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Substance Use Among Current and Former Foster Youth: A Systematic Review

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Abstract

Substance use tends to escalate across adolescence and into young adulthood, and can be intensified by experiences with trauma and maltreatment, mental illness, and exposure to parental alcohol and drug use. Despite the disproportionately high levels of these variables among youth placed in the foster care system, relatively few studies have focused on the measurement of substance use in this vulnerable population. The current review summarizes the published literature on alcohol and drug outcomes for current and former foster youth. Specifically, prevalence of use and diagnoses are presented separately, as well as a review of risk and protective factors. Discussion of results addresses limitations and suggestions for improvement in the measurement of these outcome variables.

Keywords

Foster youth; substance use; review; aging out

1. Introduction

Of the nearly 475,000 U.S. youth residing in foster care, close to 30,000 exit the system annually (U.S. Department of Health and Human Services, 2009). As the transition to adulthood for many youth presents significant barriers to successful outcomes and meeting needs, the path for foster care alumni¹ remains even more difficult (Masten, Obradovic, & Burt, 2006; Osgood, Foster, Flanagan, & Ruth, 2005; U.S. Department of Health and Human Services, 2007). Further complicating this transition is the problematic use of alcohol and other drugs. Generally, substance use increases throughout adolescence, peaking in young adulthood (Brown et al., 2008; Maggs & Schulenberg, 2004/2005). Compounding difficulties for youth in foster care, many experiences that can be pronounced in this population (e.g., abuse, neglect, household substance use) are known to increase the likelihood of future substance use (Aarons et al., 2008; Dube et al., 2003).

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¹Throughout, “foster care alumni” and “former foster youth” refer to a broad category of youth who have ever been in foster care. Subgroups (e.g., aged out youth, reunified youth) are specified as such.

Despite decades of research on foster care youth outcomes, however, only recently have researchers begun to examine alcohol and substance use in this population. Initiation of frequent heavy drinking episodes and illicit drug use are associated with a host of negative physical, mental health, and social problems; thus, establishing empirically-validated preventive/early intervention efforts for high-risk use is important. Such efforts are especially important in a population already at risk for poor health outcomes (Courtney & Dworsky, 2006; Courtney, Dworsky, Ruth, Keller, Havlicek, & Bost, 2005). Success of interventions, however, is greatly dependent on knowing the course of problem behaviors, as well as factors that exacerbate maladaptive functioning.

Given the dearth of literature in this area, an exclusive focus on transition-age youth may not provide the best picture of problems and possible solutions. Rather, we have chosen to review studies across all ages and experience within the foster care system, which we hope will offer the most information from which improvements in methodology and intervention can be made. Thus, the current review consolidates the published literature on substance use outcomes among current and former foster youth, as well as offers suggestions for future work in this area. We organize the existing data chronologically, starting first with data on youth who are currently in care, followed by data on youth who have left the system for various reasons. Within these temporal categories, we review data on alcohol and substance use, followed by substance use disorders, and finally predictors of these. We end with a brief overview of youth in child welfare, more generally, and a discussion of data needs for research and policy.

2. Youth currently in foster care

2.1. Alcohol and drug use

We have used Table 1 to summarize the data in this section by study and participant characteristics, outcome, and methodology. The first section of Table 1 summarizes the six studies assessing quantity or frequency of substance use among youth currently receiving foster care services. Kohlenberg, Norland, Lowin, and Treichler (2002) compared youth in foster family homes to a matched, random sample of 1,259 adolescents living with their biological parents in the same U.S. state (Kohlenberg, Nordlund, Treichler, Kabel, Lowin, & Landry, 2001).² Survey results indicated that 54% of youth in foster family homes had used alcohol at least once in their life, and nearly half (41%) had used marijuana. Lifetime use of drugs other than marijuana was very high, including hallucinogens (13.5%), stimulants (12.1%), non-street opiates (9.8%), and powder (5.5%) and crack cocaine (5.2%), all of which were higher than the comparison group. Such results could stem from differences in initiation of substance use, as the foster care sample tended to begin using alcohol and marijuana an average of 1.5 years before their peers.

When examining past year, rather than lifetime alcohol and drug use, similar rates are seen for foster youth versus adolescents living with their parents. In fact, adolescents in the family home reported more alcohol, powder cocaine, and other opiate use; however, alcohol (34%) and marijuana (23%) use rates among foster youth were still high. The two groups continued to look similar for use in the past 30 days, as well as heavy use in the past 30 days (i.e., using a substance six or more times).

Among a sample of older adolescents residing in various foster care placements (e.g., foster families, group homes, kinship care), 34% reported drinking alcohol at least once per month in the past year (Shin, 2004). In addition, more than one in five acknowledged tolerance for alcohol, while about the same number (22%) reported drug use in the past year.

²All comparisons are relative, not determined by statistical analyses.

Using the National Household Survey on Drug Abuse, Pilowsky and Wu (2006) examined past year substance use among youth with a history of foster care placement. Within the nationally-representative sample of over 19,000 adolescents, just over 2% acknowledged having been in foster care at some point in their lives. Results indicated that adolescents with such a history were significantly more likely to use alcohol (40% vs. 33%) and twice as likely to use drugs in the past year (34% vs. 18%).

Thompson & Auslander (2007) examined recent alcohol and marijuana use and were among the first authors to recruit a large sample of youth who were also residing in representative foster placement types (i.e., foster families and congregate care). Furthermore, the authors used a standardized measure of alcohol and substance use, the Diagnostic Interview Schedule for Children – Revised Version (Costello, Edelbrock, Dulcan, Kalas, & Klaric, 1984). Selecting specific questions rather than diagnoses, the authors reported that almost 40% of the youth had engaged in alcohol use in the past 6 months, while a similar number (36%) indicated using marijuana in the same time frame.

Vaughn, Ollie, McMillen, Scott, & Munson (2007) also recruited foster youth from various placements sites and assessed alcohol and drug use via modified versions of the Diagnostic Interview Schedule for Children and Adolescents (Reich, Welner, & Herjanic, 2002) and Diagnostic Interview Schedule for the DSM-IV (Robins, Cottler, Bucholz, & Compton, 1995). Among this sample, 49% reported lifetime drug use, with marijuana being the most frequent drug of choice (46%). More than one-third of participants (37%) indicated alcohol use in the past 6 months, while 28% endorsed using drugs in the same time period. Although past 1- and 6-month rates of drugs other than marijuana were low, lifetime prevalence again was quite high. For example, many youth endorsed having used amphetamines (16%), hallucinogens (12%), cocaine/crack (7%), and opiates (6%) at some time in their lives.

Finally, Smith, Chamberlain, and Eddy (2010) reported that among adolescents referred to out-of-home placement by the juvenile justice system, 90% had used at least one substance in the past six months. More specifically, 72% had used alcohol, 68% marijuana, and 51% at least one additional substance. Almost half (41%) and more than one-third of marijuana and alcohol users, respectively, reported daily or weekly use.

Taken together, most estimates of alcohol and marijuana use among current foster youth are roughly equal to or greater than that of normative populations or comparison groups within the reported studies. Examination of the most recent normative prevalence data for this age group (Monitoring the Future; Johnston, O'Malley, Bachman, & Schulenberg, 2012) suggests that while past year rates are often similar between the two groups, lifetime rates – particularly for drugs other than marijuana – are much higher among youth in foster care. However, these comparisons, even among the foster youth samples, should be made with caution. The six studies collectively used four different measurement time frames and half included both younger and older adolescents who would, by the nature of their age, have varying levels of experimentation or opportunity to develop substance use problems. Furthermore, substance use measurement has generally been limited to dichotomous outcomes. Given substantially different substance use rates across this developmental period (Substance Abuse and Mental Health Services Administration [SAMHSA], 2011), both aggregation of results across age and the limited binary measures raise almost as many questions as they answer.

2.2. Alcohol and drug diagnoses

As seen in the second part of Table 1, fewer studies have examined the prevalence rates for alcohol and substance use disorders among youth currently in care. Kohlenberg et al. (2002) reported that 9.6% of their foster adolescent sample met criteria for at least one DSM-III-R

substance use disorder in the past 6 months, inclusive of alcohol diagnoses, via the Diagnostic Interview Schedule for Children (Fisher, Wicks, Shaffer, Piacentini, & Lapkin, 1992). Although not compared statistically, their normative group rate was 6.2%. Direct comparisons of youth with and without a history of foster placement on DSM-IV criteria suggested that foster youth were almost five times more likely than those without such a history to meet criteria for Substance Dependence in the past year (9.8% vs. 2.2%), and 2–4 times more likely to have any other past year substance use disorder (Pilowsky & Wu, 2006). Vaughn et al. (2007), using items from the Comprehensive Addiction and Severity Index for Adolescents (Myers, 1994), reported a lifetime substance use disorder rate of 35%.

In the largest longitudinal study of foster youth (the Midwest Study), baseline rates of substance use disorders, as measured by the Composite International Diagnostic Interview (CIDI; Kessler & Ustun, 2004), were slightly higher than other normative groups. More specifically, 9.8% of youth preparing to exit the foster care system met lifetime criteria for Alcohol Abuse, over 4% for Alcohol Dependence, and 4.8% for Substance Dependence (Keller, Salazar, & Courtney, 2010). Due to procedural errors an exact prevalence of Substance Abuse could not be estimated, but the rate was conservatively estimated at 1.5% minimum.

The Casey Field Office Mental Health Study included a broader age range of current foster youth, assessing for both lifetime and past year alcohol and substance use disorders using the CIDI (White, Havalchak, Jackson, O'Brien, & Pecora, 2007). Lifetime rates for this group started at 3.6% (Alcohol Dependence) and were as high as 14.1% (Substance Abuse). Past year prevalence for these disorders ranged from 1.5% (Substance Dependence) to 3.6% (Alcohol Abuse). The authors also provided a weighted comparison of these rates with the National Comorbidity Survey – Adolescent (NCS-A) survey, a nationally representative sample of 10,148 youth age 13 to 17. Participants from the Casey Study had significantly higher rates of lifetime Alcohol Dependence (3.6% vs. 1.1%), Substance Abuse (14.1% vs. 8.8%), and Substance Dependence (4.2% vs. 1.8%). Oddly, foster youth evidenced significantly lower rates of past year Substance Abuse (2.1% vs. 5.7%).

Overall, the five studies reported here tend to indicate more problems among foster youth than normative groups. This is especially the case when the measurement time frame is longer (past six months) or when considering substances other than alcohol. Combined with findings on alcohol and substance use, it appears that foster youth may engage earlier than their peers, which could lead to a greater propensity for both “hard” drug use and a higher level of substance use problems (i.e., diagnoses). Given much lower rates of current (versus lifetime) diagnoses, however, foster youth may “age out” of substance use problems in a fashion similar to normative populations. Taken together, a process equivalent to normative groups may exist, while the overall scale of problems remains higher for foster youth at all time periods.

2.3. Predictors of substance use/diagnosis

In a study of various risk behavior outcomes, Taussig & Talmi (2001) examined ethnic/racial differences in self-reported past year substance use among 149 adolescents (age range = 13–17, $M = 15.1$, $SD = 1.4$) receiving foster care services. No differences were found between Caucasian, African American, and Hispanic/Latino foster youth. Subsequent regression analyses indicated that older age, history of neglect (but not abuse), and total behavior problems were associated with increased substance use (Taussig, 2002). Poor self-perception of behavior conduct and greater social acceptance were positively related to substance use, above and beyond the aforementioned predictors.

Another study suggested that, among several risk factors for past month alcohol and marijuana use, transitions/mobility, availability of substances, poor family management, low academic performance, lack of commitment to school, antisocial behavior, and peer substance use were significant predictors (Kohlenberg et al., 2002). Poor family attachment was an additional risk factor for marijuana use.

Peer drug use and a history of skipping school were the only predictors of recent alcohol and/or marijuana use among older adolescents in out-of-home care (Thompson & Auslander, 2007). Notable variables that were not significant included age, sex, race/ethnicity, various types of abuse/neglect, and peer alcohol use.

With regard to lifetime substance use, Vaughn et al. (2007) reported that a diagnosis of Conduct Disorder (CD) was associated with use in general, using more than one substance, and lifetime history of an alcohol or substance use disorder. Independent living was also predictive of lifetime substance use and any diagnosis. While a diagnosis of Post Traumatic Stress Disorder (PTSD) predicted polysubstance use, ethnic minority youth and those with a history of physical neglect were less likely to use more than one substance. Participants meeting criteria for PTSD and youth living in congregate care were more likely to have a lifetime alcohol or substance use disorder. Similar results were found for current substance use, as individuals with CD, youth living independently, and family history of substance use or treatment were more likely to be currently using any substance.

Using baseline data from the Midwest Study, Keller, Salazar, et al. (2010) examined differences in lifetime diagnoses across several demographic characteristics. Results suggested that Caucasian youth were more at risk for both alcohol and substance use disorders compared to African Americans, though much of this was accounted for by differences in pre-foster care entry onset. Youth in kinship care were least likely to meet criteria for any disorder, while individuals living independently were more likely to have a lifetime alcohol use disorder. The authors note that the youth who resided in independent living at the time of the study did not have different rates of alcohol use prior to entering foster care. Gender was not a significant predictor of substance use.

Using the same data, Keller, Blakeslee, Lemon, & Courtney (2010) used classification and regression tree analysis to examine different probabilities of receiving a diagnosis of lifetime Alcohol Abuse or Alcohol Dependence. Results indicated that, when including both behavioral indicators (e.g., delinquency, school problems) and environmental circumstances (e.g., placement history, support from caregivers), several profiles of youth existed. These profiles included late adolescents who may benefit from treatment pre-exit from care. More specifically, factors that were related to an alcohol use disorder were recent delinquent behavior, particularly when combined with a history of being the victim of a violent crime, and living independently. When only environmental characteristics were used, profiles suggested patterns that might improve identification of risk and protective factors to be used in preventive intervention efforts. As in their other report (Keller, Salazar, et al., 2010), Caucasians and other non-African Americans were more likely to meet criteria for an alcohol use disorder. Among this group, however, those who were not close with their caregivers were at increased risk for disorder. In addition, youth who reported being “somewhat or very” close to their caregivers, but experienced more than one type of psychological abuse, were classified as more likely to meet diagnostic criteria.

In sum, no clear pattern of useful predictors seems to emerge from the reported studies. Although the same measures were not given in each study, over 15 different variables accounted for foster youth substance use, with little continuity in either variables considered or those found to be significant. In addition, several predictors produced mixed results,

including age, race/ethnicity, and neglect. Although defined differently across four studies, aspects of behavioral problems were consistent predictors of substance use or disorders. However, this is not altogether surprising, given the overlap between criteria.

3. Alumni of foster care

3.1. Alcohol and drug use

In perhaps the earliest study of foster youth alumni health outcomes, Jones and Moses (1984) interviewed adults who had previously been placed in foster care for at least one year. Results indicated current alcohol problems among 20% of study participants. Barth (1990) also interviewed foster youth who had been removed from the system for at least one year, but not more than ten years. One-third (33%) stated that they currently had drug or alcohol problems, and 20% reported using drugs in the past month. In addition, almost one in five (19%) retrospectively reported drinking at least once per week while in foster care. More than half of the sample (56%) acknowledged use of illegal drugs during foster care, and the same proportion indicated at least some drug use since leaving the system.

Among the case records of youth who had recently been discharged from foster care, 17% had a reported drug use problem at exit (Cook, McLean, & Ansell, 1991). Follow up interviews with these individuals indicated that 42% had used alcohol and 13% had used marijuana in the past 30 days; half of the sample reported lifetime drug use. An additional study utilizing case records reported that, per case manager report, substance abuse problems were indicated for 13% of the sample, most of whom were less likely to have left the foster care system with an aftercare plan (McMillen & Tucker, 1999).

Interviews with former foster youth suggest that over one-third had used alcohol within the past year, and of those individuals, half indicated consuming at least three drinks per day; slightly more than half (54%) endorsed lifetime drug use (Benedict, Zuravin, & Stallings, 1996). Among a group of current college students who were foster care alumni, 7.1% acknowledged having a current problem with drinking (Merdinger, Hines, Osterling, & Wyatt, 2005). Approximately the same number of young adults reported a current drug problem (7.1%).

Using the Alcohol and Drug Services Study data, a nationally representative survey of substance use treatment facilities, Blome, Shields, & Verdieck (2009) compared alumni of foster care to a matched sample of young adults without such a history. Results indicated that 54% of individuals who had been in foster care had used alcohol at least once before the age of 13, significantly higher than the non-foster care sample (36%); a similar finding was evident for drug use (43% vs. 19%).

Similar to the reported studies of current foster youth, assessment of substance use quantity/frequency among foster care alumni is extremely varied. Outcome variables include past year, lifetime, 30-day, "current," and self-reported "problem" use, as well as case manager-reported problems. In addition, the inclusion of much older alumni in some reports (up to age 58 in one study) makes it difficult to interpret reported results. Lastly, measures of substance use are often reported retrospectively (e.g., "when you were in foster care") or through case records, further limiting the reliability of the data.

3.2. Alcohol and drug diagnoses

The Casey National Foster Care Alumni Study (Pecora, White, Jackson, & Wiggins, 2009; Pecora, Williams, Kessler, Downs, O'Brien, Hiripi, & Morello, 2003) provides the largest sample with which to examine diagnostic rates among former foster youth. Among alumni of Casey Family Programs interviewed using the CIDI, 3.7% met criteria for Alcohol

Dependence within the past 12 months; an almost identical number (3.6%) were classified as Substance Dependent. Comparisons between these data and a matched subsample of the National Comorbidity Survey – Replication (NCS-R) indicated significantly lower rates among the general population (2.0% for Alcohol Dependence, 0.5% for Substance Dependence; Pecora et al., 2009).

A more circumscribed sample of former foster youth (the Northwest Foster Care Alumni Study) was assessed for Alcohol and Substance Dependence, both lifetime and in the past 12 months using the CIDI (White, O'Brien, White, Pecora, & Phillips, 2008). Results suggested elevated rates compared to a matched sample, also from the NCS-R. More specifically, 11.3% met criteria for Alcohol Dependence (lifetime), while 21.0% met for Substance Dependence, both of which were significantly higher than the NCS-R sample (7.1% and 4.5%, respectively). Although 12-month Alcohol Dependence levels (3.6%) were similar to the nationally-representative sample (2.3%), recent Substance Dependence was also significantly more pronounced among foster alumni (8.0% vs. 0.7%).

Diagnostic rates for alcohol and substance use disorders among former foster youth appear to be more pronounced compared to their normative peers; a finding that mirrors results from studies of current foster youth. It remains unclear, however, whether onset of disorder occurs for foster youth before placement or while in care, continuing throughout young adulthood, or if the transition to adulthood is associated with disorder-level problems. Substantial increases post-entry (rather than high pre-entry levels) have been cited in one study (Keller, Salazar, et al., 2010), though it remains difficult to separate the role of age/development in this relationship.

3.3. Predictors of substance use/diagnosis

In their sample of foster care alumni, White et al. (2008) also examined relationships between foster care experiences (e.g., length of time in care, placement history, school mobility) and current (past year) Alcohol and Substance Dependence. Bivariate calculations suggested that school mobility and various aspects of inconsistent housing were associated with the development of Alcohol Dependence. Length of time in foster care was positively related to both substance use outcomes. Access to positive school resources, several aspects of preparation for leaving care, and positive home environments were also important in distinguishing among individuals with a current diagnosis.

Others have examined the role of race and ethnicity in foster care alumni substance use (Dworsky et al., 2010). Combining data from the Midwest Study and the Northwest Foster Care Alumni Study, results indicated that being African American, rather than White, non-Hispanic was protective of any current substance use disorder. Few differences were found between young adults previously raised in kinship versus non-relative family foster homes on several substance use outcomes (Benedict et al., 1996). One isolated finding was that those in kinship care were more likely to have used heroin in their lifetime.

Taken together, too few studies are available to determine the important risk and protective factors for substance use among foster care alumni. Given the addition of chaotic pasts for many of these young adults and the lack of a clear pattern of predictors for those still in care, delineating a clear model for these outcomes in the absence of longitudinal data remains difficult.

4. Longitudinal studies

Cross-sectional comparisons of foster youth with any comparison sample are potentially problematic since the two samples could differ on many variables not considered in the

analysis. This heightens the importance of longitudinal studies, in which within-group developmental trajectories can be assessed. Subsequent reports on the Midwest Study (Courtney & Dworsky, 2006; Courtney et al., 2005) began to differentiate among young adults who had already aged out of care and those who remained in foster custody. At age 19, lifetime rates for all four substance use diagnoses were significantly higher among the group who had aged out/been discharged from the system. Results also suggested that these differences were mostly due to recent (i.e., post-exit) elevations in alcohol and drug use, rather than pre-existing conditions that may have spurred their exit from the system. Further analyses revealed that both abuse diagnoses were significantly higher among males (Courtney et al., 2005), and that having a diagnosis was unrelated to becoming homeless upon exit from care (Dworsky & Courtney, 2009). The authors note, however, that lifetime rather than current diagnoses were used to predict homelessness, which may account for the lack of association between the variables.

Findings at age 21 for the Midwest Study (Courtney, Dworsky, Cusick, Havlicek, Perez, & Keller, 2007) were reported separately for males and females, given substantial differences between sexes. Indeed, 12-month prevalence rates for males were at least twice (Alcohol Abuse) and as much as five times (Substance Dependence) higher than females. Of particular note, over one in five men (21%) met criteria for an alcohol diagnosis. Combining the groups, results suggest slightly higher rates of Alcohol Dependence (7.3%) among this sample compared to the Northwest Foster Care Alumni Study (3.6%), while Substance Dependence rates were lower (2.9% vs. 8.0%). It should be noted, however, that the Northwest Study sample was slightly older ($M = 24.2$ vs. 21.1). Regardless, prevalence of substance use disorders remained much higher when compared to the normative rates from the NCS-R. Despite Midwest Study data collection at ages 23 and 24, more appropriate age-based comparisons across studies are not possible, as the investigators expressed concerns about the validity of the mental health diagnoses (Courtney, Dworsky, Lee, & Rapp, 2010, p. 44).

Narendorf & McMillen (2010) continued previously reported efforts (Vaughn et al., 2007) by following the same youth as they aged out of care, assessing substance use outcomes at age 17, 18, and 19. Although significant increases in drinking to intoxication and past month marijuana use were noted, diagnoses on any substance use disorder did not change over time. Among 17-year olds, those residing independently were more likely to get drunk in the past 6 months, and significantly more likely to have used marijuana in the past month. Housing transitions, of various types, were generally associated with increases in substance use. Further analyses indicated that having half or more peers involved in substance use was associated with drinking to intoxication, past month marijuana use, and past year substance use disorder. Ethnic minority youth were less likely to get drunk than Caucasian participants. In addition, diagnosis of Conduct Disorder was related to substance use diagnoses, while housing transitions predicted alcohol and marijuana use. The authors compared the sample rates of use and diagnosis with two nationally-representative samples, noting that while rates of substance use were similar to or lower than norms, prevalence of diagnoses was higher.

Results continue to suggest that while the frequency and quantity of substance use among foster youth and alumni may be similar to the general population, diagnostic rates are much higher. In addition, the Midwest Study clearly shows a sharp increase upon discharge from care, with new diagnoses of Alcohol Abuse and Substance Abuse in 10.9% and 12.5% of young adults, respectively. Although national survey comparisons are limited by panel data, past year diagnosis differences between 18 and 19 year olds vary between 1% and 2% (SAMHSA, 2009). A positive trend also existed between aging out and a subsequent

substance use disorder in the Narendorf and McMillen (2010) study. Such patterns clearly indicate that the transition out of foster care is a critical time for many of these new adults.

5. Child welfare versus foster care

Given the paucity of research on foster youth substance use, studies often cite research with (more inclusive) child welfare samples. As direct comparisons between the two on alcohol and drug outcomes are limited (e.g., U.S. Department of Health and Human Services Administration for Children and Families [USDHHS-ACF], 2005), a brief review of child welfare substance use is warranted.

Among the first to report diagnostic rates of substance use disorders in this population, Aarons, Brown, Hough, Garland, & Wood (2001) interviewed 1,036 youth (age range = 13–18, $M = 16.9$, $SD = 1.55$), 190 of whom received services through the child welfare system. Close to one in five youth (19.2%) met lifetime criteria for a substance use disorder, 11% in the past year. Alcohol use disorders were the most frequent of all diagnoses, with 16.6% and 7.8% meeting criteria for lifetime and past year, respectively. Further information on the placement settings (e.g., in-versus out-of-home care) of these youth is not reported. Comparisons with foster youth samples indicate both similar (Keller, Salazar, et al., 2010; Pilowsky & Wu, 2006) and lower (Vaughn et al., 2007) rates of substance use diagnoses among this broader population of youth in child welfare.

The National Survey of Child and Adolescent Well-Being (NSCAW) is the largest longitudinal study of youth in the child welfare system, and includes 6,321 children between the ages of birth and 15, all of whom had child welfare system contact within a 15-month period (USDHHS-ACF, 2005). Information on substance use was collected for youth age 11 and older. Baseline reports indicated that respondents in out-of-home care – particularly group home care – were more likely to report lifetime substance use. Rates of early adolescent lifetime alcohol (38%) and marijuana (17%) use were similar to norms (Johnston et al., 2012), while crack, cocaine, or heroin use (6%) appeared much higher than in the general population. Recent alcohol use, however, was reported by nearly one-third (31.2%) of 14–15 year-olds (Cheng & Lo, 2010), almost 2.5 times the Monitoring the Future rates.

Bivariate exploration of predictors indicated that age, Caucasian ethnicity, conduct problems, and lack of connection to caregivers were related to higher levels of youth substance use (Cheng & Lo, 2010; Wall & Kohl, 2007). Examination of multivariate odds ratios followed these findings, as age and conduct problems, in addition to abuse (particularly physical abuse) and low parental monitoring, were associated with higher likelihood of moderate/high substance use (Wall & Kohl, 2007). Of particular note, gender, academic achievement, and parental substance use were not associated with youth substance use. More recently, a host of risk and protective factors were used to predict use of social (i.e., alcohol and tobacco) and hard drugs (i.e., all others) (Traube, James, Zhang, & Landsverk, 2012). Results indicated that delinquent behavior and lack of connection with a caregiver were the sole variables related to social drug use. Delinquency and having an out-of-home placement were associated with hard drug use. Analyses using a subsample of the NSCAW population examined differences between youth placed in kinship care or foster care (Sakai, Lin, & Flores, 2011). Although initial results suggested a stronger relationship between substance use and kinship care, the addition of covariates washed out this effect.

6. Discussion

Overall, youth who are currently receiving services through the foster care system seem to report rates of alcohol and marijuana use frequency similar to that of their same aged, normative peers. Use of “hard” drugs, however, may be pronounced among this underserved

population. Indeed, lifetime use of opiates, amphetamines, crack/cocaine, and hallucinogens were substantially higher in the two studies reporting such use when compared to national prevalence rates. It is unknown if these behaviors are consistent over time, represent one-time experimentation with a more dangerous class of drugs, or are related to an earlier onset of overall substance use and, thus, a faster progression to “harder” drugs. In any event, the high prevalence of these substances is concerning.

Results also suggest that youth currently in care evidence higher rates of substance use disorders (particularly lifetime) compared to norms, with more individuals reporting problems with drugs other than alcohol. Considering the findings on frequency/quantity, it is possible that foster youth are using alcohol and drugs earlier and experimenting with more dangerous substances at an early age; thus, the opportunity to develop a diagnosable condition could be elevated for this population, similar to the process among the general population of adolescents (i.e., earlier experimentation is associated with increased risk for problems). Without more longitudinal data, however, confirmation and a deeper understanding of earlier onset is not possible.

Reports of high lifetime, but lower “current” substance use, are puzzling. As mentioned, one possibility is that youth “age out” of this lifestyle, possibly associated with an earlier onset of, then exit from, use. Another is that comparisons with normative groups are confounded by environmental stimuli more commonly found among the general population (e.g., attending college, where heavy drinking is more normative). A third possibility may involve a fear of consequences for reporting substance use. That is, child services programs may require sobriety, thereby biasing responses about current use of alcohol or drugs (i.e., “I used to do it, but I don’t anymore”).

Definitive conclusions regarding alcohol and drug use among foster care alumni, as opposed to those who are currently in care, remain elusive, particularly when examining problematic use. More concrete, however, are the consistently high diagnostic rates among youth who were formerly in care. Results indicate that both lifetime and past year alcohol and substance use disorders are significantly pronounced in this vulnerable group. In addition, the recent exit from care may instigate an already burgeoning substance use problem for a given youth, elevating them to diagnostic levels. Given the struggles faced by individuals aging out of care, such findings are not surprising. Indeed, support services for young adults who have exited the system are often scarce (Casanueva, Stambaugh, Urato, Goldman Fraser, & Williams, 2011; Ringeisen, Casanueva, Urato, & Stambaugh, 2009), which could contribute to the continued rise of problematic substance use.

Similarly, conclusions regarding predictors of substance use and disorders, among either of the two subgroups examined here, are difficult to make. Behavioral problems, defined broadly, was the only construct with a consistent relationship to alcohol and drug use. However, the overlap between the criteria for these variables is substantial and, thus, may not provide novel information for intervention planning.

6.1. Limitations and future directions

Although attention to substance use among foster care populations has risen in recent years, the knowledge base is still in its infancy. For myriad reasons, many of the reports listed here aggregated their findings across age groups known to have qualitative differences in their use of substances. For example, the base rate and substantive meaning of a substance use disorder in a 12-year old is much removed from that of a 17-year old; the same could be said for rates of past month alcohol use. Thus, if our goal is to understand differences between vulnerable and normative youth populations, data collection, reporting, and subsequent comparisons should mirror that of larger, epidemiological studies. Similarly, definitive

conclusions are challenging to make given the array of measurement tools and time frames. Outside of formal diagnostic measures, few of the reported studies utilized standardized measures of adolescent alcohol or substance use. In addition, none collected corroborating data from key informants or through biological specimens. Given the interesting gap between high rates of lifetime use and low frequency of current use, such data could be extremely informative. It is conceivable that systems-level conditions may produce disincentives for youth to report current substance use, resulting in underestimates of unhealthy behaviors. Using a common ruler and metric across samples of foster and child welfare youth, as well as confirmatory methods, will certainly enhance our interpretations of findings, as well as subsequent intervention models.

Intraindividual change in substance use, particularly across the developmental period noted here, also represents a key area on which we have little information. It appears that youth in foster care may begin using substances earlier than their non-foster peers, engage in “harder” drug use, and increase their use more rapidly upon discharge from care. However, these conclusions are based on cross-sectional data collected from multiple study samples. With more detailed information, including individual-level frequency and intensity of consumption behaviors, we can begin to identify the course of hazardous substance use within the context of aging out.

Consistent predictors of substance use in this population have not emerged from these studies. This could be expected, given the myriad influences on the life of a youth in foster care and subsequent heterogeneity of research samples. A concentrated and consistent approach, however, is likely needed, as a clear picture of where, when, and with whom to intervene does not exist. Indeed, overlap in the assessment of predictors across studies in this review rarely existed; where consistency was found, measurement tools were often different. It is, therefore, not surprising that findings of ethnicity, gender, abuse, and neglect are mixed.

Conversely, other predictors seem underutilized. For example, many reports mention or provide brief data on placement history and type, but only a few have examined their relationship with substance use. Such variables are likely important, as length of time in care has been associated with poor outcomes (Hussey, & Guo, 2005), yet a common indicator is “ever in foster care.” Careful examination and modeling of the foster care histories, experiences of these youth, and reasons for exit from care (e.g., aging out versus returning to family) are critical to understanding potential targets for intervention. With regard to the latter, it is likely that youth who exit care for reunification – but are aggregated into “ever in foster care” – have different outcomes compared to youth who age out of the system. Collection of longitudinal data using consistent constructs and psychometrically-sound measures would likely provide a clearer picture of pre-, mid-, and post-foster care contributions to substance use in this group, thereby impacting future intervention development.

Finally, it is unknown, at this point, whether inclusion of results from broader, child welfare populations is appropriate when discussing foster youth outcomes. Both groups are heterogeneous in terms of their life and social service experiences. Future research should likely use specific experiences (e.g., out of home placement, kinship placement, juvenile justice involvement) as criteria for comparing subpopulations rather than more global means of categorization.

Despite the suggested improvements to methodology and measurement, it is clear that substance use remains a significant problem among foster youth, whether they are currently in the system or have moved out of structured care. Availability and utilization of substance

use services can be paramount during this critical developmental period (Arnett, 2007; Osgood et al., 2005). Given that the gap between need and availability is wider among former foster youth than in the general population (Casanueva et al., 2011; Ringeisen et al., 2009) and may extend over time (Casanueva et al., 2011; McCarthy, Van Buren, & Irvine, 2007), substance use interventions are likely most effective when delivered before individuals exit care. Thus, support for screening, multi-level prevention, and treatment of substance use problems, especially while in care, should be enhanced. In this way, problematic use can be attended to while foster youth remain surrounded by structure, support, and health resources.

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Highlights

- Use of alcohol and marijuana may be similar among foster and non-foster youth.
- Use of hard drugs seems higher among foster youth than the general population.
- Prevalence of substance use disorders is markedly higher among youth in care.
- Similar patterns are seen among foster alumni, with the addition of more diagnoses.
- Substantial limitations in measurement hinder definitive conclusions.

Table 1

Study summaries: Sample characteristics and outcomes

Group	Outcome	Author (year)	Substance	Rate	Participants	N	Age range	Comparison	
In care	Alcohol use	Kohlenberg et al. (2002)	Lifetime alcohol use	54.0%	FC, in foster families	231	12–17	Yes	
			Past year alcohol use	34.0%					
	Drug use	Kohlenberg et al. (2002)	30-day alcohol use	13.0%					
			30-day “heavy” alcohol use	2.1%					
			Past year, monthly alcohol use	34.0%	FC, various living sites	67	16.5–17.5	No	
			Past year alcohol use	40.0%	Former FC placement	464	12–17	Yes	
			6-month alcohol use	39.0%	FC, various living sites	320	15–18	No	
			6-month alcohol use	37.0%	FC, various living sites	406	17	No	
			Lifetime marijuana use	41.0%	FC, in foster families	231	12–17	Yes	
			Past year marijuana use	23.0%					
Diagnosis	Kohlenberg et al. (2002)	30-day marijuana use	10.0%						
		30-day “heavy” marijuana use	3.4%						
		Past year drug use	22.0%	FC, various living sites	67	16.5–17.5	No		
		Past year drug use	34.0%	Former FC placement	464	12–17	Yes		
		6-month marijuana use	36.0%	FC, various living sites	320	15–18	No		
		Lifetime drug use	49.0%	FC, various living sites	406	17	No		
		Lifetime marijuana use	46.0%						
		6-month drug use	28.0%						
		6-month alcohol use	72.0%	FC in juvenile justice	79	12–17	No		
		6-month marijuana use	68.0%						
In care	Keller, Salazar, et al. (2010)	Any 6-month diagnosis	9.6%	FC, in foster families	231	12–17	Yes		
		Past year Alcohol Abuse	5.9%	Former FC placement	464	12–17	Yes		
		Past year Alcohol Dependence	6.5%						
		Past year Substance Abuse	7.1%						
		Past year Substance Dependence	9.8%						
		Any lifetime diagnosis	35.0%	FC, various living sites	406	17	No		
		Lifetime Alcohol Abuse	9.8%	FC, various living sites	732	17–18	No		
		Lifetime Alcohol Dependence	4.2%						
		Lifetime Substance Abuse	1.5%						

Group	Outcome	Author (year)	Substance	Rate	Participants	N	Age range	Comparison
			Lifetime Substance Dependence	4.8%		188	14–17	Yes
		White et al. (2007)	Lifetime Alcohol Abuse	7.7%	FC, various living sites			
			Lifetime Alcohol Dependence	3.6%				
			Lifetime Substance Abuse	14.1%				
			Lifetime Substance Dependence	4.2%				
			Past year Alcohol Abuse	3.6%				
			Past year Alcohol Dependence	2.0%				
			Past year Substance Abuse	2.1%				
			Past year Substance Dependence	1.5%				
Exited care	Alcohol use	Jones & Moses (1984)	Current alcohol problems	20.0%	History of FC	328	19–28	No
		Cook et al. (1991)	30-day alcohol use	42.0%	Follow up	810	18–24	No
		Benedict et al. (1996)	Past year alcohol use	38.8%	FC alumni	214	19–31	No
		Merdinger et al. (2005)	Current alcohol problems	7.1%	FC alumni in college	216	18–58	No
	Drug use	Barth (1990)	Current alcohol/drug problems	33.0%	History of FC	55	M = 21	No
			30-day drug use	20.0%				
		Cook et al. (1991)	Drug use problem	17.0%	Recent FC exit	1644	16+	No
			30-day marijuana use	13.0%	Follow up	810	18–24	
			Lifetime drug use	50.0%				
		McMillen & Tucker (1999)	Substance abuse problems	13.0%	Recent FC exit	252	M = 18.42	No
		Benedict et al. (1996)	Lifetime drug use	54.0%	FC alumni	214	19–31	No
		Merdinger et al. (2005)	Current drug problem	7.1%	FC alumni in college	216	18–58	No
	Diagnosis	Pecora et al. (2003/2009)	Past year Alcohol Dependence	3.7%	FC alumni	1087	20–51	Yes
			Past year Substance Dependence	3.6%				
Exited care	Diagnosis	White et al. (2008)	Lifetime Alcohol Dependence	11.3%	FC alumni	479	20–33	Yes
			Lifetime Substance Dependence	21.0%				
			Past year Alcohol Dependence	3.6%				
			Past year Substance Dependence	8.0%				
		Courtney et al. (2005)	Lifetime Alcohol Abuse	14.3%	FC alumni	321	19	No
			Lifetime Alcohol Dependence	6.2%				
			Lifetime Substance Abuse	15.0%				
			Lifetime Substance Dependence	5.3%				