adolescent development. The CANS instrument evaluates the needs and strengths of a child or adolescent across multiple domains and is used as an assessment, decision-support and outcome measure instrument (State of Illinois DCFS, 2003). The full version of the CANS consists of 44 dimensions across six factors: problem presentation, risk factors, functioning, care intensity & organization, placement/system factors (family/caregiver needs and strengths), and child strengths (Buddin Praed Foundation, 2008). However, in the present study, only the following dimensions relevant to the vignette were included: oppositional behavior (i.e., noncompliance with adult instructions or rules), antisocial behavior (e.g., frequent instances of planned aggression), temporal consistency of problems (i.e., duration and consistency of symptoms and risk behaviors), danger to others (i.e., threatened or actual aggression), monitoring (i.e., extent of adult monitoring required for the child), treatment needs (i.e., intensity of physical, behavioral, or medical treatment required for the child), caregiver supervision (i.e., caregiver's ability to provide the necessary level of discipline and monitoring), caregiver involvement with care (i.e., extent to which caregiver is involved in planning or implementing the child's services), caregiver resources (i.e., financial and social assets that can be used to meet the child's and family's needs), and inclusion (i.e., the child's community supports and connections, such as involvement in an organization).

On the CANS, ratings for each particular item are based on a 0 to 3 scale. Across all dimensions, a score of 0 indicates no need for action, a 1 indicates the need for watchful waiting to see whether action is warranted, a 2 indicates need for action, and a 3 indicates the need for immediate or intensive action (see Appendix B for sample items). Detailed descriptions for what constitutes each numerical rating for each dimension were provided to the individuals participating in the study. The CANS has been documented to be a reliable and valid measure (Lyons, 1999). It is a useful tool for predicting the level of care that a child is placed in and is correlated with another measure of child outcomes (the Child and Adolescent Functional Assessment Survey: CAFAS; Hodges, McKnew, Cytryn, Stern, & Klein, 1982). The CANS is an ideal outcome measurement for the current study because the multiple factors assess variables related to the child, such as psychopathology and dangerousness, and variables related to placement, caregiver, and present environment.

2.3. Procedure

The survey employed the Tailored Design Method (Dillman, 2000) to ensure an effective survey implementation procedure and to maximize the rate of participation. The method utilizes multiple contacts in order to ensure maximum response rate. Numerous studies of mail surveys have demonstrated that multiple contacts are related to increased response rates (Dillman, 2000; Dillman, Clark, & Sinclair, 1995; Kaplowitz et al., 2004; Keegan & Lucas, 2005).

As discussed previously, the participants received three contacts; an introductory letter, the study, and a reminder postcard. The survey was mailed with a prepaid return envelope. The cover letter explained the

Table 1
2 × 2 × 2 factorial design of the study.

		Race			
		African American (A)		Caucasian (C)	
Previous services	SOC/ Wraparound (S)	Condition 1 A, S, H	Condition 2 A, S, L	Condition 5 C, S, H	Condition 6 C, S, L
	Treatment as Usual (T)	Condition 3 A, T, H	Condition 4 A, T, L	Condition 7 C, T, H	Condition 8 C, T, L
		High SES (U)	Low SES H (L)	High SES (H)	Low SES (L)
		SES of the foster care environment			

purposes of the study and noted that the participants are guaranteed anonymity. Participants were instructed to return the survey in the pre-paid envelope. A reminder postcard was sent to all of the social workers two weeks after mailing the survey.

3. Results

For the dichotomous placement decision (recommend community versus residential placement), participants were almost equally likely to choose the community option (106 participants; 46.3% of responses) as the residential care option (108 participants; 47.2%). Fifteen participants (6.6%) did not choose a placement setting option, despite completing the other questions in the survey.

Chi-square tests were first used to test for significant differences regarding the influence of the three experimentally manipulated dichotomous variables (child race, SES of the foster care environment, prior SOC services) on placement decision. The manipulation of race had no effect on the dichotomous placement decision $\chi^2(1, N = 213) = .005, p = ns$; the African American child was as likely to be recommended for residential treatment (47.9%) as was the European American child (45.1%). Similar to the race variable, the manipulation of SES of the foster care environment had no effect on the dichotomous placement decision $\chi^2(1, N = 213) = .226, p = ns$; the Low SES vignette group was as likely to be recommended for residential treatment as was the High SES vignette group (48.0% versus 44.8%, respectively). As with the other independent variable manipulations, the manipulation of previous treatment had no effect on the dichotomous placement decision $\chi^2(1, N = 151) = .005, p = ns$; the child that had previously received SOC services was as likely to be recommended for residential treatment (46.5%) as was the child that did not previously receive SOC services (46.6%).

3.1. Optimal Data Analysis (ODA) and Classification Tree Analysis

As the analyses described above did not reveal any main effects of race, SES of the foster care environment, or prior SOC services on placement decisions, additional exploratory analyses were conducted to examine possible interactions among independent variables (i.e., vignette condition, CANS ratings of clinical and environmental factors, participant characteristics). Specifically, ODA (Soltysik & Yarnold, 1993; Yarnold & Soltysik, 2005) was used to create a multivariable classification tree model for predicting social worker placement recommendation (community versus residential). ODA finds a decision rule for each predictor that maximizes the overall percentage of classification accuracy (PAC) for the sample (Soltysik &

Yarnold, 1993; Yarnold & Soltysik, 2005). For each equal interval or ordinal (i.e., continuous) predictor, ODA identifies an optimal classification cut-point that maximizes overall PAC. For each nominal or binary (i.e., categorical) predictor, ODA identifies an optimal classification rule that maximizes overall PAC. Unlike other statistical methods for constructing tree models (e.g., regression-based CART or chi-square based CHAID), ODA uses an exact permutation probability with no distributional assumptions, assesses the expected cross-sample generalizability of classification rules through a built-in jackknife re-sampling procedure, and finds main effects and non-linear interactions that optimally classify membership in the community versus residential decision groups.

The first analysis run using the ODA method uses all possible predictors and the entire sample. The results present optimal cut-points for each individual independent variable, along with its associated classification statistics (e.g., sensitivity and specificity). This first analysis is referred to as UniODA (univariate ODA). Multivariate Classification Tree Analysis (CTA via ODA) is then conducted using Automated CTA software (Soltysik & Yarnold, 2010) in order to examine interactions between independent variables. After the first ODA analysis is run, the independent variable with the highest effect size is selected and serves as the first branching point. This strategy is continued to create a hierarchically optimal, multivariable tree model in which successive predictors serve to classify with maximum accuracy a gradually decreasing proportion of the total sample. This type of optimal classification tree model has proven accurate and informative in numerous prior applications, including areas of adolescent risky sexual behavior (Donenberg, Bryant, Emerson, Wilson, & Pasch, 2003), substance abuse (Mueser et al., 2000), attention deficit disorder (Ostrander, Weinfurt, Yarnold, & August, 1998), and geriatric medicine (Yarnold, 1996).

Following established procedures to construct this hierarchically optimal tree model, at each node of the classification tree model, we selected the predictor (and accompanying decision rule) with the strongest effect strength for sensitivity (ESS; see Donenberg et al., 2003; Mueser et al., 2000; Ostrander et al., 1998; Yarnold, 1996). ESS is an absolute index of effect size for which 0 = performance expected by chance and 100 = perfect classification accuracy. According to Yarnold and Soltysik (2005, p. 61), ESS values less than 25% are weak, between 25% and 50% are moderate, between 50% and 75% are relatively strong, between 75% and 90% are strong, and greater than 90% are very strong. To determine the statistical significance of each predictor in the final model, we performed a nondirectional Fisher's exact probability test on the 2 × 2 cross-tabulation of actual placement decision status (i.e., community versus residential) and predicted placement decision status using the optimal decision rule for each predictor in the final classification tree model.

In constructing the optimal tree model, we used two statistical procedures to increase confidence in the final results. First, a leave-one-out (LOO) jackknife analysis was performed on each attribute at each potential decision point in the classification tree model. In LOO analyses, each observation is removed from the sample one at a time, an ODA model is obtained for the remaining subsample, the optimal cut-point or decision rule is used to classify the single removed observation, and the classification results are stored and tabulated iteratively across all observations. At each node of the classification tree model, we included only the predictor with highest ES whose overall classification accuracy was stable in the LOO analysis in order to maximize the expected cross-sample generalizability of the final model.

As a second strategy to increase confidence in the final classification tree model, we used a sequentially-rejective Bonferroni procedure to prune the classification tree, in order to ensure an experimentwise Type I error rate of $p < .05$ (Klockars, Hancock, & McSweeney, 1995; Yarnold & Soltysik, 1991). Specifically, we used a Sidak step-down adjustment procedure (Holland & Copenhaver, 1987; Soltysik & Yarnold, 1993; Yarnold & Soltysik, 2005) to prune nodes from the tree if their Type I error exceeded .05, controlling for the number of nodes

in the final tree model. This statistical procedure was used to increase confidence that the results of the final tree model do not capitalize on chance.

Lastly, we evaluated the overall predictive performance of the final CTA model using the following four performance statistics: (a) overall classification accuracy (i.e., the percentage of the total sample correctly classified by the tree model); (b) sensitivity (i.e., the percentage of cases in a particular class that are correctly classified); (c) specificity (i.e., the percentage of cases predicted to belong to a given class that in fact are members of that category); and (d) effect strength for sensitivity (Yarnold & Soltysik, 2005).

Table 2 presents the univariate ODA results. As described previously, the UniODA analysis assigns optimal cut-points to all continuous independent variables and then calculates a set of classification statistics for each variable. In the case of categorical predictors, no cut-point is derived, but classification statistics can still be computed according to how well the categorical independent variable differentiates membership in the binary outcome group. Across 24 UniODA analyses, eight variables were able to classify placement decisions that met the criteria of being both LOO stable and statistically significant at an alpha of .05. Seven of the eight variables were CANS items; higher values on oppositional behavior, antisocial behavior, temporal consistency of problems, monitoring needs, treatment needs, supervision needs, and inclusion were all associated with a greater likelihood of a residential treatment placement decision. The only other significant and LOO stable predictor of placement decision was years in the child welfare profession. Social workers with greater than 1.25 years of child welfare experience were more likely to recommend community-based care compared to those with less than 1.25 years of experience, who were more likely to recommend residential treatment. And, as with the chi-square analyses, none of the three manipulated variables (race, SES of the foster care

environment, SOC versus Treatment as Usual) were significantly associated with placement decision.

Fig. 1 illustrates the final ODA enumerated classification tree model. The enumerated model is generated following an evaluation of all combinations of the first three nodes (Yarnold & Soltysik, 2005). Enumerated classification methods typically produce stronger, more parsimonious models, compared to traditional hierarchical methods (Soltysik & Yarnold, 2010). As noted above, all predictors in the tree model were LOO stable to maximize cross-sample generalizability. Many of the variables that emerged as predictors in the UniODA analyses also emerged in the multivariate ODA tree results. A total of six nodes or “branches” emerged, four representing community treatment decisions and two representing residential treatment decision recommendations.

The CANS variable of treatment needs (i.e., intensity of treatment required for the child) was the single best predictor of classification status; therefore, it is at the top of the tree and serves as the first branching variable (see Fig. 1). After it was determined that treatment needs was the most important predictor, we next attempted to fill out the right side of the tree, representing the sub-sample of social workers who rated the vignette as representing more significant treatment needs. Among this sub-sample, number of placement decisions made in one's career predicted social workers' decision to place in community versus residential. Social workers with two or more career placement decisions were associated with a greater likelihood of recommending community care (see node D in Fig. 1), while those with one or zero prior decisions were more likely to recommend residential. However, for the sub-sample of workers in this latter category, the tree branched further, and caregiver involvement further predicted placement decision. Social workers in this further refined sub-sample who rated the caregivers as having some need to be further involved in the child's services (CANS

Table 2
Univariate ODA results. Variables associated with social worker decision on experimental vignette to recommend community versus residential placement.

Variable	Community	Residential	Overall classification accuracy	Effect strength	Sensitivity 1	Sensitivity 2	Specificity 1	Specificity 2	p-Value	LOO stable
Vignette condition*	1, 5, 8	2, 3, 4, 6, 7	25.70%	−48.64%	23.58%	27.78%	24.27%	27.03%	1.0	No
Oppositional behavior	0, 1, 2	3	59.02%	20.29%	85.71%	34.58%	54.55%	72.55%	.000603	Yes
Antisocial behavior	0, 1, 2	3	61.06%	23.36%	83.17%	40.19%	56.76%	71.67%	.000157	Yes
Temporal consistency of problems	0, 1, 2	3	59.22%	18.04%	48.51%	69.52%	60.49%	58.40%	.005996	Yes
Danger to others	0, 1, 2	3	60.19%	21.12%	86.54%	34.58%	56.25%	72.55%	.000266	No
Monitoring	0, 1	2,3	63.51%	26.86%	46.67%	80.19%	70.00%	60.28%	.000028	Yes
Treatment needs	0, 1, 2	3	61.54%	23.75%	79.41%	44.34%	57.86%	69.12%	.000206	Yes
Supervision	0, 1	2, 3	56.84%	15.29%	95.70%	19.59%	53.29%	82.61%	.000979	Yes
Involvement	0	1, 2,3	43.98%	−11.85%	62.11%	26.04%	45.38%	40.98%	.972268	No
Resources	0, 1, 2	3	36.45%	−26.00%	74.00%	0.00%	41.81%	0.00%	1.000000	No
Inclusion	0, 1, 2	3	54.95%	12.31%	86.60%	25.71%	51.85%	67.50%	.021163	Yes
Age	≤47.5	>47.5	54.25%	8.28%	42.86%	65.42%	54.88%	53.85%	.136459	No
Gender	Male	Female	52.34%	4.00%	16.04%	87.96%	56.67%	51.63%	.259356	Yes
Race/ethnicity	African-American, Asian-American, Latino/a, Native American, other	Caucasian	54.25%	7.02%	14.42%	92.59%	65.22%	52.91%	.077224	No
Education	Masters, doctoral, other	Bachelors	51.17%	2.79%	98.11%	4.67%	50.49%	71.43%	.226525	No
Years in the field	>5.5	≤5.5	42.52%	−14.55%	64.15%	21.30%	44.44%	37.70%	.994102	No
Years at current job	≤18.5	>18.5	54.46%	9.20%	84.91%	24.30%	52.63%	61.90%	.064418	No
Years in child welfare	≥1.25	<1.25	59.81%	19.64%	60.38%	59.26%	59.26%	60.38%	.003045	Yes
Frequency of child welfare placement decisions	Frequently, occasionally	Never	54.21%	8.40%	53.77%	54.63%	53.77%	54.63%	.137280	Yes
Number of placement decisions made in career	0, 1	>1	55.77%	11.32%	50.00%	61.32%	55.43%	56.03%	.066240	Yes
Number of placement decisions made last year	≥4	<4	49.30%	−2.59%	6.67%	90.74%	41.18%	50.00%	.828953	No
Work for Illinois DCFS	Currently	Never, previously	52.80%	4.96%	17.92%	87.04%	57.58%	51.93%	.207505	No

Note. *Vignette condition 1 = African American, High SES, and currently receiving SOC/Wraparound Services; 2 = African American, Low SES, and currently receiving SOC/Wraparound Services; 3 = African American, High SES, and currently receiving no SOC/Wraparound Services (i.e., Treatment as Usual); 4 = African American, Low SES, and currently receiving no SOC/Wraparound Services (i.e., Treatment as Usual); 5 = Caucasian, High SES, and currently receiving SOC/Wraparound Services; 6 = Caucasian, Low SES, and currently receiving SOC/Wraparound Services; 7 = Caucasian, High SES, and currently receiving no SOC/Wraparound Services (i.e., Treatment as Usual); 8 = Caucasian, Low SES, and no SOC/Wraparound Services (i.e., Treatment as Usual); CANS = Child and Adolescent Needs and Strengths; LOO = leave one out.

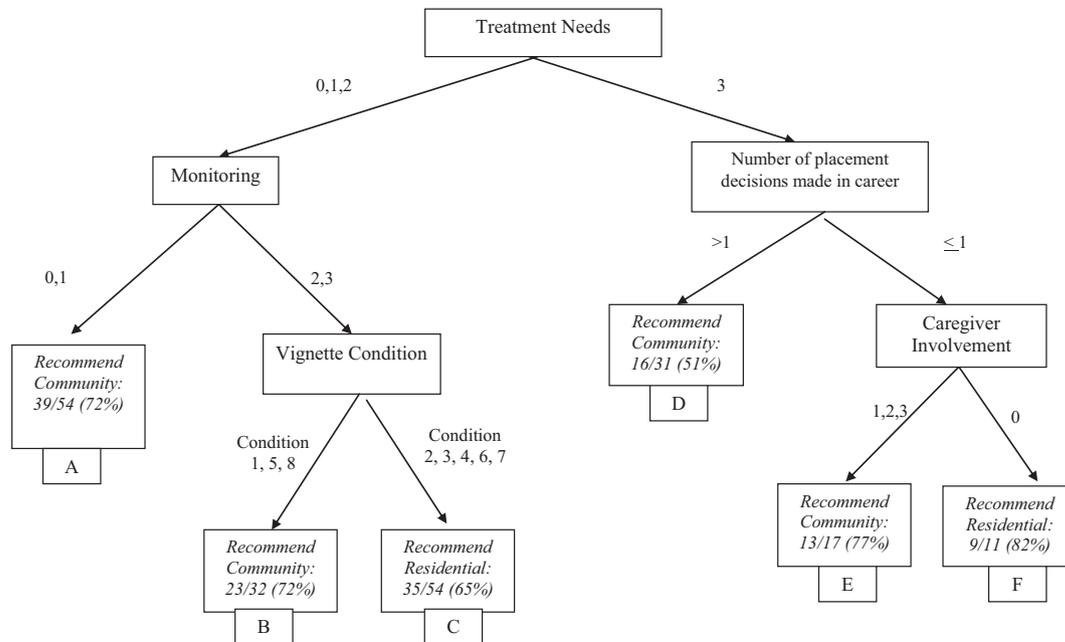


Fig. 1. Multivariate ODA table predicting decision to recommend community versus residential placement. Note. Vignette condition 1 = African American, High SES, and currently receiving SOC/Wraparound Services; 2 = African American, Low SES, and currently receiving SOC/Wraparound Services; 3 = African American, High SES, and currently receiving no SOC/Wraparound Services (i.e., Treatment as Usual); 4 = African American, Low SES, and currently receiving no SOC/Wraparound Services (i.e., Treatment as Usual); 5 = Caucasian, High SES, and currently receiving SOC/Wraparound Services; 6 = Caucasian, Low SES, and currently receiving SOC/Wraparound Services; 7 = Caucasian, High SES, and currently receiving no SOC/Wraparound Services (i.e., Treatment as Usual); 8 = Caucasian, Low SES, and no SOC/Wraparound Services (i.e., Treatment as Usual).

rating of 1, 2, or 3) were more likely to recommend community care (see node E), while workers who perceived that the caregivers were effectively involved in the child's services (CANS rating of 0) recommended residential treatment (see node F).

We next attempted to fill out the left side of the tree, representing the sub-sample of social workers who perceived that the child in the vignette had from no to moderate treatment needs. Among this sub-sample, the CANS variable of monitoring further predicted social workers' decisions to place in community versus residential. Social workers who rated the child as having minimal or some monitoring needs were associated with a greater likelihood of recommending community care (see node A), while those who perceived the need for significant or constant monitoring were more likely to recommend residential. However, for the sub-sample of workers in this latter category, the tree branched further, and vignette condition further predicted placement decision. Social workers in this further refined sub-sample who were randomly assigned to receive condition one, five, or eight (see Fig. 1 for condition descriptions) were more likely to recommend community care (see node B), while workers who were randomly assigned to receive the remaining conditions were more likely to recommend residential treatment (see node C).

Overall classification accuracy for the CTA model was 73.4%. Effect strength for sensitivity was 46.8%, which is considered a moderate effect strength (Yarnold & Soltysik, 2005). For predicted recommendation of community placement, sensitivity and specificity were 74.3% and 72.8%, respectively. For predicted recommendation of residential placement, sensitivity and specificity were 72.5% and 74.0%, respectively.

4. Discussion

The purpose of the present study was to assess some of the factors that may influence social workers' decisions to place children from the child welfare system in a community versus residential setting. A vignette described a hypothetical child ("Shawn") with a history of emotional and behavioral disturbances. Three variables in the vignette were experimentally manipulated: race, SES of the foster care environment, and previous treatment; upon reading

the vignette, social workers were asked to make a decision as to the proper placement of the child (community versus residential) and to rate the child and his emotional and environmental context using the Child and Adolescent Needs and Strengths (CANS). Prior research has suggested that both race/ethnicity and SES can influence professionals' placement decision-making in a child welfare setting (e.g., Finch et al., 1986; Glisson et al., 2000; Jenkins & Diamond, 1985; Lindsey, 1991; McMurtry & Lie, 1992); however, to date, no study has used an experimental vignette procedure to examine the effects of these variables on the decision to admit a child to a residential treatment center versus maintaining him or her in a community setting.

Results of the univariate analyses (i.e., chi-square, Optimal Data Analysis) indicate that none of the three manipulated variables were related to dichotomous placement decision. However, several CANS variables were found to be associated with the social workers' placement decisions. Antisocial behavior, oppositional behavior, consistency of problems, monitoring needs, treatment needs, supervision (poor supervision from caregiver), and inclusion (lack of community supports or connections) were all associated with the social workers' decision to place "Shawn" in a residential treatment setting. Finally, more experience on the part of participants working in a child welfare setting was associated with the decision to keep the child in the community.

The univariate evidence that clinical factors are related to placement decision above any other variables is an encouraging finding for the social work and child welfare field; this study suggests that social workers are not influenced by demographic characteristics but instead use information derived from youths' clinical characteristics to make placement decisions. In his review of 348 children placed in out-of-home care in California, Courtney (1998) found a similar relationship between clinical severity and placement decision (either foster care, treatment foster care, or group care). The children that were rated as more behaviorally disordered were placed in more restrictive care.

While it is encouraging that clinical factors played such a prominent role in placement decision, it is important to remember that all participants were making their decisions based on the same clinical data in the vignette. This suggests that clinical characteristics per se are not driving

placement decisions but rather the participants' *perceptions* of youths' clinical characteristics. Child welfare professionals are instructed to consider the best interest of the child as the guiding factor in placement decisions. However, what constitutes the child's best interest is often an individual judgment, and definitions are neither clear-cut nor consistent from state to state (Hall, Pulver, & Cooley, 1996; Kelly, 1997). Although the best interest standard was not directly mentioned in the questionnaire, even if social workers understand and apply the best interest standard in uniform ways, they may still differ with regard to assessing severity of psychopathology and beliefs about which treatments are best suited to treating various presenting problems. In other words, placement decisions may be more influenced by a professional's perception as opposed to disagreements about the meaning of the best interest standard or other criteria by which placement decisions are made. Of course, it might also be the case that other, unmeasured variables were influencing social workers' decisions, and they simply made CANS ratings that were consistent with the decision to place "Shawn" in a residential versus community setting.

The results of the multivariate analyses, using Classification Tree Analysis via Optimal Data Analysis, painted a more nuanced picture of decision-making (Fig. 1). These results indicated that social workers' ratings of "Shawn's" treatment needs were the most powerful predictor of placement decision-making. Additionally, this multivariate statistical approach demonstrated how additional variables interacted to predict the placement decision. Among participants who did not rate "Shawn" as having high treatment needs, if they rated his monitoring needs more highly, then the vignette condition played a significant role in the placement decision. Participants who received either vignette one, five, or eight (African American, High SES of the foster care environment, and currently receiving SOC/Wraparound Services; Caucasian, High SES of the foster care environment, and currently receiving SOC/Wraparound Services; Caucasian, Low SES of the foster care environment, and no SOC/Wraparound Services (i.e., Treatment as Usual), respectively) were more likely to recommend a community setting while the remaining vignettes were more likely to be recommended for residential placement.

Interestingly, receiving a vignette in which "Shawn" was in a High-SES foster care environment and currently receiving SOC/Wraparound services (regardless of race; i.e., conditions 1 and 5) was associated with a decision to refer back to the community, while receiving a vignette in which he was in a High-SES foster care environment and receiving Treatment as Usual (i.e., conditions 3 and 7) was associated with a recommendation for residential treatment (see Fig. 1). This suggests that a perception of access to both family and community resources may be a protective factor regarding a step-up in care. It also suggests that when faced with an intensive community-based service plan that is already in place and when the child is placed in a High-SES family, social workers are more likely to want to continue to give the plan and the placement a chance to succeed. In the absence of either of these conditions, the preference is to place in a residential setting. One exception to this account, however, was the condition in which the child was Caucasian and in a Low-SES foster care environment and had not had previous SOC services, which predicted a recommendation of community treatment.

4.1. Limitations

There were several limitations to the study, and the generalizability of the findings is limited by the study's sample methodology and participant characteristics. Despite the vignette being pre-screened for several social workers and experts in the field, because it was created solely for the present study and has not been used previously, reliability and validity are unknown. Because only one vignette was used, it certainly could not represent the wide spectrum of cases with which child welfare professionals and social workers are presented. Multiple vignettes were not used because of concerns about the participants

becoming aware of the manipulation and basing their results based on previous vignette answers. Although it is possible that some respondents in the present study became aware of the manipulation and this awareness influenced their responses, the absence of multiple vignettes makes this scenario less likely.

The sample was composed entirely of social workers from within the state of Illinois. Given the variability of child welfare state agencies and policies, it is unknown if social workers in different states would have responded to the questionnaire in a different fashion. Additionally, as is always the case with mail surveys, sample selection effects are possible. This may be especially true given the relatively low (23.3%) response rate. However, the respondents did not significantly differ from the characteristics of the overall members of the Illinois NASW chapter (i.e., largely female, possessing an MSW, working in the Chicago area), suggesting that their responses may be generalizable within the state of Illinois.

Additionally, over half of the participants had no experience with making placement decisions in child welfare. Thus, it is possible that the results do not reflect the real-world placement decisions of social workers with greater experience in child welfare. This limitation was addressed in part, however, by including number of placement decisions as an independent variable. Although number of career placement decisions was a significant predictor of social workers' decisions in the multivariate analysis, number of decisions made in the past year does not appear to have a significant influence on placement decisions. Furthermore, the inclusion of participants who had not previously made placement decisions permitted a broader range of experience to be examined. In light of evidence that novices (i.e., social work students) and experts (i.e., social workers with a minimum of five years of experience in child protection) differ in the extent to which they rely upon various types of knowledge in deciding whether or not to place a child in out-of-home care (Drury-Hudson, 1999), it is important to include even those social workers with very limited or no experience in making placement decisions in studies such as this one in order to clarify the role of experience in the decision-making process.

Finally, as noted above, it is possible that other variables not examined in this study (in particular, systemic and contextual factors such as service capacity and placement availability) influence participants' decision-making regarding child welfare placements. For instance, associations between poverty and child mental health problems and placement in foster care differ in urban versus nonurban environments (Barth, Wildfire, & Green, 2006). Furthermore, child welfare professionals appear to place a relatively high degree of importance on the availability of quality placements when deciding whether to remove children from their homes, although perceptions of the importance of this consideration vary widely (Britner & Mossler, 2002). Although it is possible that these and other contextual factors affect social workers' decision-making, making them important topics for future research, it is important to consider that they were not addressed in the vignettes and were therefore not manipulated in the present study. Rather, the focus of the current study was on the role of characteristics of the child and his immediate (foster family) environment, with particular attention to the experimentally manipulated non-clinical variables, as well as characteristics of individual social workers.

4.2. Conclusions

The respondents' data yielded several interesting pieces of information. Evidence suggests that the social workers in this study primarily utilized clinical factors and problem behaviors when making placement recommendations (as opposed to demographic or previous placement factors). This important finding contradicts some of the other research on client demographics and placement decisions that utilized retrospective chart reviews (Glisson et al., 2000; McMurtry & Lie, 1992), suggesting that these earlier findings may in fact have been influenced by confounding variables.

Future research should continue to assess decision-making in child welfare. A more qualitative approach to understanding the methodology that child welfare professionals utilize when making placement decisions would be useful. The use of an interview format and more open-ended questions could provide a further window into the collective minds of the individuals behind the placement decision. As discussed in previous sections, questions could be asked about particular relevant cases or idiosyncratic experiences that may influence decisions, particularly given the evidence that workers' perceptions of clinical characteristics, rather than the characteristics themselves, influence placement decisions. Information should be gathered about the child welfare professionals' training in decision-making, previous experiences making decisions, and how much feedback they typically receive after decisions are made. Perhaps the field as a whole should focus more on providing feedback regarding clinical outcomes after placement or treatment decisions so that professionals can learn from their experiences and past decisions.

Given that this was the first study utilizing the aforementioned clinical vignette and experimental manipulations, future research could also use this vignette in an effort to establish reliability and validity. Given the almost perfectly even split between respondents recommending community placement and those recommending residential services, the vignette would be appropriate to use in future similar studies involving decision-making. Overall, the results of the present investigation provide evidence that social workers utilize clinically relevant information when they make placement decisions, and that their decisions do not depend on demographic factors.

Appendix A. Study vignette

Please read the clinical vignette and complete the enclosed questionnaire based on the information presented in the vignette. Then mail the questionnaire to us in the enclosed self-addressed, stamped envelope. You do not need to send the vignette back to us.

Clinical vignette

Instructions

Suppose you are a social worker with the Illinois Department of Children and Family Services (DCFS). You will be working to formalize a placement decision for Shawn Wilson, a 10 year old Caucasian (African-American) male with an extensive history of disruptive behavior and involvement in the child welfare system. Please note that this is a hypothetical child welfare case and is not meant to resemble a specific child. Based on the following information you have at your disposal, you will make an assessment of Shawn's situation that will allow you to recommend a placement that you believe will best meet his needs. The choices for placement options are (1) remaining in the community and receiving community-based services or (2) a residential placement.

Current situation and brief history

Shawn is a 10 year old currently in substitute care under the auspices of DCFS; Shawn was taken into custody three years ago. He has been living in the home of his foster parents, Jason and Tiffany Peters, for about one year. However, his frequent disruptive behavior has made it difficult for his foster parents to continue caring for him. Shawn demonstrates severe acting out behaviors both at home and in the community. He began to have frequent temper tantrums during both school and home when it was time to transition to another setting. He would kick, scream, and yell during these episodes. His school staff has been unable to manage Shawn during these episodes and he has kicked and bit several staff members. Tiffany is typically called to settle Shawn down, although this strategy has not always been effective. Shawn has been expelled from an

after-school program due to frequent altercations with several other children. He has become increasingly defiant at home, and he is becoming more physically and verbally aggressive. When he is punished (sent to time out or unable to play video games) he argues, cries, and attempts to fight with his foster parents. The fighting is usually verbal although he did push his foster mother once resulting in her losing her balance and falling. After one particular fight with his foster parents, Shawn responded by running away from the home. His parents found him several hours later in another part of town crying and alone. His foster parents also discovered him intentionally hurting an injured stray cat by repeatedly hitting it with a board. When confronted, Shawn indicated that he has done this to other animals in the past. Shawn attends a local school and is in the fifth grade. His grades are average to below average. His teachers say that Shawn is a bright child who does not seem to apply himself. His teachers also report that over the past month Shawn's behavior has become more oppositional and verbally and physically aggressive toward her and the other students in the class. On three occasions he has gotten into trouble for pushing and kicking other students on the playground during recess. Furthermore, he reports that he has nightmares of his early environment (e.g., dreams of being scared because his biological mother has not come home), and that he cries uncontrollably several nights per week. In the past, Shawn has been diagnosed by his therapist as having conduct disorder, oppositional defiant disorder, and attention deficit/hyperactivity disorder.

Foster parent family background

The Peters family consists of father Jason (age 43), mother Tiffany (age 41), and their two biological children, ages 15 and 12. Shawn is the third foster child Jason and Tiffany have taken in over the past five years. He has been at the home for approximately one year. The Peters family resides in an upper-middle income neighborhood, in a single family home. (The Peters family resides in a lower-income neighborhood, in government subsidized housing.) They receive financial support from DCFS in exchange for their role as foster parents. Shawn currently attends the same private school as his older foster siblings. (Despite this support, due to Jason's unemployment the Peters family often has great difficulty meeting the monthly rent.)

Biological family background

Shawn's biological mother is currently in treatment for drug and alcohol dependence. Although parental rights have not been terminated, she has not had contact with her son for three years. According to the DCFS caseworker report, at removal from the home it was indicated that Shawn, and his younger sisters, ages 6 and 4, were neglected by their biological mother. The whereabouts of his biological father are unknown and Shawn has not had any contact with his biological father since birth. Due to the current situation, a return to the biological mother is not currently an option at this time.

Current and previous treatments

Shawn has been assigned a DCFS caseworker since the time he entered the child welfare system three years ago. He has been attending weekly individual psychotherapy since this time. The sessions primarily focus on addressing his anger issues and his oppositional behavior. The therapist reported that Shawn demonstrated progress initially, but that improvement has stalled over the past couple of months. In addition, Shawn receives coordinated services through the Illinois wraparound program. Through the wraparound program, he has received afterschool tutoring, a mentor, and family respite services. A team, consisting of the caseworker, the therapist, Mr. and Mrs. Peters, and his teacher, meet on a monthly basis to collaborate and coordinate services. They update his treatment plan and goals every six months. (Shawn does not receive any additional services besides the individual therapy.)

Appendix B. Child and Adolescent Needs and Strengths (CANS) — examples

Treatment

This rating describes the intensity of the treatment needed to address the problems, risk behaviors, and functioning of the child or youth.

- 0 Child has no behavioral/physical/medical treatment needs to be administered by the parent/primary caregiver.
- 1 Child requires weekly behavioral/physical/medical treatment by the parent/primary caregiver.
- 2 Child requires daily behavioral/physical/medical treatment by the parent/primary caregiver. This would include ensuring that the child takes daily medication.
- 3 Child requires multiple and complex daily behavioral/physical/medical treatments by the parent/primary caregiver (complicated treatment cases).

Monitoring

This dimension describes the level of adult monitoring needed to address the safety and functioning need of the child or youth.

- 0 Child has minimal monitoring needs. For example, caregiver could leave the house to run an errand of at least 30 min.
- 1 Child has some monitoring needs. For example, a caregiver would need to check on the individual more than every 30 min or so during awake hours, but not during asleep hours.
- 2 Child has significant monitoring needs. For example, a caregiver would need to be in the same room or nearby most of the time during awake hours and nearby during asleep hours.
- 3 Child needs 24-hour awake monitoring.

References

- Barth, R.P., Wildfire, J., & Green, R.L. (2006). Placement into foster care and the interplay of urbanicity, child behavior problems, and poverty. *American Journal of Orthopsychiatry*, 76, 358–366.
- Bickman, L., Noser, K., & Summerfelt, W.T. (1999). Long-term effects of a system of care on children and adolescents. *The Journal of Behavioral Health Services Research*, 26, 185–202.
- Britner, P.A., & Mossler, D.G. (2002). Professionals' decision-making about out-of-home placements following instances of child abuse. *Child Abuse & Neglect*, 26, 317–332.
- Brooks, D., James, S., & Barth, R.P. (2002). Preferred characteristics of children in need of adoption: Is there a demand for available foster children? *Social Service Review*, 76, 575–602.
- Brown, V.A. (2002). *Child welfare: Case studies*. Boston, MA: Allyn & Bacon.
- Buddin Praed Foundation (2008). Child and Adolescent Needs and Strengths. Retrieved September 2, 2008 from <http://www.buddinpraed.org/form/cans-mhman.asp>
- Courtney, M.E. (1998). Correlates of social worker decisions to seek treatment-oriented out-of-home care. *Children and Youth Services Review*, 20, 281–304.
- Dillman, D.A. (2000). Introduction to tailored design. *Mail and internet surveys: The tailored design method* (pp. 3–32) (2nd ed.).
- Dillman, D.A., Clark, J.R., & Sinclair, M.A. (1995). How prenotice letters, stamped returned envelopes, and reminder postcards affect mailback response rates for census questionnaires. *Survey Methodology*, 21, 1–7.
- Donenberg, G.R., Bryant, F.B., Emerson, E., Wilson, H.W., & Pasch, K.E. (2003). Tracing the roots of early sexual debut among adolescents in psychiatric care. *Journal of the American Academy of Child and Adolescent Psychiatry*, 42, 594–608.
- Drury-Hudson, J. (1999). Decision making in child protection: The use of theoretical, empirical, and procedural knowledge by novices and experts and implications for fieldwork placement. *British Journal of Social Work*, 29, 147–169.
- Earth, R.P. (1997). Effects of age and race on the odds of adoption versus remaining in long-term out-of-home care. *Child Welfare*, 76, 285–308.
- Finch, S.J., Fanshl, D., & Grundy, J.F. (1986). Factors associated with the discharge of children from foster care. *Social Work Research & Abstracts*, 22, 10–18.
- Glisson, C., Bailey, J.W., & Post, J.A. (2000). Predicting the time children spend in state custody. *Social Service Review*, 23, 253–280.
- Hall, A.S., Pulver, C.A., & Cooley, M.J. (1996). Psychology of best interest standard: Fifty state statutes and their theoretical antecedents. *American Journal of Family Therapy*, 24, 171–180.
- Hodges, K., McKnew, D., Cytryn, L., Stern, L., & Klein, J. (1982). The Child Assessment Schedule (CAS) diagnostic interview: A report on reliability and validity. *Journal of the American Academy of Child and Adolescent Psychiatry*, 21, 468–473.
- Holland, B.S., & Copenhaver, M.D. (1987). An improved sequentially rejective Bonferroni test procedure. *Biometrics*, 43, 417–423.
- Jenkins, S., & Diamond, B. (1985). Ethnicity and foster care: Census data as predictors of placement variables. *American Journal of Orthopsychiatry*, 55, 267–276.
- Kaplowitz, M.D., Hadlock, T.D., & Levine, R. (2004). A comparison of web and mail survey response rates. *Public Opinion Quarterly*, 68, 94–101.
- Keegan, S.N., & Lucas, R. (2005). Hospitality to hostility: Dealing with low response rates in postal surveys. *International Journal of Hospitality Management*, 24, 157–169.
- Kelly, J.B. (1997). The best interests of the child: A concept in search of meaning. *Family and Conciliation Courts Review*, 35, 377–387.
- Klockars, A.J., Hancock, G.R., & McSweeney, M.D. (1995). Power of unweighted and weighted versions of simultaneous and sequential multiple-comparison procedures. *Psychological Bulletin*, 118, 300–307.
- Knitzer, J. (1982). *Unclaimed children: The failure of public responsibility to children and adolescents in need of mental health services*. Washington, DC: Children's Defense Fund.
- Lindsey, D. (1991). Factors affecting the foster care placement decision. *American Journal of Orthopsychiatry*, 61, 272–281.
- Lindsey, D. (1992). Adequacy of income and the foster care placement decision: Using an odds ratio approach to examine client variables. *Social Work Research and Abstracts*, 28, 29–36.
- Lopez, S. (1989). Patient variable biases in clinical judgment: Conceptual overview and methodological considerations. *Psychological Bulletin*, 106, 184–203.
- Lyons, J.S. (1999). *The Child and Adolescent Needs and Strengths for children with mental health challenges*. Winnetka, IL: Buddin Praed Foundation.
- Mandel, D.R., Lehman, D.R., & Yuille, J.C. (1995). Reasoning about the removal of a child from home: A comparison of police officers and social workers. *Journal of Applied Social Psychology*, 25, 906–921.
- McMurtry, S.L., & Lie, G.Y. (1992). Differential exit rates of minority children in foster care. *Social Work Research and Abstracts*, 28, 42–49.
- Mueser, K.T., Yarnold, P.R., Rosenberg, S.D., Swett, C., Jr., Miles, K.M., & Hill, D. (2000). Substance use disorder in hospitalized severely mentally ill psychiatric patients. *Schizophrenia Bulletin*, 26, 179–192.
- Olsen, L.I. (1982). Predicting the permanency status of children in foster care. *Social Work Research & Abstracts*, 18, 9–20.
- Ostrander, R., Weinfurt, K.P., Yarnold, P.R., & August, G.J. (1998). Diagnosing attention deficit disorders with the Behavioral Assessment System for Children and the Child Behavior Checklist: Test and construct validity analyses using optimal discriminant classification trees. *Journal of Consulting and Clinical Psychology*, 66, 660–672.
- Pellegrin, A., & Wagner, W.G. (1990). Child sexual abuse: Factors affecting victims' removal from home. *Child Abuse and Neglect*, 14, 53–60.
- Snowden, J.A., Leon, S.C., Bryant, F.B., & Lyons, J.S. (2007). Evaluating psychiatric hospital admission decisions for children in foster care: An optimal classification tree analysis. *Journal of Clinical Child and Adolescent Psychology*, 36, 8–18.
- Soltysik, R.C., & Yarnold, P.R. (1993). *ODA 1.0: Optimal data analysis for DOS*. Chicago, IL: Optimal Data Analysis.
- Soltysik, R.C., & Yarnold, P.R. (2010). Automated CTA software: Fundamental concepts and control commands. *Optimal Data Analysis*, 1, 144–160.
- State of Illinois Department of Child and Family Services (2003). System of care (SOC) program plan. Retrieved August 15, 2005 from <http://dcfswebresource.prairienet.org/downloads/cfs/>
- Stevanovic, P., & Rupert, P.A. (2004). Career-sustaining behaviors, satisfactions, and stresses of professional psychologists. *Psychotherapy: Theory, Research, Practice, Training*, 41, 301–309.
- Stroul, B.A., & Friedman, R.M. (1986). *A system of care for children and youth with severe emotional disturbances*. Washington, DC: Georgetown University Child Development Center, CASSP Technical Assistance Center.
- Stroul, B.A., & Friedman, R.M. (1994). *A system of care for children and youth with severe emotional disturbances* (Revised ed.). Washington, DC: Georgetown University Child Development Center, CASSP Technical Assistance Center.
- Taylor, B. J. (2006). Factorial surveys: Using vignettes to study professional judgement. *British Journal of Social Work*, 36, 1187–1207.
- Yarnold, P.R. (1996). Discriminating geriatric and nongeriatric patients using functional status information: An example of classification tree analysis via UniODA. *Educational and Psychological Measurement*, 56, 656–667.
- Yarnold, P.R., & Soltysik, R.C. (1991). Theoretical distributions of optima for univariate discrimination of random data. *Decision Sciences*, 22, 739–752.
- Yarnold, P.R., & Soltysik, R.C. (2005). *Optimal data analysis: A guidebook with software for Windows*. Washington DC: American Psychological Association.
- Zuravin, S.J., & DePanfilis, D. (1997). Factors affecting foster care placement of children receiving child protective services. *Social Work Research*, 21, 34–44.