Published in final edited form as:
Res Nurs Health. 2012 February ; 35(1): 94–104. doi:10.1002/nur.21451.

Predictors of Post-Release Research Retention and Subsequent Reenrollment for Women Recruited While Incarcerated

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Abstract

Correctional facilities are prime targets for nursing interventions to decrease health disparities, but challenges to post-release follow-up limit use of the longitudinal research designs needed to fully examine intervention effects. Using an adapted version of the Behavioral Model for Vulnerable Populations, we determined predictors of 1year post-release study retention and subsequent reenrollment an average of 3 years later in 88 mother and child dyads recruited from a state prison nursery. Predisposing characteristics and enabling factors emerged as strong predictors of loss to follow-up. Female research participants can be successfully retained years after release from a correctional facility. Understanding the barriers and facilitators to post-release follow-up supports the creation of theoretically informed strategies to retain formerly incarcerated populations.

Keywords

recruit/retain participants; prisoners; public health; health promotion/wellness behaviors

Incarceration in the United States is associated with multigenerational health and social disparities. Compared to community-residing populations, incarcerated women and men have a higher prevalence of asthma, hypertension, mental illness, substance use disorders, hepatitis, HIV/AIDS, and other sexually transmitted infections (Fazel & Baillargeon, 2010). Within incarcerated populations, women are more likely than men to report medical, mental health, and substance use disorders (Binswanger et al., 2010). Incarcerated women are also more likely than incarcerated men and community-residing women and men to have a history of trauma and homelessness (James & Glaze, 2005). Early victimization and later drug use, poverty, and mental illness are hypothesized to create a unique female pathway to criminal justice involvement (Belknap, 2007). The children of parents involved in the criminal justice system have higher rates of behavior problems in early childhood, mental illness in adolescence, academic failure, and criminal justice involvement than children of parents without this history (Murray, Farrington, Sekol, & Olsen, 2009). The disproportionate burden of criminal justice contact is most keenly felt by African-American and Latino families and those of low socioeconomic status (Massoglia, 2008).

Correctional facilities, such as prisons and jails, are prime environments for interventions to decrease these health disparities (Ramaswamy & Freudenberg, 2007). Parenting interventions that allow women to co-reside with their young children or that support the relationship with community-dwelling children further extend the potential benefits to the next generation (Byrne, Goshin, & Joestl, 2010). To fully examine intervention effects of

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programs focused on parenting or the parent-child relationship, it is critical to evaluate post-release outcomes of the formerly incarcerated person and their child.

The challenge of retaining research participants after release from a correctional facility threatens the validity of work in this area. Published retention rates in studies that follow formerly incarcerated participants 1 to 12 months after community reentry range from 40% to 74% (Eddy, Powell, Szubka, McCool, & Kuntz, 2001; Lincoln et al., 2006; Menendez, White, & Tulsky, 2001), substantially lower than the mean rate of 86% reported in a systematic review of long-term retention in health care research (Robinson, Dennison, Wayman, Pronovost, & Needham, 2007). Proximal, pre-release outcomes and administrative data can be used in lieu of information gathered from participants after release. Data obtained prior to release may not reflect reentry realities, however, and administrative data can lack the rich contextual information needed to answer questions related to health and developmental effects.

Characteristics individually associated with loss to follow-up in community-based studies often cluster within recently released populations. Incarcerated persons are frequently released to unstable transitional housing or shelter environments and may lack access to a steady telephone number and transportation (Roman & Travis, 2004). Social networks, frayed prior to criminal justice contact, can be further damaged by incarceration, limiting the use of alternate contacts as sources of locator information (Rose & Clear, 2003). The search for the necessities of survival often dominates the immediate post-release period, leaving limited time for research activities (Richie, 2001). Participants who resume illegal behavior or activities that could violate their release agreement may fear that research contact could lead to reports to authorities, especially if data collection is to occur in their residence. Additionally, recidivism complicates retention efforts if the researcher does not have institutional review board approval to maintain contact with re-incarcerated inmates (Hayes, 2008).

Reentry is further complicated for women who resume childcare responsibilities soon after release. This struggle may worsen instead of improve over time as the pre-release dreams and initial excitement of freedom are replaced by difficult realities and responsibilities (Hayes, 2008). Participation in research is a low priority when women are overwhelmed with life events and family obligations (Garvey, Julion, Fogg, Kratovil, & Gross, 2006).

Study characteristics and research procedures also affect retention. The potential for differential attrition by intervention group exists across populations (Shadish, Cook, & Campbell, 2002). Staff training and experience have also been identified as critically important to retention of vulnerable populations, as has the importance of establishing a bond with participants (Davis, Broome, & Cox, 2002). Tracking methods in studies with highly mobile participants frequently include visiting known hangouts or local service agencies, making proximity to the study site potentially important (McKenzie, Tulsky, Long, Chesney, & Moss, 1999).

The aim of this study was to determine predictors of long-term research retention and subsequent reenrollment in a continuation study of women and children who were initially enrolled while living in a prison nursery. Enhanced understanding of how to maintain contact with participants recruited during a period of incarceration can inform the design of more effective retention protocols and increase the validity of longitudinal research with participants released from correctional institutions.

Conceptual Framework

The Behavioral Model of Vulnerable Populations (BMVP) provided the conceptual framework for this secondary analysis. This theory was developed to predict health service use by groups at greater risk of poor health and social outcomes (Aday, 1994; Gelberg, Andersen, & Leake, 2000). The model was adapted to predict retention of vulnerable populations in community clinical trials (Maru et al., 2008). The factors identified in the BMVP as predictors of health services use mirror those described above as affecting retention in research projects. Figure 1 presents the adaptation of the model for this study to understand retention and reenrollment of participants in health intervention research after release from a correctional facility.

The adapted framework proposes that longitudinal retention and reenrollment in health intervention research is a function of characteristics affecting predisposition to remain in the study, factors enabling continued participation in the study, and the clinical need for the study intervention. Characteristics affecting predisposition to remain in clinical research include demographics, like age and gender, and social structure characteristics, such as race/ethnicity, marital status, education, employment, and residential mobility. Age and race/ethnicity were chosen for this analysis. They had sufficient variability, unlike marital status and education in this predominantly single population with limited education, and were known at the time of release, unlike employment and residential mobility.

Factors enabling continued participation can be personal or family resources, such as the number of alternate contacts provided at the last pre-release visit, and characteristics of the research environment, like intervention group, coordinator experience, length of contact with the research team before release, and residence close to the study site. Finally, the participant's perceived or evaluated need for the study intervention may impact continued participation. Substance abuse history and clinically significant depressive symptomatology comprise the evaluated need domain in this analysis. Incarcerated women suffer disproportionately from substance abuse and depressive symptoms (Fazel & Baillargeon, 2010). These two conditions are strongly associated with dysfunctional parent-child interaction (Burns, Chethik, Burns, & Clark, 1997; National Research Council & Institute of Medicine, 2009), which was the focus of the intervention for the larger study from which these data came.

Methods

Sample

The data used in this secondary analysis were collected between 2003 and 2009 during an ongoing prospective, longitudinal study of the effects of two nursing interventions for pregnant and recently delivered women and their infants who co-resided in a prison nursery program in one US state (Byrne, Goshin, & Joestl, 2010). Using rolling enrollment, all women accepted into the nursery by prison administrators were invited to participate in the larger study until the target enrollment of 100 dyads (97 mothers with 100 infants) was reached. One eligible woman declined to participate. All phases of the larger project were approved by the Institutional Review Board of the Columbia University Medical Center. Study participants were provided an additional measure of identity protection through a federal Certificate of Confidentiality.

The first 45 women received a positive control nursing intervention focused on traditional health concerns in the newborn period. The last 52 women received an experimental intervention supporting the mother-child relationship. Women in both groups received a visit from a study nurse weekly while in prison. All participants were followed through the nursery stay and for 12 months after the child's release from the nursery. The mean child age

upon leaving the prison nursery was 7.8 months (range 6 days – 18 months). Two women were still pregnant upon release.

Families in both groups were contacted by a nurse phone or mail biweekly in the community for the first 12 months after the child's release. The goal of follow-up was to maintain contact with both the woman and her child, regardless of whether they became separated in reentry. In the event a participant was re-incarcerated, we sent a letter to her in the correctional facility and called or wrote her alternate contacts for information on her child's current primary caregiver. We then maintained contact with the incarcerated woman and the child's alternate caregiver, only one of whom declined participation. A subset of families residing within the metropolitan area housing the research office came in at 6 and 12 months post-release for data collection only.

Community follow-up was completed by two nurses, one with no prior experience working with families involved in the criminal justice system and the other with two years of clinical nursing experience in this area. Both self-identified as White, non-Latina. After reentering the community all participants were paid $20 for each of the 12 months they maintained contact with the study.

Families were approached for reenrollment in a follow-up study when the child reached a minimum of 30 months of age. This corresponded to an average of 3 years (*SD* = 1.0) after release. The aim of this continuation study was to assess the effect of nurse-delivered phone and mail anticipatory guidance on child development, maternal wellbeing, and criminal recidivism.

Thirty-one children were initially released to a kinship caregiver, and 77% (*n*=24) of these were reunited with their mother by the time of reenrollment (3 unknown). For these families, we continued to maintain contact by mail with the incarcerated mother and by telephone and mail with the kinship caregiver. No differences in retention or reenrollment were found by release to a kinship caregiver, so this variable was not further analyzed in the models described below. Kinship caregivers were all family members or partners of the incarcerated women. They faced similar struggles to research participation as those discussed above, most notably poverty, housing instability, and personal histories of criminal justice involvement, mental illness, and/or substance abuse.

This secondary analysis included a final sample of 88 dyads. Three women with twins were counted as one retention and reenrollment each to prevent double counting of these families. Nine originally enrolled dyads were not followed in the community for these reasons: child died during nursery stay (*n* = 1), child excluded from larger study after diagnosis of serious neurological disorder (*n* = 1), child released to custody of child welfare and placed in non-kinship foster care (*n* = 3), voluntary withdrawal from the study before prison release (*n* = 1), involuntary withdrawal during prison stay due to abrupt correctional transfer without notice to the study team (*n* = 3).

Measures

Retention and reenrollment—Successful retention in this study was defined as having completed data collection at the 12 month post-release follow-up. Reenrollment was defined as giving informed consent to participate in the follow-up study and completing the first data collection packet for that study.

Predisposing characteristics—Data on the race/ethnicity and date of birth of adult participants were taken from department of correction files. For the purposes of this study women who reported African, African-American, or West Indian/Afro-Caribbean, non-

Latina heritage were classified as Black, non-Latina. Women reporting Latina ethnicity, regardless of racial categorization, were classified as Latina. Women who described themselves as White or Caucasian and did not report Latina ethnicity were classified as White, non-Latina. Dates of birth were used to calculate the age in years at which the participant signed the first consent form for the study.

Enabling characteristics—Three variables were included as potential enablers of retention and reenrollment. First, a dichotomous variable was created to reflect whether the dyad received the experimental (relationship-based) or standard (health-oriented) intervention in the first study. A second dichotomous variable was created to denote whether the community coordinator with more or less experience followed the family. The number of months between signing the first study consent and release was calculated to determine the amount of contact with study team while incarcerated.

Contact information for people who could get a message to participants if we were unable to reach them was elicited at the last in-prison visit, which generally occurred within a week of release. Participants were asked to provide as many contacts as they could. We then summed the number of contacts. A dichotomous variable was also created to reflect whether or not women planned to reside after release in the metropolitan area where the study team was located. Participants in this study were incarcerated in a state prison facility that brought in women from all over the state. Upon release some participants were also deported to foreign countries.

Evaluated need characteristics—A dichotomous variable for substance abuse history was created using information obtained from in-prison participant interviews and prison records. The variable was coded as positive if women had any of these indicators: self-report to a study nurse practitioner a history of substance abuse, problem drinking, or substance abuse or alcohol treatment in the past; enrollment in substance abuse treatment in the prison; or a positive Michigan Alcohol Screening Test (Selzer, 1971) on intake into the prison. Clinically significant depressive symptomatology was defined as a score over 16 on the Center for Epidemiologic Studies- Depression Scale (CES-D; Radloff & Locke, 1986) at any in-prison data collection period. The CES-D was administered by a study nurse practitioner at enrollment and prison nursery release. In this widely used instrument the participant is asked to rate on a four point scale the amount of time during the past week they experienced each of twenty depressive symptoms. The CES-D has demonstrated strong internal consistency and adequate sensitivity in diverse samples of women (Makambi, Williams, Taylor, Rosenberg, & Adams-Campbell, 2009).

Data Analysis

Bivariate associations between each of the two outcomes of interest (retention for the first 12 months of reentry, reenrollment) and each predisposing, enabling, and need factor were computed using the Pearson chi-square test or Fisher's Exact Test (if the expected value in any cell was <5) for categorical characteristics and the *t*-test for continuous characteristics. Separate multivariate analyses were then conducted for each outcome using backward stepwise logistic regression, with variable selection determined by the BMVP. Using the steps outlined by Hosmer and Lemeshow (2000), a separate logistic regression model was initially built for each group of characteristics (predisposing, enabling, and need), starting with all variables in the group with a *p*-value below .25 in the bivariate analysis described above and eliminating at each step those variables with the highest *p*-value until all of the remaining factors had a *p*-value below .10. The retained variables from these separate models were then entered together into a common model. The final model was built by

eliminating variables with the highest *p*-value, regardless of their original group, until none of them had a *p*-value at or above .05.

Results

Table 1 presents results of descriptive and bivariate analyses for retention and reenrollment by predisposing, enabling, and need characteristics. Seventy-five (85%) participants were retained for the first 12 months after release, and 59% ($n = 52$) were reenrolled in the follow-up study.

Retention

Retained participants were 3 years younger on average and more likely to describe themselves as Latina or White, non-Latina than Black, non-Latina. They were more likely to have received the relationship intervention and to have been followed by the coordinator experienced in working with families involved in the criminal justice system. They also gave approximately one additional alternate contact to the study team at their last in-prison visit. The two need characteristics, history of substance abuse and clinically significant depressive symptomatology, had *p*-values <.25 in the bivariate analysis, so they were both entered in a multivariate logistic regression model. Neither need characteristic had a *p*-value < .10 in the multivariate model, so they were not entered into the final common model.

Table 2 provides results of the multivariate analyses for retention. Race/ethnicity and number of alternate contacts emerged as the strongest predictors of 12 month post-release retention. Black participants were 91% less likely to be retained than Latina and White participants. Each additional alternate contact provided by the participant at release increased the odds of retention almost three times. Age at study entry remained statistically significant in the multivariate model but was a relatively weak predictor of retention. Each additional year of age corresponded to an 11% decrease in the odds of retention. Intervention group and coordinator experience were no longer significant in the multivariate model.

Reenrollment

Race/ethnicity was also associated with reenrollment. Reenrolled participants were more likely to be Latina or White, non-Latina than Black, non-Latina. The study-related enabling factors of intervention group, coordinator experience, and length of contact with the study team while incarcerated were each significantly associated with reenrollment in the bivariate analyses. As for retention, participants in the relationship intervention group and those followed by the experienced coordinator were more likely to reenroll. In contrast to findings for retention, more in-prison contact with the study team was associated with reenrollment. Reenrolled participants had approximately 3 more months of in-prison contact with the study team than those who did not reenroll. As we found for retention, they also gave approximately one additional alternate contact. Neither of the need characteristics was associated with reenrollment.

In the multivariate analysis, coordinator experience, Black, non-Latina race/ethnicity, and number of alternate contacts were the strongest predictors of reenrollment in the follow-up study. Women followed by the coordinator experienced in working with families involved in the criminal justice system were five times more likely to reenroll than those followed by the coordinator with minimal experience in this area. Black, non-Latina participants were 71% less likely to reenroll. Each additional alternate contact given at release increased the odds of reenrollment by 70%. Controlling for other characteristics, in prison contact with the study team was a statistically significant but relatively weak predictor of reenrollment. Each

additional month of contact with the study team before release increased the odds of reenrollment by 20%.

Discussion

This study affirmed the ability to successfully retain for extended periods after release women enrolled in research while incarcerated. The 12 month retention rate for this study was equivalent to rates commonly reported for lower risk populations (Robinson et al., 2007) and substantially higher than reports from longitudinal studies of recently released populations (Eddy et al, 2001; Goldberg et al., 2009; Lincoln et al., 2006). The reenrollment rate an average of 3 years later was within the range reported for projects following participants less than 1 year after release.

Using theoretically-informed predictors that are relevant and widely available to a wide spectrum of researchers in this area, our findings shed light on participants who may be at highest risk for loss to follow-up after release and on features of the research team that affect longitudinal retention. Black, non-Latina women were less likely to be retained for the first 12 months after release and to reenroll in the follow-up study. Literature focusing on participation of racial and ethnic minorities in research has predominantly focused on recruitment rather than retention, and findings regarding differential retention by race/ethnicity are mixed (Magruder, Ouyang, Miller, & Tilley, 2009). Consistent with our findings, higher loss to follow-up of African-American participants has been reported in family-focused pediatric interventions (de Niet, Timman, Jongejan, Passchier, & van den Akker, 2011) and adult substance abuse interventions (Milligan, Nich, & Carroll, 2004). In contrast, when compared to participants of other racial/ethnic backgrounds Menendez et al. (2001) reported a higher rate of loss for Latinos after release from jail. Their sample differed from the one reported here in that it included a large percentage of recent Central American immigrants, whereas the majority of Latina women in our sample were acculturated United States citizens of Dominican or Puerto Rican heritage.

A review of the contact logs suggested that differential attrition by race/ethnicity was a proxy for greater residential mobility and phone number changes in Black women retained for the first reentry year but not reenrolled. The use of pre-release data precluded our ability to assess post-release mobility in those who were lost to follow-up. Overall marginalization, which was not measured in this study, could have further complicated community reentry for Black participants (Moscou, 2008).

Over the course of the study, the research team included two African-American and one White, non-Latina interventionist inside the prison. All participants worked with at least one of the African-American interventionists. Both nurses working as community coordinators with women after release were White, non-Latina. Race discordance between Black participants and community coordinators may have increased risk of loss to follow-up, although it did not appear to affect retention of Latina participants, whose ethnicity was not represented on the study team. The importance of concordance for research retention has been questioned when team members are culturally competent and respectful (Adderley-Kelly & Green, 2005).

The more important factor may have been that different research team members conducted the in-prison and community portions of the study. Female African-American research participants in the community have described the relationship with staff as a critical enabler of research participation (BeLue, Taylor-Richardson, Lin, Rivera, & Grandison, 2006). Establishing a new relationship with the post-release coordinator may have undermined the bond to the study and upset the delicate balance by which African-American women weigh

the benefits and risks of participation in research (Mallory, Miles, & Holditch-Davis, 2002). However, deliberate measures were taken to make a seamless transition. In-prison research team members prepared participants for the transition by giving them the name and contact information for the outside coordinator who would be following them. They also spoke positively of the coordinators and assured women of their nonjudgmental approach.

Participants were released to areas throughout the state and to five other countries. Women also moved out of state during the course of the study. The large geographic area limited the feasibility of establishing links to community organizations, a recommended enabling strategy for engaging Black populations in research (Adderley-Kelly & Green, 2005) and for retaining persons recently released from jail (Menendez et al., 2001). This enabling factor is recommended for studies following participants released to more limited geographic areas.

Consistent with systematic reviews of factors supporting longitudinal follow-up, study-related enabling factors emerged as significant predictors of retention. The finding that researcher-controlled aspects of study design, such as staff experience and length of pre-release contact, supported retention are all the more positive when viewed in light of the myriad methodological and ethical dilemmas in conducting research with criminal justice-involved populations. Results of this study suggest that maintaining contact with women facing the unique challenges of reentry necessitates clinical or research experience with the criminal justice system beyond study-related training. Extensive knowledge of the cultural, social, and economic issues affecting continued participation may be difficult to provide in staff training. These are more readily realized through direct roles that provide exposure over extended time to the realities, language, and context of participants' lives. Including formerly incarcerated women on the research team is another way to provide staff with the necessary experience with reentry barriers.

The connection found here between alternate contacts and retention has also been found in other vulnerable populations (Seibold-Simpson & Morrison-Beedy, 2010). When asked to provide alternate contacts, women commonly gave us information for one person, most often a female family member with whom they had remained close while incarcerated. This person was also frequently the one with whom they planned to live after release. Study staff encouragement and clear explanation of why alternate contacts were needed and how they were to be used was essential in obtaining additional contacts, which proved important for follow-up.

All interactions with study personnel set the stage for later retention. More contact with the study team pre-release allows the participant to build a trusting relationship with study personnel. Depending upon the study design, correctional setting, and predicted length of incarceration for the target population, extended contact inside the correctional facility may not be possible. It will also certainly increase study costs. Given that length of in-prison contact was a weak predictor in the multivariate model, it may be more economical and effective to focus on the other identified variables than to add pre-release contact points into a protocol.

The evaluated need characteristics were not significant predictors of long-term retention. The vast majority (75%) of this sample had either a history of substance abuse or showed a clinically significant level of depressive symptoms during their prison stay. At least 15% more participants with either evaluated need were retained for the first 12 reentry months than participants for whom we did not have evidence of these needs. We hypothesize that low variability and modest sample size limited our ability to detect a statistically significant difference. It is also possible that depressive symptomatology in prison did not relate to mood after release, or that resumption of active substance abuse in the post-release period,

rather than a history of substance abuse, affected retention. Additionally, both substance use and depression can alter the accuracy of self-appraisal, meaning in this case that participants may not have perceived their increased need for parenting intervention. Overall the findings can be seen as positive in that substance abuse and depression have been associated with loss to follow-up in vulnerable populations (Chang, Brown, & Nitzke, 2009; Maru et al., 2008).

Findings of this secondary analysis may not be generalizable to descriptive studies. Women in this study received ongoing contact with a nurse post-release, the value of which likely contributed to their retention. Results may also not be generalizable to women who did not deliver their children in prison, women without children, or men released from a correctional facility. Having children has been associated with post-release retention in women (Freudenberg, Wilets, Greene, & Richie, 1998). Men's motivations for participation in research differ from those of women (BeLue et al., 2006), and may be further affected by the focus of the study. Incarcerated men are less likely than incarcerated women to have lived with their children before their last arrest, so an intervention focused on the parent-child relationship may hold less appeal for them.

Caution is advised in the interpretation of these results, given a number of limitations. The sample size and secondary nature of the data limited the number and type of variables that could be included in the model. We were unable to assess the effect of having no intervention while in prison, as both groups in this study received interventions. Sufficient data were not available to examine associations between retention, criminal history, and the fear of being reported to authorities for post-release criminal behavior. The study team frequently reiterated their independence from the criminal justice system, and anecdotally we found that retained and reenrolled women freely shared behavior with us that was criminal or could violate the terms of their parole, such as drug use, public assistance fraud, and maintaining contact with other former felons. Finally, the effect of stigma cannot be determined. Similar to participants involved in research on potentially stigmatizing health conditions, participants may have perceived continued contact with research related to their incarceration as putting them at risk of disclosure of their history to others. To avoid this we did not use any incarceration-related words in our mailings or in speaking with alternate contacts.

Both the first reentry year retention rate and the reenrollment rate reported here are notably positive for criminal justice-involved women, a population that is both highly mobile and historically difficult to engage in longitudinal research. Following participants over an extended period after release provides the opportunity to track long term outcomes of research interventions delivered in criminal justice settings. A theoretically grounded model was used to identify selected predisposing, enabling and need characteristics that predicted retention and reenrollment. Differential loss of Black non-Latina women merits attention but may be more complex than forced choice reporting of race suggests. These women represent different ethnic sub-groups (African, African American, West Indian/Afro-Caribbean). Small sample size limited subgroup analysis within the Black non-Latina category, or within the Latina category, which included 5 Black, Latina women. It is not known if characteristics co-occurring with race were the underlying deterrents to continued contact and enrollment choices. Researcher experience with criminal justice-involved populations and increased contact information at time of reentry merit consideration in future protocols to support long-term retention.

Acknowledgments

Support for writing this manuscript was provided by NIH / NINR Grant RO1 NR007782 (M. Byrne, P. I.).

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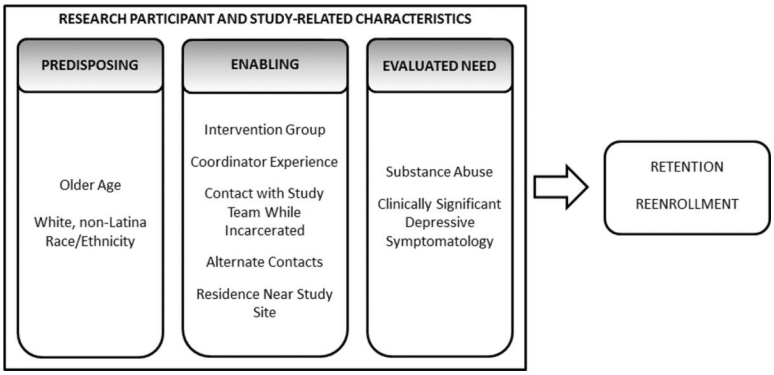

Figure 1.

Behavioral Model for Vulnerable Populations to understand retention of research participants after release from a correctional facility. Adapted from "The behavioral model for vulnerable populations: Application to medical care use and outcomes for homeless people," by L. Gelberg, R. M. Andersen, & B. D. Leaks, 2000, Health Services Research, 34, p. 1278. Copyright 2001 by Wiley-Blackwell. Reprinted with permission.

Table 1

Comparison of predisposing, enabling, and need characteristics by retention and reenrollment

	Retention			Reenrollment			Total Sample
	Retained *N* = 75	**Lost *N* = 13**	***p*-value**	**Reenrolled *N* = 52**	**Lost *N* = 36**	***p*-value**	***N* = 88**
Predisposing Characteristics							
Age at study entry, years	28	31	.15	28	29	.76	28
Maternal race/ethnicity (%)							
Black, non-Latina	35	77	.004	31	56	.02	41
Latina	24	8	.28	23	19	.68	22
White, non-Latina	41	15	.12	46	25	.04	37
Enabling Characteristics							
Experimental Intervention group (%)	61	31	.04	67	42	.02	57
Experienced coordinator (%)	65	31	.02	75	41	.003	60
Contact with study team while incarcerated, months	7.4	6.8	.68	8.6	5.5	.002	7.3
Alternate contacts, mean number	2.4	1.7	.03	2.6	1.9	.002	2.3
Residence near study site (%)	52	62	.52	59	46	.33	53
Evaluated Need Characteristics							
History of substance abuse (%)	77	62	.23	77	72	.67	75
Clinically significant depressive symptomatology, % CES-D >=16 (*N* = 85)	78	58	.14	80	68	.34	75

Note: Pearson χ^2 or Fisher's Exact Test used for categorical variables, t-tests used for continuous variables.

Table 2

Multivariate analysis of personal characteristics, enabling factors, and need factors associated with retention and reenrollment after release from a correctional facility

	OR	95% *CI*	*p*-value
Retention			
Black, non-Latina	.09	.02–.51	.007
Alternate contacts	2.81	1.3–6.2	.01
Age at study entry	.89	.80–1.00	.05
Reenrollment			
Coordinator experience	5.1	1.6–15.8	.005
Black, non-Latina	.29	.10–.87	.03
Alternate contacts	1.7	1.0–2.6	.04
Contact with study team while incarcerated	1.2	1.1–1.4	.003

Note: OR = odds ratio; *CI* = confidence interval