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Just as Good as the Real Thing? The Effects of Prison Video Visitation on Recidivism

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Abstract

While research has consistently shown that in-person prison visitation is associated with reduced recidivism, much less is known about the effects of video visits. This study compares recidivism outcomes between 885 inmates who had at least one video visit and a matched comparison group of 885 who did not receive a virtual visit. Video visits reduced two measures of recidivism (general and felony reconvictions) but did not have a significant effect on the other two measures (violent reconviction and technical violation revocations). As the number of video visits increased, so did the size of the recidivism reduction, at least for general and felony reoffending. Despite the generally favorable impact on recidivism, video visitation was used sparingly by Minnesota's prison population.

Keywords

video visitation, social support, prison, recidivism

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Introduction

Existing research suggests prison visitation is an underutilized resource that yields beneficial outcomes for those in prison. Indeed, visits improve mental health issues such as depression and anxiety and reduce misbehavior while incarcerated (De Claire & Dixon, 2015; Siennick et al., 2013; Wooldredge, 1997). Many studies indicate that recidivism is lower among inmates who receive visits while in prison (Bales & Mears, 2008; Cochran, 2014; Derkzen et al., 2009; Duwe & Clark, 2013; McNeeley & Duwe, 2019; Mears et al., 2012), decreasing reoffending by an estimated 26% (Mitchell et al., 2016). But research also suggests that many prisoners do not receive visits while incarcerated (Cochran et al., 2016), which has been attributed to factors such as poor conditions in visitation areas and the inconveniences associated with travel to the facility (Arditti, 2003; Austin & Hardyman, 2004; Casey-Acevedo & Bakken, 2001; Christian, 2005; Clark & Duwe, 2017; Cochran et al., 2016; Farrell, 2004; Fuller, 1993; McNeeley & Duwe, 2019; Sturges, 2002; Tewksbury & DeMichele, 2005).

To increase prison visitation, the Minnesota Department of Corrections (MnDOC) began offering remote video visitation—in which visitors are able to schedule and hold 30-minute calls with prisoners from a remote location—in November 2015. Like in-person visitation, video visitation may allow prisoners to maintain social ties in the community while avoiding many of the barriers discussed above. Video visitation is also believed to improve operations within facilities because it reduces time and costs associated with processing visitors, monitoring visits, and moving inmates from place to place; prevents the introduction of contraband into the facility; and increases staff and inmate safety (Boudin et al., 2014; Brown et al., 2014). Despite the potential benefits, there has been little research on video visits. In fact, we are aware of no studies that have examined the relationship between video visitation and recidivism.

The present study fills this gap in the literature by testing whether persons who received video visits were less likely to recidivate than those who did not, while accounting for traditional, in-person visits. Examining people released from Minnesota prisons between 2016 and 2018, we compared recidivism outcomes among 885 who had at least one video visit with a matched comparison group of 885 who did not receive any video visits. In doing so, we test the assumption that video visits provide similar benefits as in-person visits while avoiding some of the barriers that reduce visitation. This study not only extends the literature on prison visitation and the importance of social support for successful reentry into the community, but also informs correctional policy and practice regarding the use of video visitation.

Prior Research on Prison Visitation

There are several reasons visitation could be expected to affect recidivism. Consistent with social bond theory (Hirschi, 1969), prison visitation may reduce reoffending by allowing offenders to maintain personal connections with others. Indeed, studies show that visits are influential in improving inmates' relationships with friends and family members, and that this improves reentry outcomes (Brunton-Smith & McCarthy, 2017; Liu et al., 2014). Consistent with social support theory (Cullen, 1994), visitation may improve outcomes because visitors can help navigate the challenges that released prisoners face upon returning to the community (see Maruna & Toch, 2005; Martí & Cid, 2015). However, not all visitors are expected to provide the same level of benefits: Meyers et al. (2017) found that offenders with supportive visitors—those with stronger relationships with the offender, a desire for more visits, who gave and asked for advice during visits, and who had fewer arguments during visits—expected to receive greater social support in achieving their goals after release from prison. In line with this idea, prisoners who receive more visits while incarcerated are more likely to secure post-release employment (Brunton-Smith & McCarthy, 2017; Liu et al., 2014). Further, these challenges can create strain (see Agnew, 1992), and close connections with others may help inmates cope with strain in prosocial ways (Colvin et al., 2002; Cullen et al., 1999). Finally, it is important for desistance that prisoners experience a change in identity (Maruna, 2001; Paternoster & Iovanni, 1989). Visitation may facilitate this process by strengthening relationships with prosocial peers who model conventional, non-criminal behavior and attitudes.

Consistent with these theories, many studies indicate that recidivism is lower among inmates who receive visits while in prison (Bales & Mears, 2008; Cochran, 2014; Duwe & Clark, 2013; Mears et al., 2012). According to a recent meta-analysis of 16 studies, visitation is associated with a 26% decrease in recidivism (Mitchell et al., 2016). Bales and Mears (2008) found that any visitation, more frequent visits, and visits that occurred close to the release date reduced the risk of recidivism. Notably, a study of Minnesota prisoners released between 2003 and 2007 showed that several types of visitation (any visitation, the number of visits, the monthly rate of visits, and recent visits) were associated with lower risk for multiple types of recidivism (Duwe & Clark, 2013). The effect of visitation on recidivism has been observed even when accounting for social bonds with friends and family that preceded the offenders' stay in prison (Mears et al., 2012; but see Atkin-Plunk & Armstrong, 2018). In addition, the relationship between offenders and their visitors matters. For example,

Bales and Mears (2008) found visits from spouses had the strongest protective effect, while Duwe and Clark (2013) found that visits from fathers, siblings, in-laws, and clergy were most beneficial, while visits from ex-spouses increased recidivism.

Few prisoners receive visits, however, and studies reveal the unvisited rate ranges from a low of 39% (Duwe & Clark, 2013) to a high of 74% (Cochran et al., 2016). The literature identifies several barriers to visitation. Policies regarding visitation may be restrictive, reducing one's ability to actually visit and making visitors feel humiliated and degraded (Arditti, 2003; Austin & Hardyman, 2004; Comfort, 2003; Farrell, 2004). The setting of the visitation area is often an inhospitable and stressful environment, discouraging friends and family members from visiting frequently (Sturges, 2002). Because most prisons are located in rural areas far from the urban areas where offenders lived, family members and friends often have to travel a great distance, making visits difficult and therefore rare (Casey-Acevedo & Bakken, 2001; Schirmer et al., 2009; Tewksbury & DeMichele, 2005). Quantitative studies confirm that distance between the facility and the likely location of visitors reduces the frequency of visitation (Clark & Duwe, 2017; Cochran et al., 2017; McNeeley & Duwe, 2019). Relatedly, there is often a financial burden associated with visitation, as visitors frequently incur costs due to travel requirements, including transportation and, in some cases, lodging (Christian, 2005; Fuller, 1993).

Video Visitation

The MnDOC began offering remote video visitation at all facilities in November 2015. Like in-person visitors, video visitors must be on the prisoner's visiting list. To be placed on a visiting list, individuals must submit an application and undergo a background check. Visitors may participate in a video visit from any location that has a computer[1] with a camera and microphone and a high-speed internet connection. Prisoners participate in the visit at a kiosk located in their living unit, and they must have an account with the vendor in order to receive visits.

Video visits must be scheduled in advance, and the kiosk schedule and availability varies by facility and living unit. The cost of each video visit, which can last up to 30 minutes, is $9.95. According to MnDOC policy, there is a maximum number of in-person visiting hours allowed per month, which varies by security level and ranges from 16 to 36 hours per month. But MnDOC policy does not restrict the number of video visits an inmate can receive, and video visits do not count toward the maximum in-person visiting hours per month.

Prior Research on Video Visiting

Much of the research on video visitation has focused on how prisoners and visitors respond to this type of visit. Many inmates are grateful for video visits; they feel that the correctional setting is harsh and don't want their loved ones—especially their children—to experience that setting (Hilliman, 2006). In addition, prisoners and visitors believe video visits still help them maintain ties with their families (Murdoch & King, 2019; Tartaro & Levy, 2017a, 2017b). Furthermore, many visitors appreciate the convenience provided by remote video visitation (Tartaro & Levy, 2017b) and appreciate being able to avoid the unpleasant institutional setting (Sitren et al., 2020). Adults who escort children to visits tend to prefer this type of visit for children (Tartaro & Levy, 2017a). At the same time, a majority of prisoners and visitors report a preference for in-person visitation; they feel it results in higher-quality visits and that the intimacy provided by face-to-face visits allows for stronger maintenance of social ties (Murdoch & King, 2019; Tartaro & Levy, 2017b). While many barriers that reduce visitation are avoided, there are still flaws such as technological issues and the costs of the visits (Murdoch & King, 2019). In a recent study, Sitren et al. (2020) found that off-site video visitors considered technological issues to be a major source of frustration, with 30% of participants experiencing problems that caused visits to be cut short.

A couple of studies (Boudin et al., 2014; Brown et al., 2014; O'Very, 2016) suggest that video visitation also provides benefits for correctional staff and administration: First, when visits take place remotely rather than inside the facility, staff workload is reduced because employees are not required to register and monitor on-site visitors or move inmates from place to place for the visit. Second, remote video visitation is also believed to prevent the introduction of contraband into the facility. Third, video visitation reduces the risk of fights and assaults that may take place in the visiting room, improving safety for offenders and staff.

Despite the potential benefits of video visitation, little research has studied its effects on prisoner outcomes. Hilliman (2006) conducted a mixed-methods study of 671 women incarcerated in two prisons in Florida, linking participation in video visitation to institutional misconduct. While there were observed benefits of video visitation such as improved self-esteem and improved relationships with children and other family members, the results showed no significant effect of video visitation on institutional misconduct. Murdoch and King (2019) reported that inmates believed the promise of video visits from family and friends would motivate them to follow the rules while incarcerated, and about one-third said video visits made them want to

improve their behavior after release. However, there have been no studies examining the relationship between video visitation and recidivism.

Data and Method

We used a retrospective quasi-experimental design to determine whether video visits had an impact on recidivism. The population for this study consisted of all releases from Minnesota prisons between 2016 and 2018. Of the 20,868 releases from prison, there were 885 inmates (4%) who received at least one video visit while incarcerated. The comparison group pool for this study consists of the 19,983 prisoners who did not receive a video visit. As discussed later, we used propensity score matching (PSM) to individually match the 885 who received video visits with 885 inmates from the larger comparison group pool (N = 19,983).

Dependent Variables

In this study, we defined recidivism as a (1) reconviction for any offense, (2) reconviction for a felony offense, (3) reconviction for a violent offense, and (4) revocation for a technical violation. In doing so, we are able to determine whether video visitation not only has an effect on general recidivism, but also more serious reoffending such as felony and violent recidivism. While the first three variables strictly measure new criminal offenses, technical violation revocations (the fourth measure) represent a broader measure of rule-breaking behavior. People released from prison can have their supervision revoked for violating the conditions of their supervised release. Because these violations can include activity that may not be criminal in nature (e.g., use of alcohol, failing a community-based treatment program, failure to maintain agent contact, failure to follow curfew, etc.), technical violation revocations do not necessarily measure reoffending. Yet, technical violation revocations are costly, which is why it is important to include it as a recidivism measure.

We collected recidivism data through December 31, 2019. We obtained electronic data on convictions from the Minnesota Bureau of Criminal Apprehension and data on revocations from the Correctional Operations Management System (COMS) database maintained by the MnDOC. The main limitation with using these data is that they measure only convictions and incarcerations that took place in Minnesota. Because the prisoners in this study were released between January 2016 and December 2018, the follow-up time for recidivism ranged from 2 to 5 years with an average of 3.5 years. Prior research suggests the majority of offenders who recidivate do so within

the first 1 to 2 years after release from prison (Durose et al., 2014; Hunt & Dumville, 2016; Langan & Levin, 2002).

To analyze the effects of video visitation on recidivism, we used Cox regression, which is a type of survival analysis. Cox regression uses "time" and "status" variables to estimate the impact of the independent variables on recidivism. By using these time-dependent data, Cox regression can determine whether and when offenders recidivate. For our analyses presented later, the "time" variable measures the amount of time from the date of release until the date of first reconviction, technical violation revocation, or December 31, 2019, for those who did not recidivate. The "status" variable, on the other hand, measures whether a prisoner recidivated (reconviction or technical violation revocation) during the period in which he or she was at risk to recidivate. We estimated Cox regression models for each of the four recidivism measures mentioned above.

To accurately measure the total amount of time offenders were actually at risk to reoffend (i.e., "street time"), we needed to account for supervised release revocations in the recidivism analyses. More specifically, for the three recidivism variables that strictly measure new criminal offenses (general reconviction, felony reconviction, and violent reconviction), we deducted the amount of time spent in prison for technical violation revocations from the total at-risk period. For these analyses, if we failed to deduct the time spent in prison as a supervised release violator, the length of the at-risk periods for these persons would appear to be longer than they actually were. Therefore, we achieved a more accurate measure of "street time" by subtracting the amount of time a person spent in prison as a supervised release violator from his or her at-risk period, but only if it preceded a reconviction or if the person did not have a reconviction prior to January 1, 2020. Moreover, in our Cox regression models for the three reconviction measures, we included a control variable that counted the number of supervised release revocations prior to reconviction or January 1, 2020 for those who were not reconvicted.

Independent Variables

Our main variable of interest was whether inmates received video visits. Data on video visits were obtained from JPay, the vendor that provided video visits to MnDOC prisoners. We created two measures for video visits. The first variable was a dichotomous measure for whether inmates received any video visits, while the second variable measured the total number of video visits inmates received.

To isolate the effects of video visits on recidivism, we included a relatively large number of variables in our propensity score and Cox regression models

that might have affected our outcome measure (recidivism) and/or whether inmates received a video visit. For the propensity score model, a logistic regression model we estimated in which the dichotomous video visit measure was the dependent variable, the covariates consisted of variables that may have an influence on receiving a video visit, recidivism, or both. Some of our covariates only had an impact on recidivism because they are postprison, community-based measures that do not temporally precede video visitation. Although excluded from the propensity score models, we included these measures in our Cox regression models.

In Table 1, we describe the covariates in the propensity score model and show their effects on whether inmates received video visits. Most of the variables in Table 1 are demographic, criminal history, and prison-based measures that were included on the first two versions of the Minnesota Screening Tool Assessing Recidivism Risk (MnSTARR), a recidivism risk assessment that has proven to perform well in predicting recidivism for Minnesota prisoners (Duwe, 2014; Duwe & Rocque, 2017; Duwe & Rocque, 2019). The area under the curve (AUC) for this model was 0.833, which suggests it was accurate in predicting which individuals were more or less likely to receive video visits.

Perhaps not surprisingly, the strongest predictor of whether someone received a video visit is whether they had an in-person visit in prison. More specifically, inmates who received in-person visits were nearly six times more likely to receive a video visit (see Table 1). Neither gender nor any of the criminal history measures had a significant effect on receiving video visits. Inmates were significantly more likely to have video visits when they were younger, non-white, married, had greater involvement in a security threat group (STG), had a secondary degree, were participating in the CIP program (i.e., a correctional boot camp run by the MnDOC), and had a longer length of stay in prison. Conversely, the odds of video visitation were significantly lower for those who entered prison as a supervised release violator, had a history of suicidal tendencies, or were in prison for either a violent or a property offense.

Propensity Score Matching

After estimating the logistic regression model predicting video visitation, we used the propensity scores derived from this model to match the 885 who received video visits with those who did not. Propensity score matching (PSM) is a method that estimates the conditional probability of selection to a particular treatment or group given a vector of observed covariates (Rosenbaum & Rubin, 1985). In matching offenders who received video

Table 1. Logistic Regression Model for Video Visit Selection.

Predictors	Predictor description	Odds ratio	Standard error
In-person visits	Total number of visits during current prison term	5.729**	0.091
Males	Male = 1; Female = 0	0.936	0.137
Age at release	Age (in years) at date of release from prison	0.967**	0.005
White	Non-Hispanic White = 1; Non-White = 0	0.692**	0.080
Married	Married = 1; unmarried = 0	1.680**	0.109
Total Supervision failures	Number of prior revocations while under correctional supervision	0.941	0.034
Total convictions	Number of total criminal convictions, excluding index conviction(s)	0.996	0.007
Felony convictions	Number of felony convictions, excluding index conviction(s)	1.004	0.016
Violent convictions	Number of total violent convictions, excluding index conviction(s)	0.998	0.037
Drug convictions	Number of total drug convictions, excluding index conviction(s)	1.026	0.027
Assault convictions	Number of assault convictions, excluding index conviction(s)	0.992	0.044
VOFP convictions	Number of violation of order for protection convictions, excluding index conviction(s)	1.060	0.040
Disorderly conduct	Number of disorderly conduct convictions, excluding index conviction(s)	1.000	0.043
Obstruction convictions	Number of obstruction convictions, excluding index conviction(s)	1.010	0.051
Release violator	Release violator = 1; other = 0	0.488**	0.139
Probation violator	Probation violator = 1; other = 0	0.851	0.105
Non-sex violent offense	Non-sex violent offense = 1; other offense = 0	0.645**	0.121
Sex offense	Sex offense = 1; non-sex offense = 0	0.253**	0.217
Drug offense	Drug offense = 1; non-drug offense = 0	0.982	0.117
Property offense	Property offense = 1; non-property offense = 0	0.591**	0.152
DWI offense	Felony DWI offense = 1; non-Felony DWI offense = 0	1.136	0.157
Suicidal history	History of suicidal tendencies	0.761*	0.114
Prison discipline	Number of discipline convictions in prison during current term	0.998	0.003
STG	Member of security threat group (STG)	1.074**	0.024
Secondary degree	Secondary degree or higher = 1; less than secondary degree = 0	1.437**	0.105
CD treatment	Entered chemical dependency (CD) treatment in prison = 1; other = 0	1.157	0.084
CIP	Entered Challenge Incarceration Program (CIP) = 1; other = 0	3.100**	0.102
LOS	Number of months between prison admission and release dates	1.007**	0.001
Constant	Challenge Incarceration Program (CIP) = 1; non-CIP = 0	0.054	0.242
N		20,868	
AUC		0.833	
Nagelkerke R^2		0.216	

**$p < .01$.
*$p < .05$.

visits with those who did not on the conditional probability of receiving video visits, PSM reduces selection bias by helping create a counterfactual estimate of what would have happened to the video visit offenders had they not received these visits. An advantage with using PSM is that it can simultaneously "balance" multiple covariates on the basis of a single composite score.

Still, there are some limitations with PSM that are important to point out. First, because propensity scores are based on observed covariates, PSM cannot control for "hidden bias" from unmeasured variables that are associated with both the assignment to treatment and the outcome variable. Second, unless there is sufficient overlap among propensity scores between the treatment and comparison groups, the matching process will yield incomplete or inexact matches (Shadish et al., 2002). Finally, PSM tends to work best with larger sample sizes (Rubin, 1997). We attempted to address these limitations, to the extent possible, by using a sizable number of theoretically-relevant covariates (29) in the propensity score model on a large sample (N = 20,868).

Matching Prisoners on Video Visits

After obtaining propensity scores for the 20,868 prisoners, we used a "greedy" matching procedure that utilized a without replacement method to match those who received video visits with those who did not. Inmates with at least one video visit were matched to comparison group prisoners who had the closest propensity score (i.e., "nearest neighbor") within a caliper (i.e., range of propensity scores) of 0.01. Using this narrow caliper, we found matches for all 885 video visit inmates. Table 2 presents the covariate and propensity score means for both groups prior to matching ("unmatched") and after matching ("matched").

In addition to providing a more traditional test of statistical significance ("*t* test *p* value") in Table 2, we present a measure ("Bias") developed by Rosenbaum and Rubin (1985) that quantifies the amount of bias between the treatment and comparison samples (i.e., standardized mean difference between samples), where $\overline{X}_t$ and S_t^2 represent the sample

$$\text{Bias} = \frac{100(\overline{X}_t - \overline{X}_c)}{\sqrt{\frac{(S_t^2 + S_c^2)}{2}}}$$

mean and variance for the treated offenders and $\overline{X}_c$ and S_c^2 represent the sample mean and variance for the untreated offenders. If the value of this statistic exceeds 20, the covariate is considered to be unbalanced (Rosenbaum & Rubin, 1985).

Due to the large sample size we used, most of the differences in covariates between video visit inmates and the comparison group pool for the unmatched sample were statistically significant at the .05 level for the t tests (see Table 2). In addition, 11 of the covariates, including the propensity score, were imbalanced insofar as they had bias values greater than 20. But in the matched sample, we achieved covariate balance given that none of the covariates had bias values greater than 20. Further, none of the t tests for the matched sample were statistically significant at the .05 level.

Results

In Table 3, we present recidivism rates over a 2-year follow-up period for the 885 who received video visits, the 885 in the comparison group, and the 19,983 in the comparison group pool. The results show that recidivism rates, at least for the three reconviction measures, were higher for the releases in the comparison group pool. As shown earlier in Table 2, however, the inmates in the video visit and matched comparison groups were more likely to be married, receive in-person visits and participate in programming, which are protective factors associated with less recidivism. When we compare the video visit inmates with those in the matched comparison group, the 2-year rates were lower for those who received video visits for all three reconviction measures. The technical violation revocation rate, on the other hand, was similar for both groups.

Although these findings suggest video visits may have an impact on recidivism, especially for the three measures of reoffending, the observed recidivism differences between the video visit inmates and those in the comparison group may be due to other factors we could not control for through PSM. In particular, the presence and type of post-release supervision can influence recidivism outcomes (Duwe, 2014; Duwe & McNeeley, 2020), and we did not include any post-release supervision measures in the propensity score model because they could not affect whether inmates received video visitation.

But in our Cox regression models, which are shown in Table 4, the follow-up period for recidivism ranged from a minimum of 2 years to a maximum of 5 years. In addition, we included several dichotomous measures related to post-release supervision. More specifically, these models contain covariates that measure whether inmates were released to intensive supervision, were discharged at the time of release (i.e., released from prison to no correctional supervision because they had completed their sentence), or were assigned to work release. In the Cox regression model that estimates the effects of video visits on technical violation revocations, we removed from our analyses the 18 inmates who were discharged from prison and, thus, could not have had

Table 2. Propensity Score Matching and Covariate Balance for Video Visits.

Variable	Sample	VV mean	Comparison mean	Bias	Bias reduction	*t* test *p* value
Propensity score	Unmatched	0.13	0.04	**85.59**		**0.00**
	Matched	0.13	0.13	0.08	−99.91%	0.97
In-person visits	Unmatched	0.79	0.31	**91.53**		**0.00**
	Matched	0.79	0.80	2.00	−97.81%	0.73
Males	Unmatched	0.91	0.90	2.85		0.35
	Matched	0.91	0.91	0.00	−100.00%	0.80
Age at release	Unmatched	34.12	36.08	17.28		**0.00**
	Matched	34.12	34.27	1.39	−91.95%	0.46
White	Unmatched	0.48	0.50	3.27		0.07
	Matched	0.48	0.49	1.63	−50.00%	0.42
Married	Unmatched	0.14	0.09	12.35		**0.00**
	Matched	0.14	0.14	0.00	−100.00%	0.95
Total supervision failures	Unmatched	0.96	1.60	**39.34**		**0.00**
	Matched	0.96	0.94	1.35	−96.57%	0.53
Total convictions	Unmatched	12.26	13.63	12.31		**0.00**
	Matched	12.26	12.23	0.28	−97.69%	0.88
Felony convictions	Unmatched	4.50	4.67	4.28		0.24
	Matched	4.50	4.48	0.53	−87.58%	0.75
Violent convictions	Unmatched	1.58	1.86	11.49		**0.00**
	Matched	1.58	1.59	0.42	−96.35%	0.72
Drug convictions	Unmatched	1.45	1.19	12.44		**0.00**
	Matched	1.45	1.43	0.93	−92.49%	0.62
Assault convictions	Unmatched	0.97	1.17	10.70		**0.00**
	Matched	0.97	0.97	0.00	−100.00%	0.95
VOFP convictions	Unmatched	0.34	0.40	5.01		**0.02**
	Matched	0.34	0.35	0.84	−83.24%	0.54
Disorderly conduct convictions	Unmatched	0.45	0.55	8.65		**0.01**
	Matched	0.45	0.44	0.92	−89.31%	0.72
Obstruction convictions	Unmatched	0.34	0.41	7.24		**0.03**
	Matched	0.34	0.33	1.08	−85.14%	0.68
New court commit	Unmatched	0.74	0.49	**44.33**		**0.00**
	Matched	0.74	0.74	0.00	−100.00%	0.75
Release violator	Unmatched	0.09	0.31	**50.94**		**0.00**
	Matched	0.09	0.09	0.00	−100.00%	0.74
Probation violator	Unmatched	0.17	0.21	8.44		**0.03**
	Matched	0.17	0.17	0.00	−100.00%	0.90
Non-sex violent offense	Unmatched	0.25	0.29	7.40		**0.03**
	Matched	0.25	0.25	0.00	−100.00%	0.74

(continued)

Table 2. (continued)

Variable	Sample	VV mean	Comparison mean	Bias	Bias reduction	*t* test *p* value
Sex offense	Unmatched	0.03	0.10	**24.83**		**0.00**
	Matched	0.03	0.03	0.00	−100.00%	0.99
Drug offense	Unmatched	0.33	0.26	12.41		**0.00**
	Matched	0.33	0.33	0.00	−100.00%	0.58
Property offense	Unmatched	0.08	0.15	18.61		**0.00**
	Matched	0.08	0.08	0.00	−100.00%	0.99
Driving while intoxicated offense	Unmatched	0.11	0.07	11.18		**0.00**
	Matched	0.11	0.12	2.61	−76.63%	0.19
Other offense	Unmatched	0.19	0.13	13.14		**0.00**
	Matched	0.19	0.19	0.00	−100.00%	0.99
Suicidal history	Unmatched	0.12	0.21	**20.84**		**0.00**
	Matched	0.12	0.13	2.50	−88.00%	0.46
Prison discipline	Unmatched	4.60	2.95	11.77		**0.00**
	Matched	4.60	4.40	1.33	−88.72%	0.51
Security threat group	Unmatched	0.69	0.54	8.12		**0.00**
	Matched	0.69	0.66	1.58	−80.57%	0.44
Secondary degree	Unmatched	0.86	0.75	**23.64**		**0.00**
	Matched	0.86	0.86	0.00	−100.00%	0.95
Chemical dependency treatment	Unmatched	0.42	0.27	**25.69**		**0.00**
	Matched	0.42	0.41	1.66	−93.55%	0.44
Challenge incarceration program	Unmatched	0.26	0.06	**42.79**		**0.00**
	Matched	0.26	0.25	1.87	−95.63%	0.79
Length of stay	Unmatched	29.74	15.82	**30.18**		**0.00**
	Matched	29.74	30.17	0.78	−97.41%	0.67

Total VV = 885; Total Comparison Group Pool = 19,983; Matched VV = 885; Matched Comparison = 885.
Notes: VV = Video Visit; VOFP = violation of order for protection.
Variables are bolded if the bias value exceeds 20 and/or the t test value $< .05$.

their supervision revoked. Moreover, as noted earlier, we included a covariate that measured the number of times a person returned to prison for a technical violation revocation in the models using the three reconviction measures. And we also included in our models the propensity score, which can be conceptualized as a single covariate that approximates adjusting for all of the covariates in the propensity score estimation model since it captures the distribution of these covariates (Austin, 2017).

To determine model fit, we tested the assumption that the hazards are proportional and for nonlinearity in the relationships between the log hazard and

Table 3. Two-Year Recidivism Rates for Video Visit and Comparison Group Prisoners.

Recidivism	Video visit	Comparison	Comparison group pool
General reconviction	24.6%	31.4%	38.6%
Felony reconviction	15.3%	19.3%	24.9%
Violent reconviction	5.9%	6.2%	10.5%
Technical violation revocation	24.6%	24.1%	25.3%
N	885	885	19,983

covariates. Our inspection of the residuals revealed that all of the Cox regression models adequately fit the data. The results in Table 4 indicate that, controlling for the effects of the other independent variables in the statistical model, receiving at least one video visit significantly reduced the hazard ratio for two of the recidivism measures (general and felony reconviction). In particular, video visits decreased the hazard by 22% for general reconviction and 21% for felony reconviction. Video visits did not have a significant effect on either violent reconvictions or technical violation revocations.

We also estimated Cox regression models that analyzed the effects of the number of video visits on recidivism. Similar to our binary measure for video visits, the results were statistically significant for general and felony reconviction but failed to reach statistical significance for violent reconviction or technical violation revocations. As the number of video visits increased, so did the size of the reduction in recidivism, at least for general and felony reconvictions. In particular, for every additional video visit, the hazard of recidivism decreased by 3.1% for general reconviction and 3.6% for felony reconviction (Table 5).

To further isolate the impact of video visits on recidivism, we also conducted analyses on the 364 inmates in our sample of 1,770 who did not receive an in-person visit while in prison. Of the 364, 184 received a video visit while the remaining 180 did not. The hazard ratios for video visits were generally in the expected direction for all eight Cox regression models and were similar to those presented in Table 4. Due in part to the smaller sample size, however, only one was statistically significant at the .05 level. More specifically, of those without an in-person visit, receiving a video visit significantly reduced the hazard of general reconviction by 31%.

Conclusion

While video visits did not have a significant effect on all of the recidivism measures, the results still showed a reduction for general and felony

Table 4. Impact of Video Visits on Recidivism.

	Reconviction		Felony		Violent		TVR	
	HR	SE	HR	SE	HR	SE	HR	SE
Any video visit	0.785**	0.086	0.793*	0.109	0.965	0.171	1.078	0.097
Propensity score	0.029**	0.485	0.063**	0.603	0.016**	1.057	2.207	0.462
Work release	0.867	0.259	0.505**	0.196	0.667	0.297	1.244	0.135
ISR	0.709	0.954	1.093	0.153	1.332	0.227	2.765**	0.116
Discharge	1.448	0.359	0.998	0.506	2.007	0.590		
Number of TVR's	0.818**	0.073	0.892	0.196	1.094	0.119		
Number of video visits	0.969*	0.012	0.964*	0.016	0.994	0.019	1.007	0.097
Propensity score	0.034**	0.486	0.032**	0.605	0.016**	1.061	2.121	0.464
Work release	0.861	0.238	0.500*	0.196	0.665	0.297	1.240	0.135
ISR	0.733	0.957	1.090	0.153	1.332	0.226	2.759**	0.115
Discharge	1.413	0.335	0.999	0.506	2.014	0.590		
Number of TVR's	0.820**	0.074	0.843	0.089	1.095	0.119		
N	1,770		1,770		1,770		1,752	

Notes: HR = hazard ratio; SE = Standard Error; ISR = intensive supervised release; TVR = technical violation revocation.
**$p < .01$.
*$p < .05$.

Table 5. Impact of Video Visits on Recidivism for Inmates without In-Person Visits.

	Reconviction		Felony		Violent		TVR	
	HR	SE	HR	SE	HR	SE	HR	SE
Any video visit	0.695**	0.172	0.728	0.209	0.668	0.340	1.097	0.207
Propensity score	0.000**	4.181	0.000**	5.074	0.000**	9.271	1560.862	0.462
Work release	0.875	0.262	0.407*	0.425	0.716	0.614	1.373	0.319
ISR	0.953	0.283	1.106	0.323	2.798*	0.424	4.401**	0.258
Discharge	2.069	0.520	1.075	0.725	1.721	1.034		
Number of TVR's	0.873	0.143	0.977	0.163	0.991	0.228		
Number of video visits	0.949	0.012	0.946	0.036	0.924	0.068	1.036	0.020
Propensity score	0.000**	4.141	0.000**	5.032	0.000	9.159	1197.307	3.960
Work release	0.864	0.262	0.397*	0.425	0.689	0.615	1.415	0.320
ISR	0.995	0.281	1.132	0.321	2.915*	0.421	4.446**	0.256
Discharge	2.040	0.519	1.162	0.729	1.931	1.043		
Number of TVR's	0.882	0.144	0.988	0.163	0.999	0.228		
N	364		364		364		357	

Notes: HR = hazard ratio; SE = Standard Error; ISR = intensive supervised release; TVR = technical violation revocation.
**$p < .01$.
*$p < .05$.

reconvictions. Consistent with prior research on in-person visits, the findings also indicated that as the number of video visits increased, so did the magnitude of the decrease for general and felony reconvictions. Further, among inmates who did not have an in-person visit, receiving a video visit was associated with a reduction in general recidivism. This study thus offers some support for the notion that video visits can be just as effective as in-person visits in reducing recidivism.

These results should not be interpreted to mean that video visitation should replace in-person visits. Indeed, the limited use of virtual visits by the MnDOC, which we discuss in more detail below, suggests that eliminating face-to-face visits would not be a prudent strategy. Instead, given that the findings from this study and prior research suggest that both types of visitation are associated with less recidivism, correctional agencies should attempt to simultaneously maximize the use of both in-person and video visits.

Although the results from our study are encouraging, there are several limitations worth highlighting. First, because we examined video visitation in one state's prison system, the findings may not be generalizable to other correctional systems. Second, prior research has shown that the prisoner-visitor relationship has an influence on whether visitation reduces recidivism and, if so, to what extent (Bales & Mears, 2008; Duwe & Clark, 2013). Because the video visit data we used did not identify the relationship between inmates and visitors, we were unable to examine whether video visits from some people were more beneficial than others. Third, despite using procedures to control for observable selection bias and factors that influence reoffending, it is possible the people who received video visits had greater access to unmeasured social and economic resources that may have contributed to better recidivism outcomes. Finally, the results indicated that only 4% of Minnesota prisoners released between 2016 and 2018 used video visitation, and the relatively small number of inmates who only received video visits hampered our ability to fully assess the relationship between video visitation and recidivism.

When the MnDOC introduced video visitation in late 2015, one of the goals of this initiative was to expand the accessibility of visitation. After all, research has not only shown that visitation is associated with less recidivism (Mitchell et al., 2016), but also that visitation is less likely to happen when potential visitors have to travel greater physical distances (Clark & Duwe, 2017). Therefore, it was believed that video visitation could be a key resource, especially for unvisited inmates who were separated by longer distances from their potential visitors. As the findings clearly showed, however, video visitation was not used much by the Minnesota prison population. And, when it was used, it was mostly by inmates who were already receiving in-person

visits. Only 184 prisoners (less than 1% of all releases from 2016 to 2018) received a video visit without an in-person visit.

Why was video visitation used so sparingly? Conducting qualitative research with prisoners and visitors, which was beyond the scope of this study, would help determine why video visitation was underutilized. Nevertheless, anecdotal evidence from MnDOC staff suggests a number of problems might have been responsible for its infrequent use. First, technological difficulties were relatively commonplace, resulting in what may have been a poor user experience. Second, the vendor's software, which was not compatible with most smartphones and tablets, essentially required visitors to use laptop computers, which may have been a barrier for some potential visitors. Third, even though a video visit would generally be less costly than an in-person visit for many, the cost (about $10 for a 30-minute visit) may still be too much to bear for some potential visitors. Just as prior research has shown that barriers to in-person visitation tend to be felt more acutely when potential visitors live in areas affected by concentrated disadvantage (Clark & Duwe, 2017), the same may be true for video visitation.

The MnDOC will be using a different vendor for video visitation services, which may (or may not) address some of the difficulties users might have experienced. To substantially expand the use of video visitation, however, it may be necessary for the MnDOC to explore whether strategies for subsidizing part of the cost would have much of an impact. For example, to lessen the effects of concentrated disadvantage, a subsidy could be made available for lower-income families. The MnDOC could also forge partnerships with community agencies to provide the families of prisoner with the technology needed for video visits. Another strategy could involve applying a subsidy specifically to higher-risk inmates who are less likely to be visited, which would be consistent with the risk-needs-responsivity model that is used by many correctional agencies in the U.S. Likewise, in an effort to promote desistance, video visit credits could be given to those who refrain from misconduct over a period of time. Or, in recognition of the public safety benefits, Minnesota's legislature could provide a broad subsidy that decreases the costs of visits in general. Regardless of which cost-reduction strategy is used, the MnDOC will need to more closely review its visitation policies and practices to ensure greater use of this resource in the future.

The findings provide additional evidence that social support, even if it is delivered virtually, can help people make a successful transition from prison to the community. In a similar vein, the results may bode well for the use of technologies, such as tablets, to deliver virtual programming to incarcerated populations. Research has shown that many prisoners do not participate in programming while they are confined (Duwe & Clark, 2017; U.S. Department

of Justice, 2019), and the shortage of programming is often tied to a lack of resources, staff, and physical space. Because the staff and physical space requirements for tablets are relatively minimal by comparison, this mode of program delivery may be worth considering by correctional systems that struggle to provide enough programming to those in their custody.

In general, virtual programming is an area that warrants greater exploration and study. Likewise, while this study represents one of the first evaluations of video visitation, there is, of course, much that remains to be learned. For example, as suggested by the Minnesota experience, research should attempt to identify the conditions that make video visitation more or less likely by interviewing or surveying prisoners and those who might visit them. Moreover, given that video visits did not significantly reduce the hazard of violent reconvictions and technical violation revocations, future studies should examine whether these findings are generalizable to other correctional populations. Research should also examine whether video visits have a positive impact on inmate misconduct. If so, then increasing access to video visitation could help improve the safety of correctional institutions for both inmates and staff. And, given the differential recidivism reduction effects observed across prisoner-visitor relationships for in-person visits, future studies should attempt to determine whether the same holds true for virtual visits.

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Note

1. The vendor's software is not compatible with most smartphones or tablets.

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