

Positive and Negative Peer Influence in Residential Care

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Published online: 13 October 2017
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Abstract The potential for negative peer influence has been well established in research, and there is a growing interest in how positive peer influence also impacts youth. No research, however, has concurrently examined positive and negative peer influence in the context of residential care. Clinical records for 886 residential care youth were used in a Hierarchical Linear Model analysis to examine the impact of negative and positive peer influence on naturally occurring patterns of serious problem behavior over time. Negative peer influence, where the majority of youth in a home manifested above the average number of serious behavior problems, occurred 13.7% of the time. Positive peer influence, where the majority of youth manifested no serious problem behaviors for the month, occurred 47.7% of the time. Overall, youth problem behavior improved over time. There were significantly lower rates of serious problem behavior in target youth during positive peer influence months. Conversely, there were significantly higher rates of serious problem behaviors in target youth during negative peer influence months. Negative peer influence had a relatively greater impact on target peers' serious behavior problems than did positive peer influence. Caregiver experience significantly reduced the impact of negative peer influence, but did not significantly augment positive peer influence. Months where negative peer influence was combined with inexperienced caregivers produced the highest rates of serious problem behavior. Our results support the view that residential programs for troubled youth need to create

circumstances that promote positive and control for negative peer influence.

Keywords Negative peer influence · Positive peer influence · Residential care · Incident data · Hierarchical linear modeling

A key objective of residential care is to provide effective treatment for troubled youth, minimizing factors that might contribute to youth becoming more troubled. One area of concern has been negative peer contagion, which is the potential for troubled youth to exacerbate each other's problem behaviors (a.k.a., iatrogenic effect; Dodge et al. 2006, 2014). Conversely, there is a growing interest in the ways that youth can have a positive influence on each other, i.e. positive peer influence (Boden et al. 2016; Lee and Thompson 2009; Osgood et al. 2013). The potential for negative and positive peer influence has strong implications for programs caring for troubled youth.

Negative peer contagion for youth in group care settings has long been a concern (Barth 2005; Osgood and Briddell 2006). There is strong evidence that the influence of negative peers is significantly associated with problem behavior in youth (Dishion et al. 2006; Dubow et al. 2015), however, most research examining negative peer influence has examined youth in naturally occurring peer groups (e.g., Gifford-Smith et al. 2005; Reynolds and Crea 2015; Schofield et al. 2015) and may have limited relevance to group treatment settings (Weiss et al. 2005).

There is some research, however, that has been put forward as evidence for negative peer contagion in residential care settings. For instance, the work of Leve and Chamberlain (2005), found that a best practice foster care program produced significantly better outcomes than a state-run residential program for adjudicated youth. The authors attributed the

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difference in results to, at least in part, the fact that the residential program congregated delinquent peers whereas the foster care program did not. Unfortunately, while their research design was a direct test of the efficacy of the two programs, it did not control for negative peer influence. Specifically, the foster youth were not isolated from peer influences (they attended public schools and lived in homes with the biological children of their foster parents) and there was not a measure of negative peer influence in either group. Conversely, a study comparing foster care and group care which controlled for intervention (both programs were run by the same organization and followed the same treatment model) found that group care youth were more likely to be favorably discharged, more likely to return home, and less likely to experience subsequent placement in the first 6 months (Lee and Thompson 2008). The Cambridge-Somerville Youth Study (McCord 1978) has also been used to support the argument that residential care is iatrogenic (Dishion et al. 1999). However, recent reviews have pointed out that this study has limitations that undermine its use as evidence of negative peer contagion in group care settings (Huefner et al. 2009; Zane et al. 2016).

Other research focused on negative peer influence in residential settings has relied on youth reporting both their own behavior and behavior and beliefs of their peers' (e.g., Benda 2001; Eddy and Chamberlain 2000; Melkman 2015; Somers et al. 2016), a method that overestimates the relationship between self and other's behavior (Bauman and Ennett 1996; Haynie and Osgood 2005). Similarly, research that uses naturally occurring associations to test for negative peer influence in youth (e.g., Benda et al. 2002; Jones and Ross 1997; Smith and Ecob 2013) cannot conclusively indicate whether negative influence or self-selection (like-types being friends) are the best explanation for observed rates of problem behavior (Brechwald and Prinstein 2011; Popp et al. 2008).

Recent research that has specifically looked for negative peer influence in residential care has not found evidence supporting it being a general issue in the program examined. Specifically, one study found that there was no relationship between exposure to deviant peers and an individual youth's externalizing behavior patterns over time for 89% of youth (Lee and Thompson 2009). Similarly, a second study found that, in general, the problem behaviors of youth in the residential program significantly improved during their time in care and that youth with a conduct disorder diagnosis showed the greatest improvement (Huefner et al. 2009). Finally, a third study found that daily reports of conduct and oppositional defiant disorder (CD/ODD) behaviors in a residential care home was not significantly related to the percentage of conduct disorder youth living in that home (Huefner and Ringle 2012). Indeed, lower levels of CD/ODD behavior were instead directly related to greater direct care

staff level of experience and longer mean lengths of stay for youth in the home.

Research in other programs and settings has found similar results. For example, Burlleson et al. (2006) did not find evidence for negative peer contagion in a group treatment program for youth with cannabis addiction. In fact, like other research in residential settings (Huefner et al. 2009), they found that youth with higher baseline levels of conduct disorder experienced greater improvement in emotional problems, and more involvement in support groups and substance free structured activities. They concluded that their results were completely counter to notion of iatrogenic effects (Burlleson et al. 2006).

Two factors have been shown to impact negative peer influence: negative peer density and caregiver experience. Negative peer density refers to situations where most of youth in a setting are deviant (Dodge and Sherrill 2006). Research examining negative peer density has returned mixed results, with some finding that greater negative peer density was related to worsening behavior (Lee and Thompson 2009), while other research has found no relationship between negative peer density and problem behavior (Huefner and Ringle 2012; Mager et al. 2005). For its part, greater caregiver experience has been shown to mitigate negative peer influence (Gifford-Smith et al. 2005; Huefner and Ringle 2012; Lochman et al. 2017; Weaver and Prellow 2005).

While most research on peer influence has focused on socialization of antisocial, deviant, and health-risk behaviors (Brechwald and Prinstein 2011), it has been argued that peer influence is not inherently negative (Choukas-Bradley et al. 2015). A growing body of research has found that peer influence can be related to the development of positive behaviors (Barry and Wentzel 2006; Herndon and Bembenuity 2014; Richmond et al. 2012), and positive peer influence has been identified as a promising area for future research (Dishion and Tipsord 2011).

There has been a growing interest in examining the impact of positive peer influence on youths' behavior. For instance, while examining educational outcomes, positive peer influence has been identified as a key factor impacting youths' scholastic success and resiliency (DeLay et al. 2016; Strolin-Goltzman et al. 2016). Additionally, positive peer influence has been linked to a greater likelihood of going to college (Zaff et al. 2003). Research has also found that positive peer influence is associated with lower levels of problem behaviors in adolescence. For example, research has found that positive peer influence is associated with reduced smoking, alcohol, drug use (Coyle et al. 2016; Gottfredson et al. 2004; Mason et al. 2015; Stoddard and Pierce 2016). Increased contact with positive peers has also been found to be related to lower levels of aggression (Adams et al. 2005; van Lier et al. 2005) and greater levels of prosocial attitude and self-reliance (Smith et al. 2013).

Finally, some research has even concurrently examined both positive and negative peer influence. For example, in a study of Dutch high school students, researchers found that prosocial behavior increased after prosocial peer feedback and decreased after antisocial peer feedback and concluded that adolescent's susceptibilities to peer influence presents a period of both opportunities and vulnerabilities (van Hoorn et al. 2016). Another study examined smoking, drinking, and depression in high school students in the United States (Richmond et al. 2012). Their findings showed that positive peer influences lessened both the concurrent and long-term impact of negative peer influences on smoking and drinking. Conversely, regardless of any additional positive peer influences, they found a lasting impact of negative peers on greater risk for depressive outcomes for adolescents.

Very little of this research, however, has examined these influences in the context of residential care settings. In fact, the current investigation will be the first to look at positive peer influence in such a high risk population. Our present study used youths' manifested level of problem behavior to examine the impact of both negative and positive peers on changes in amount of problem behavior in a residential care program. Based on existing research, we hypothesize that when most of the youth in the home are behaving well (high positive peer density) youth will show significantly fewer behavioral problems and when most of the youth in a home are misbehaving (high negative peer density) youth will show significantly more behavioral problems. We also expect that these trends will be mitigated by caregiver experience where greater caregiver experience will be related to greater improvement regardless of the positive or negative peer density.

Method

Participants

We used clinical record data for 886 youth admitted to a large residential care program for youth with significant emotional or behavioral problems in the Midwest USA, from January 2010 through June 2013. At the time of admission, average age of youth was 15.7 (SD = 1.5), 62% were male, 56.4% were minority, and 46.6% were wards of the state. Additionally, youth had experienced an average of 3.2 (SD = 3.4) prior formal out-of-home placements, were on average 12.8 (SD = 3.9) years old at the time of first out-of-home placement, and had an average of 13.8 (SD = 5.5) presenting problems identified at the time of admission. All data used in this research were archival and came from the organization's clinical and administrative database. The study was reviewed and approved as exempt from obtaining consent by the Boys Town Social/Behavioral IRB following Federal guidelines, as it used deidentified archival data.

The program uses the Teaching Family Model, where highly trained married couples (family teachers) supervise the treatment of 6 to 8 same-sex youth living in a residential home. Youth who entered the program during the research inclusion dates were identified as "target youth." Youth entering the program are assigned to a teaching family couple who are already caring for 5–7 other youth within a home. The peers assigned to each couple during the target youths' stay are often changing, due to youth starting and completing the program. All subsequent use of the word "home" will refer not to the physical residence, but to a target youth and their peers assigned to a specific family teaching couple within a specific month.

Measures

Behavioral functioning was measured using an organization-specific instrument called the Daily Incident Report (DIR). The DIR is similar to the Parent Daily Report that was developed and used in foster care and family intervention contexts (Chamberlain and Reid 1987). The DIR is a daily record based on observations of significant youth behaviors made by direct-care staff (i.e., family-teachers, assistant family-teachers), who would enter this information into a Word document template that would be forwarded to a Clinical Supervisor. The Clinical Supervisor would then review this information and enter the information into the organization's computerized administrative database. The DIR consists of 48 codes for various classes of behavioral incidents; this study used the 36 codes that were for behavioral problems. Examples of these problem behaviors are runaway, property damage, substance abuse, theft, non-cooperative behavior, physical assault on staff, gang behaviors, and restraint. Trained staff recorded a narrative for each incident into the DIR database and applied the appropriate codes to the incident. This occurred daily for every youth in the program who had a significant behavioral incident (or multiple incidents). The reliability and validity of the DIR has been previously established (Jewell et al. 2004; Larzelere 1996). Additionally, the validity of the DIR is further supported by its significant association with youths' diagnostic status at the time of admission (Friman et al. 2000; Jewell et al. 2004).

Caregiver level of experience was calculated as the length of service a family-teaching couple had attained at the beginning of each youth's entry into the home, so caregiver experience was the time between their employment start date and the youth joining their home. Family-teachers with less than or equal to 12 months experience when a given youth entered the home were considered to be "novice" (25.4%) while family-teachers with greater than 12 months experience when a given youth entered the home were considered to be "experienced" (74.6%). Longer program tenure was taken to indicate greater familiarity with the treatment model and greater experience

dealing with the problems associated with caring for youth with behavioral issues. The average caregiver tenure in the program was 54.9 months, with a range of less than one month to 224 months.

Analysis

Using the 36 DIR behaviors, the sum of problem behaviors per month for each youth was calculated. Positive and negative peer density were coded according to the percentage of youth in a home manifesting either none of the 36 DIR behaviors for the month, or manifesting more than the program average rate for the 36 DIR behaviors for the month. Homes where more than half of the youth in the home (e.g., 5 out of 8) manifested problem behavior equal to or above the overall program average were coded as negative peer influence for that month (occurred 13.7% of the time). During these months, the overall level problem behavior in these homes was $M = 5.3$ ($SD = 3.2$); skewness 1.8 ($SE = 0.073$). Homes where more than half of the youth in the home manifested no problem behaviors were coded as positive peer influence for that month (occurred 47.7% of the time). Homes that did not meet the criterion to be coded as either negative or positive peer influence for a given month were coded as mixed peer influence for that month (occurred 38.9% of the time).

We used Hierarchical Linear Modeling (HLM) to examine the impact of positive versus negative peers on target youths' behavior. Level 1 variables were time-in-care and two time varying dummy-coded covariates that indicated whether more than 50% of peers were negative or more than 50% of peers were positive. A dummy-coded variable for caregiver level of experience (novice versus experienced) was used at level 2. Approximately half of the 886 youth included in the analysis departed the program by the one year mark ($n = 455$, 51.3%). The "right censoring" created by youth leaving the program before the 1-year point is accounted for in the analysis. HLM allows for random effects to be estimated for incomplete data,

limiting the biases associated with sample attrition (McArdle and Hamagami 1992).

Results

Preliminary analyses indicated that a cubic growth model provided a better fit of the monthly change in problem behavior. The within model showed that overall problem behavior decreased significantly over time.

Table 1 shows the results for the cubic model which included two variables on the intercept; the grand mean centering the number of months of negative peers (13.7%) and the grand mean centering of the number of months of positive peers (47.7%). The 2 time varying variables indicate that a month with positive peers decreased bad behavior by almost one third of a behavior ($\beta = -0.31$, $p < 0.001$) while having negative peers increased bad behavior by almost one behavior ($\beta = 0.83$, $p < 0.001$) for that month.

We then tested for impact of family-teacher experience on positive and negative peer influence (Table 2). Family-teacher experience is dummy coded so that a 1 indicates a couple with experience and is used as a between variable on the within variables positive peer and negative peer. Overall, the addition of family-teacher experience results in only slight, non-significant changes to the intercept coefficients. The overall curve coefficients remain the same. Experienced family-teachers did increase the effect of positive peers, but not to the level of statistical significance (coefficient = -0.34 , $p > .05$). Experienced family-teachers did, however, have a statistically significant impact on reducing the impact of negative peers. The effect of negative peers with inexperienced family-teachers lead to an increase of problem behavior by 1.385 behaviors (coefficient = 1.38, $p < 0.001$), but when there is an experienced family-teacher couple that increase in problem behavior was significantly reduced (-0.82 , $p < 0.05$) by two thirds (66%). In more concrete terms, problem behavior was reduced from 1.38 additional

Table 1 Combined cubic HLM model for problem behavior over the first 12 months of program stay

		β	SE	t-ratio	df	p-value
Intercept	Intercept	3.32	0.49	17.4	883	0.001*
	Positive Peer (person mean)	-0.33	0.71	-0.5	883	0.64
	Negative Peer (person mean)	2.58	1.13	2.3	883	0.03*
Slope	Month	-0.27	0.11	-2.5	885	0.02*
	Month ²	0.05	0.02	2.2	885	0.03*
	Month ³	-0.003	0.001	-2.3	885	0.03*
	Positive Peer (dummy code)	-0.31	0.08	-3.9	885	0.001*
	Negative Peer (dummy code)	0.83	0.17	5.0	885	0.001*

* indicates statistical significance

Table 2 Combined cubic HLM model for problem behavior over the first 12 months of program stay testing for Family Teacher experience

		β	SE	t-ratio	df	p-value
Intercept	Intercept	3.10	0.49	6.3	883	0.001*
	Positive Peer (person mean)	-0.30	0.71	-0.4	883	0.67
	Negative Peer (person mean)	2.50	1.13	2.2	883	0.03*
Slope	Month	-0.27	0.11	-2.5	885	0.02*
	Month ²	0.05	0.02	2.2	885	0.03*
	Month ³	-0.003	0.001	-2.3	885	0.03*
	Positive Peer (dummy code)	-0.05	0.19	-0.3	884	0.79
	Experienced Family Teachers	-0.34	0.20	-1.7	884	0.09
	Negative Peer (dummy code)	1.38	0.31	4.5	884	0.001*
	Experienced Family Teachers	-0.82	0.36	-2.3	884	0.03*

* indicates statistical significance

behaviors a month to about half an additional problem behavior a month (1.38-0.82 = 0.56).

Discussion

Consistent with prior research (e.g., Molano et al. 2013; Padilla-Walker and Bean 2009), we found evidence of both positive and negative peer influence. This study is the first to examine the concurrent impact of negative and positive peer influence on youth with behavioral and emotional challenges. Additionally, our research is unique in the finding that peer influence is most likely under conditions where the majority of youth are either behaving well for positive peer influence or misbehaving for negative peer influence. We found that during months when more than half of the youth in a home were above average in their level of misbehaving, their impact on the target youth was significantly negative. Specifically, a youth expressed slightly less than one additional critical incident per month when the majority of youth in the home were misbehaving at a rate above the program average. One might argue that less than one additional critical incident for a given month does not seem a clinically-significant amount, but the direction of the influence is consistent with negative-peer influence nonetheless.

Conversely, we found that during months when more than half of the youth in a home were not committing any negative acts, their impact on the target youth was significantly positive. In this case, a youth expressed about a third of a critical incident less per month (or one critical incident less for every three months) when the majority of youth in the home had no critical incidents for that month. Again, one might argue that a third of a misbehavior less over a month hardly seems clinically significant, but the direction of influence in this case is consistent with a positive-peer influence.

While both positive and negative peer influence were significantly related to higher rates of positive or negative peer behaviors respectively, negative peer influence had a

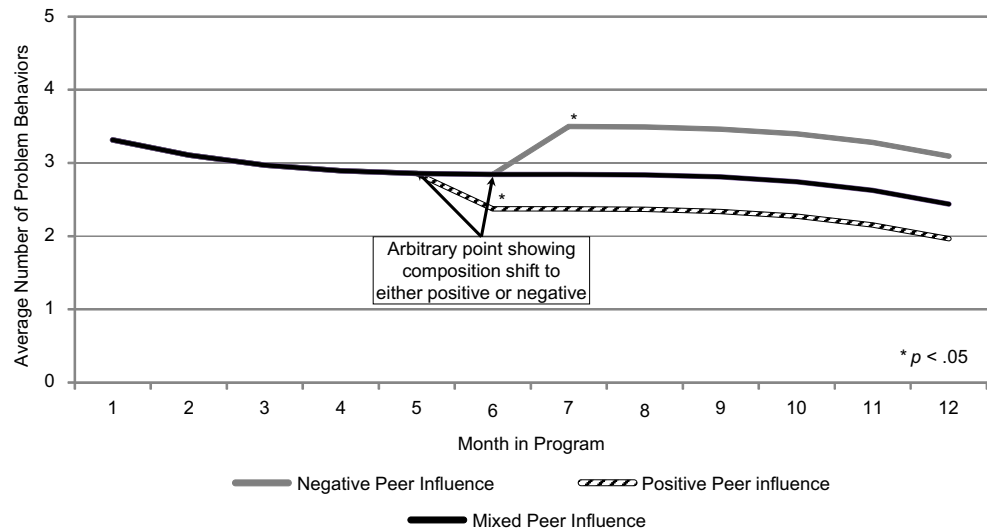
proportionally greater impact than positive peer influence. It has been speculated that visibility is what drives peer influence, and that prosocial behavior is less visible in adolescent culture (Ellis and Zarbatany 2007) whereas disruptive behavior is highly visible (Cillesen and Mayeux 2004). Perhaps this is why negative peer influence has been so readily identified in research. However, while negative peer influence appeared to set a higher normative misbehavior rate for youth, it did not appear to keep expressed problem behaviors from decreasing over time (see Fig. 1).

Third, in terms of actually practice, only 13.7% of the months met the “negative peer” level, while 47.7% of the months met the “positive peer” level. So in practical terms, while the potential for negative peer influence cannot be ignored, overall positive peer influence was much more common in the program.

Finally, in residential settings, negative peer influence is a real possibility, especially in settings where adult monitoring is low (e.g., Chamberlain et al. 2008; Ryan and Testa 2005) or when negative behavior seems excessive (e.g., Melkman 2015). Most research, however, shows that residential programs control for this through evidence-based programming, adequate supervision, and positive peer culture. Our research shows that negative peer influence is greatest when youth misbehavior rates are high and program staff are inexperienced. Experienced and skilled caregivers have a significant influence on the relationship of positive and negative peers on the target youth, and have the potential to virtually negate the impact of negative peers.

Based on the results of this research, a practical approach to dealing with negative peer contagion would be to track youth behavior and adjust the percentage of youth in a home that are at or above the organizational level of misbehavior. This has the potential to empower service providers to limit the possibility of negative peer contagion. This, of course, presupposes that youth will have sufficient time in a care setting to stabilize at lower rates of problem behavior. A triage approach to youth problems, where stays are short and substantive improvement

Fig. 1 Overall results for positive and negative peer influence



is unlikely, may condemn residential programs to circumstances where all youth are expressing high levels of problem behavior and thus most susceptible to negative peer influence.

Future research needs to examine whether there are within-home differences in the over-time stability of positive versus negative influence. Are some homes more toxic and others more therapeutic, and what contributes to these conditions? Similarly, are there within-youth patterns of positive versus negative stability over time (i.e., can we identify individuals that are positive versus negative behavior leaders)? For example, are there individuals who resist efforts to make them change, either by the treatment setting or by positive or negative peers? Previous researchers have found that aggression and popularity are often related (Berger and Rodkin 2012), that in certain subcultures disruptive behavior is viewed as being cool (Jamison et al. 2015; Mayeux et al. 2008), and that youth who maintain high levels of delinquent behavior tend to have greater peer influence (Ma et al. 2002). This likely presents a unique challenge to residential programs, where persistent disruptive and delinquent behavior is often the defining basis for youths' admission. Also, some research has shown that antisocial and unhealthy behavior are especially susceptible to peer contagion processes (Brechwald and Prinstein 2011), which begs the questions of what types of problem behavior would be less susceptible to peer influence.

There are limitations to this study. First, the results of our analysis are restricted to the types of problem behavior collected by the residential program. Those items collected on the Daily Incident Report tend to be "bigger" issues that often require organizational attention, as opposed to the many more common problem behaviors that are more likely to be the focus of the direct care staff (e.g., defiance, arguing, non-compliance, swearing, etc.). If we had a daily measure of these more common behaviors, the overall impact of positive and negative peer influence potentially would have been greater

(i.e., greater effect size), although we are uncertain that it would change the overall patterns of influence. In addition to this, because so much of the organizational focus is on the reduction of problem behaviors, there was no measure of positive youth behaviors. There is a growing awareness that positive peer influence is not just the absence of negative behavior (Padilla-Walker and Bean 2009). The results reported here, specifically the relatively greater impact of negative peer influence, might have provided a different picture if a measure of positive peer behaviors had been available. Third, the data comes from a single residential program, which potentially limits the generalizability of the findings. We argue, however, that while these results might be unique to this specific environment, the similarity between our findings and that of others' research (e.g., Molano et al. 2013; Padilla-Walker and Bean 2009) is sufficiently consistent that similar patterns of positive and negative peer influence may be found in residential care programs in general. Finally, within this program youth are not randomly assigned homes. Youth are carefully assigned to specific caregivers and home environments and provided treatment aimed at meeting their treatment needs. This focus certainly played a role in the expression of problem behaviors and susceptibility to peer influence.

Summary

The results of this study demonstrate that both positive and negative peer influence are ever present possibilities for youth in residential care programs. While the circumstances favoring positive peer influence were more common (48% of the time) than those favoring negative peer influence (14% of the time), negative peer influence had a relatively greater impact on target youths' behavior. Our results support the view that residential programs for troubled youth need to create

circumstances that promote positive and control for negative peer influence.

Based on our findings, this can be at least partially accomplished by using a treatment model that is effective in suppressing problem behavior, and advanced by using experienced caregivers to care for youth with higher problem behavior rate.

Compliance with Ethical Standards

Conflict of Interest The authors declare that they have no conflict of interest.

Ethical Approval The research protocol for this project was reviewed and approved in accordance with the ethical standards of the institutional.

Informed Consent The research protocol for this project was reviewed and approved as exempt from obtaining consent by the Boys Town Social/Behavioral IRB following Federal guidelines, as it used deidentified archival data.

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