



## Program records as a source for program implementation assessment and youth outcomes predictors during residential care



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### ABSTRACT

This study used point card information from a residential program to generate treatment fidelity metrics and determine if the metrics predicted youth outcomes after six months in care. Youth outcomes included staff ( $n = 52$ ) and youth ( $n = 143$ ) ratings, youth conduct records kept by the residential program's teaching-family homes and school records. Treatment fidelity metrics included the program components: (a) percentage of positive interactions, (b) number of privileges earned, and (c) a skills taught to interactions ratio. The percentage of positive interactions averaged 90% per youth; 76% of the point cards indicated that privileges were earned; and a variety of life skills were typically taught to the youth (skills ratio = .61). The data from the treatment fidelity metrics supported that the program was implemented consistent with program expectations. The range of implementation quality for each measured component was then used to predict youth outcomes. Increased percent of positive interactions predicted significantly decreased externalizing behaviors as reported by staff ( $\beta = -0.31, p < .001$ ) and youth ( $\beta = -0.30, p < .001$ ), and significantly fewer incidents of non-compliance ( $Exp(b) = 0.93, p < .001$ ) and school problems ( $Exp(b) = 0.91, p < .001$ ) as indicated on the program records. The skills ratio indicated similar trends across outcomes, although non-significant at the  $p < .01$  level. Permanent products may be helpful to develop program treatment fidelity metrics, which may be useful for monitoring implementation and may be associated with improved youth outcomes.

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### 1. Introduction

Youth receiving residential care for emotional or behavioral issues often exhibit behaviors related to non-compliance, disregard for rules, and physical and verbal aggression (Kolko & Pardini, 2010) unless they are adequately addressed (Charles, Bywater & Edwards, 2011; Bradley, Doolittle & Bartolotta, 2008). Well-implemented behavior management interventions are associated with decreased disruptive and aggressive behaviors (Rhymer, Evans-Hampton, McCurdy & Watson, 2002; Taylor & Miller, 1997), and increased youth compliance (Leon, Wilder, Majdalany, Myers & Saini, 2014; Wilder, Atwell & Wine, 2006). One frequently employed behavior management strategy is the point-card token economy; however, few studies included implementation benchmarks or linked implementation to outcomes for this intervention. The point-card token economy may be ideal for implementation monitoring because program delivery results in permanent products.

Permanent products are materials generated from the completion of intervention steps, and can include things like sheets or cards with markings to indicate a treatment component was delivered (Wilkinson, 2006). As an alternative to costly treatment fidelity assessments (e.g., direct observation), permanent product review maybe a reasonable and sustainable method to assess fidelity (Fiske, 2008). Moreover, it is possible to generate treatment fidelity metrics from permanent products that reflect key aspects of an intervention, and use the metrics to assess how the delivery of those key intervention aspects are related to youth outcomes. This study will demonstrate the use of permanent product review to generate metrics to assess treatment fidelity to a point-card token economy within a group-home setting, and examine if the treatment fidelity metrics predict youth outcomes during services.

#### 1.1. Token economies

A token economy is a contingency management system that has youth earn tokens for targeted positive behaviors or lose tokens for negative behaviors, and the tokens are later exchanged for predetermined rewards (Maggin, Chafouleas, Goddard & Johnson, 2011). Components

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typically include (a) specific target behaviors, (b) tokens given as reinforcement, (c) a menu of rewards for appropriate behaviors, and (d) explicit protocol for exchanging tokens for rewards (Maggin et al., 2011; Wolfe, Dattilo & Gast, 2003). Token economies motivate youth to learn and demonstrate behaviors through operant reinforcement paradigms; they maintain the treatment focus on developing new pro-social strategies; and they keep expectations concrete and clear (Kazdin & Bootzin, 1972; Pazaratz, 2003).

Some token economies integrate point cards, where points are used as the tokens and point cards are used to keep track of the points accumulated. Well-designed point-card token economies typically include a daily performance chart to monitor daily points accumulated, earned rewards, skills taught or practiced, and structure daily feedback between the youth and adults (Bradshaw, Pas, Goldweber, Rosenberg & Leaf, 2012; Campbell & Anderson, 2011; Kirigin, 2001; Wolf et al., 1995). Consistently implemented point-card token economies are associated with decreased disruptive behaviors at school (Fairbanks et al., 2007; Simonsen, Myers & Briere, 2011) and in residential treatment settings (Ennis, Jolivet, Swoszowski & Johnson, 2012; Swoszowski, Jolivet, Fredrick & Heflin, 2012). Moreover, youth receiving this type of intervention in residential settings exhibit reduced externalizing behaviors and decreased criminal behaviors, and improved interpersonal skills and relationships (Larzelere, Daly, Davis, Chmelka & Handwerk, 2004; Slot, Jagers & Dangel, 1992; Thompson et al., 1996).

Point-card token economies may be beneficial to youth in residential settings (Field, Nash, Handwerk & Friman, 2004), but the aspects of implementation of the token economies that predict youth outcomes are generally unknown (Maggin et al., 2011; Reitman, Murphy, Hupp & O'Callaghan, 2004). This may be especially true given the criticism regarding the potential for arbitrary and punitive implementation (Drumm et al., 2013; VanderVen, 1995; 2000) or irrelevant expectations or rewards (Carr, Fraizer & Roland, 2005). In general, the relationship between behavioral intervention outcomes and aspects of treatment implementation is commonly overlooked (Borrelli et al., 2005; Schoenwald, 2011). Within studies of point-card token economies, aspects of implementation are either unreported (e.g., Larzelere, et al., 2004; Slot et al., 1992; Thompson et al., 1996) or limited to step adherence (e.g., Hawken et al., 2011; Ennis et al., 2012; Fairbanks et al., 2007; Simonsen, et al., 2011; Swoszowski et al., 2012). When information regarding the implementation of point-card token economies is provided, the information covers a narrow band of implementation. More implementation information may be needed to assess if point-card token economies are entirely implemented as designed and intended to be used. Implementation assessments should provide information about adherence as well as details regarding skillfulness and frequency of component delivery, and youth responses to the treatment (Dane & Schneider, 1998).

## 1.2. Treatment implementation

Implementation is the manner in which intervention components are delivered (Schoenwald & Garland, 2013). It is conceptualized as multi-faceted with measurable aspects that include: (1) adherence (fidelity), (2) dosage, (3) quality of program delivery, (4) participant responsiveness, (5) program differentiation (Dane & Schneider, 1998; Durlak & DuPre, 2008), (6) monitoring of comparison groups, (7) program reach, and (8) adaptation (Durlak & DuPre, 2008). The consistency in which an intervention is implemented as designed and intended is treatment fidelity, and it is typically assessed through the recorded presence or proportion of components delivered as prescribed by a program's protocol (Dane & Schneider, 1998; Gresham, Gansle & Noell, 1993). Quality represents how well an intervention was applied (Berkel, Mauricio, Schoenfelder, & Sandler, 2011; Power et al., 2005), and may be examined through assessments of interventionist–recipient interactions, such as encouragement (Eames et al., 2009) or intervention application skillfulness (Cook et al., 2012; Ellis, Naar-King,

Cunningham, Templin, & Frey, 2007). Both fidelity and quality are seen as essential aspects of implementation, where fidelity is presumed to be a precursor to quality (Dobson & Singer, 2005).

Implementation is typically measured with instruments that reflect an intervention's core components, delivery methods, and theory of change (Berkel et al., 2011; McLeod, Southam-Gerow & Weisz, 2009). Metrics of treatment implementation provide data regarding program delivery reliability, as well as information that could link treatment practices to intervention outcomes (Gable et al., 2001; Gresham, MacMillan, Beebe-Frankenberger & Bocian, 2000; Sanetti & Kratochwill, 2009). Higher treatment fidelity levels are associated with improved outcomes for youth receiving basic to highly complex behavioral management interventions (Schoenwald & Garland, 2013). However, the impact of quality has often relied on subjective ratings of clinical skill (Berkel et al., 2011; Dane & Schneider, 1998) or working alliance (McLeod, Southam-Gerow, Tully, Rodríguez, & Smith, 2013), rather than using more objective assessments based on intervention implementation byproducts. For therapeutic residential care especially, as there is limited research about predictors of positive youth outcomes (Lee & Barth, 2011), treatment fidelity and quality data related to program components is a logical place to start.

Treatment implementation may be assessed directly or indirectly (Perepletchikova & Kazdin, 2005). Direct assessments, such as observations or video reviews, are often preferred and include the identification or rating of occurring and non-occurring treatment elements (Gresham et al., 2000; Sanetti, Chafouleas, Christ & Gritter, 2009). Direct assessments are considered the most accurate methods to collect treatment implementation information, but these methods are costly to conduct and analyze, and are subject to reactance by interventionists and clients (Fiske, 2008). Indirect alternatives for assessing treatment implementation include interventionist, supervisor, or client recordings or ratings of treatment activities; and permanent product review (Gresham et al., 2000; Wilkinson, 2006).

Treatment activity recordings or ratings require an individual to record if or how treatment elements were completed. These methods are practical, may be completed by multiple informants (Gresham et al., 2000), and are useful for linking treatment implementation aspects and outcomes for complex behavioral interventions (Schoenwald & Garland, 2013). However, rater-specific influences have been observed across various forms (Fiske, 2008; Wickstrom, Jones, LaFleur & Witt, 1998). For example, therapists (self-ratings), parents, and children treatment implementation ratings of Multisystemic therapy (MST; see Schoenwald, Carter, Chapman & Sheidow, 2008; Schoenwald, Henggeler, Brondino & Rowland, 2000) demonstrated convergence and divergence. Therapist (Schoenwald, Henggeler, Brondino and Rowland, 2000; Schoenwald, Halliday-Boykins & Henggeler, 2003) and parent (Schoenwald, Chapman, Sheidow & Carter, 2009; Schoenwald, Sheidow & Chapman, 2009) treatment implementation ratings have similar associations with externalizing behaviors, but only parent ratings correlated with youth social skills (Schoenwald, Chapman, Sheidow & Carter, 2009; Schoenwald, Sheidow & Chapman, 2009), and only child ratings correlated with family functioning (Schoenwald, Henggeler, Brondino and Rowland, 2000). Variability in ratings of treatment implementation and the resulting associations with outcomes, such as in this example, points to a need for alternative treatment implementation metrics to improve intervention delivery assessment (Goense, Boendermaker, van Yperen, Stams & van Laar, 2014).

Permanent products may be used to develop alternative treatment implementation metrics. Permanent products are materials generated in correspondence with the completion of intervention steps (Wilkinson, 2006), and could include point cards, worksheets, or checklists used during intervention delivery. Permanent product review requires the inspection of intervention products for implementation completeness and accuracy (Gresham et al., 2000; Wilkinson, 2006).

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