HHS Public Access

Author manuscript

Soc Sci Med. Author manuscript; available in PMC 2017 February 01.

Published in final edited form as:

Soc Sci Med. 2016 February ; 151: 92–99. doi:10.1016/j.socscimed.2016.01.004.

Doing Your Own Time: Peer Integration, Aggression and Mental Health in Dutch Male Detainment Facilities

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Abstract

Background—Prior research demonstrates a strong positive association between social integration (e.g., strong social ties) and individual health. However, researchers also emphasize that this correlation may vary by context and potentially reverse direction under certain conditions. In this study, we draw on competing criminological theories of peer relations to examine if social integration, measured by trust in peers, is positively or negatively associated with violence and mental health of men detained in pre-trial confinement facilities.

Methods—We test our hypotheses with peer network and health data from 502 Dutch male pre-trial detainees.

Results—Results suggest that peer trust has no direct association with reported rates of peer aggression while detained and low peer trust is generally protective for mental health.

Conclusions—Our study thus adds to a small body of literature finding that social integration within certain correctional settings may not operate in the same way that it does in the general population and may actually contribute to adverse mental health outcomes.

Keywords

Social Integration; Prison; Mental Health; Social Networks

A long line of research has demonstrated that weak social ties are associated with poor mental and physical health. Harking back to Durkheim's (1897/1951) classic work on social integration and suicide, social epidemiology studies (e.g., the Alameda County Study, Tecumseh Community Health Study, and Evans County Study) have found that low social involvement increases the risk of early mortality (see Umberson, Crosnoe, & Reczek, 2010,

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for a review). More recent research has continued to find strong associations between fewer or poor-quality social ties and a host of negative health outcomes, including cardiovascular disease, depression, high blood pressure, functional mobility, and poor immune response (Crittenden, Pressman, Cohen, Janicki-Deverts, Smith, & Seeman, 2014; Perissinotto, Cenzer, & Covinsky, 2012; Uchino, 2006). It is clear from this and related work that, on average, low social integration is detrimental to individual health.

Although prior research generally finds strong health benefits of social integration, there is growing recognition that not all relationships are equal and some may actually have deleterious health consequences (Umberson & Montez, 2010). Extending learning principles, sociologists have emphasized that social ties may promote health-risk behaviors —such as crime, violence, and substance use—just as easily as they promote health-protective behaviors. For example, dynamic network studies show that exposure to smoking or delinquent peers increases one's own smoking and delinquency (Haas & Schaefer, 2014; Mercken, Snijders, Steglich, Vartianen, & De Vries, 2010; Weerman, 2011). The association between social relationships and health may therefore vary substantially across social and relationship contexts.

In this paper, we explore the correlation between social integration and health among a sample of male detainees in pre-prison confinement facilities. In contexts where individuals are involuntarily and temporarily brought together with high-risk peers, are peer distrust and "doing your own time" associated with violence and mental distress? Deriving competing hypotheses from social control and social learning theories and building on a small body of prior research, we test if detainees with strong peer ties are at greater risk of peer aggression and negative mental health outcomes compared to inmates who remain minimally invested in peer relationships. We explore the association between peer ties and health using self-reported (i.e., ego-centric) network data collected as part of the Prison Project, a longitudinal study of male inmates in The Netherlands. A particular strength of the Prison Project's network nomination data is that it captures trust the sampled detainees place in their peer relationships, thus providing a network-based measure of social integration.

Detainee Peer Integration, Aggression, and Mental Health

Unlike most social institutions, correctional facilities are both "total" in their regulation of daily life and involuntary for their inmate members (Goffman, 1961). Additionally, jails, prisons, and detention centers bring together a heterogeneous population whose only prerequisite is a charged felony offense. This combination of social segregation, extreme formal control, and high-risk population creates unique conditions for scholars interested in understanding social relationships and health.

Correctional facilities are particularly useful for testing competing criminological hypotheses for the association between peers and crime. Theories in the control tradition assert that offenders' personality characteristics and social deficits limit their ability to form strong and trusting social relationships (Gottfredson & Hirschi, 1990; Hirschi, 1969). This "cold and brittle" perspective asserts that offenders will have weak peer bonds and that the strong correlation commonly observed between individual and peer crime results from

criminals selecting themselves into criminal "friendships" for selfish reasons, such as the establishment of co-offending ties. Consistent with the control argument, several prior prison studies find that a substantial number of inmates report weak ties to their incarcerated peers (Clemmer, 1940; Irwin, 2005; Kruttschnitt & Gartner, 2005; Liebling & Arnold, 2012). The logic of control theories also predicts greater aggression and conduct problems among detainees with weak peer ties than detainees with strong peer ties (Kreager, 2004). Specifically, weak bonds to peers should correlate with increased crime, which in conditions of confinement would take the form of outward aggression and disobedience of prison rules.

Social learning perspectives provide a competing vision of offender social ties and the association between peer embeddedness and crime (Akers, 2011; Sutherland, 1947; Warr, 2002). Authors in this vein expect few differences in the quality of offender and non-offender relationships (Giordano, Cernkovich, & Pugh, 1986). Indeed, social learning scholars assert that criminal ties provide essential mechanisms for individuals to learn criminal attitudes and behaviors. Extending this logic to conditions of confinement, social learning perspectives would expect many detainees to form strong and trusting friendships with one another. Indeed, these perspectives would predict that inmates with the weakest peer ties would also exhibit the least antisocial behaviors because they would receive fewer peer reinforcements for criminal behavior than do more peer-integrated inmates.

Research of adolescents tends to support the social learning perspective that delinquent friendships are little different from non-delinquent friendships in terms of trust and intimacy (Giordano et al., 1986; Houtzager & Baerveldt, 1999) and that peer influence is a primary mechanism for delinquent behavior (Warr, 2002; Weerman, 2011). Studies also suggest that peer-isolated youth engage in less delinquency than peer-connected youth (Demuth, 2004; Kreager, 2004). In one of the few studies of peers and crime in correctional settings, and consistent with social learning expectations, Worrall and Morris (2012) found that inmates with prison gang affiliations were at significantly greater risk of inmate-on-inmate violence than non-gang prisoners, particularly in prisons with greater numbers of gangs. In sum, extant research of offender peer relationships finds that, contrary to control theory expectations and research on social integration and health, weak peer ties are not associated with increased individual antisocial behavior and that ties to other criminals are primary mechanisms for future crime.

Does this pattern extend to mental health in correctional settings? Findings that individuals embedded in criminal groups are at increased risk of crime may also relate to individual depression, as research finds a strong correlation between crime and internalizing symptoms (Defoe, Farrington, & Loeber, 2013; Siennick, 2007). Detainees with strong peer ties may thus be at increased risk of depression because of their greater involvement in crime. Along with a direct association between crime and depression, ties between detainees may also increase depression because these relationships involve more conflict than do conventional friendships. Indeed, in a comparison of delinquent and non-delinquent friendships, Giordano et al. (1986) found that delinquent relationships were similar to non-delinquent relationships along most dimensions (e.g., stability, trust, frequency of interactions) but were also more likely to involve interpersonal conflict (see also Claes & Simard, 1992). A similar pattern may exist among detainee friendships, such that peer conflict increases the depression of

inmates with trusting friendships compared to inmates without close ties. In sum, due to both increased crime and conflict/stress, detainees who build strong ties to peers may have greater internalizing problems compared to less peer-embedded detainees.

The Context of Temporary Confinement

The criminogenic and mental health consequences of strong peer ties may be heightened in situations of temporary confinement. In the American context, the vast county-level jail system is typically where new offenders are detained prior to arraignment and where many serve out sentences of one year or less. Jails are thus churning warehouses and sorting facilities consisting of heterogeneous detainee populations. On average, 60% of a jail's population turns over every week (Minton & Zeng, 2015). Within such ever-changing circumstances, there is little time to vet potential friends and heightened future uncertainty, providing few incentives for detainees to establish trusting and reciprocal peer relationships. Avoiding close ties and "keeping your head down" may be the most certain means of securing early release or safely transitioning to the next phase of confinement. In contrast to out-of-prison contexts, detainees with low quality relationships may have better adjustment and health outcomes than those who invest heavily in peers.

Whether detainees seek intimate peer friendships during periods of temporary confinement may also depend on continued connections with friends outside of prison (Clemmer, 1940). Visits from friends may provide adequate social interaction and remove the necessity of companionship from fellow detainees, at least during the initial period of confinement. A growing body of research demonstrates the benefits of visitation for reducing prison misconduct and recidivism (Cochran, 2012; Cochran & Mears, 2013; Mears, Cochran, Siennick, & Bales, 2012), and part of this association may be due to visitors offsetting the need to establish ties with (high-risk) peers while confined. Accordingly, strong out-of-prison ties may provide both a direct protective effect to detainee health and moderate the association between strong peer ties and health.

Lindquist (2000) provides the only prior study of social integration and health in a temporary confinement facility. Interviewing approximately 200 male and female inmates in a large American county jail, she examined the associations between self-reported marital status, perceived external and internal social support, and dimensions of inmate mental health (i.e., depression, anxiety, and hostility from the 53-item Brief Symptoms Inventory [BSI]; Derogatis, 1993). Counterintuitively, she found that married inmates experienced *greater* depression and anxiety than unmarried inmates, which she explained as resulting from the stress of separation. She also found that inmates with higher perceived internal support (i.e., more close friends and confidants inside the jail) had greater anger while imprisoned. She explained the latter as resulting from peers sharing their accounts of jails' deprivations and perceptions of injustice. She concluded that, unexpectedly, close social ties both within and outside the temporary confinement context are detrimental to inmate health.

Although important as a preliminary investigation, Lindquist's (2000) study is not without limitations. The relatively small sample limits statistical power and estimate precision, particularly for variables with low variation (e.g., marriage). More importantly, the study's

measure of internal social support (i.e., close friends and confidants) conflates the quantity of ties with their quality. In the context of temporary confinement, withholding trust and the number of peer ties may differentially affect health. Finally, the focus on mental health may mask key behavioral correlates of social integration, such as violence, which are particularly relevant to criminological theory. We overcome these limitations by examining the association between temporary confinement, social integration, aggression and mental health using detailed survey and network data from a longitudinal study of Dutch pre-trial detainees.

Methods

Data for this study come from The Prison Project, a large-scale, nationwide, longitudinal study of male detainees in the Netherlands. Prior to describing the data, it is useful to first provide general information about the Dutch pre-trial system. In The Netherlands, after arrest, suspects can either be released or detained prior to trial. In 2013, about 41% of suspects were kept in pretrial detention prior to a court appearance (Linckens & de Looff, 2014). Suspects are temporarily and involuntarily detained prior to trial in cases involving severe crimes (e.g., when an offense holds a maximum penalty of at least four years) or in cases of flight risk, risk to public safety, or fear that the suspect will intervene in the criminal investigation. Defendants can only be pre-trail detained if the judge expects that the defendant will eventually receive a prison sentence, and if there are clear presumptions that the defendant has committed the crime (Wermink, 2014). Indeed, 90% of all cases that passed through court in 2013, suspects were found guilty (Meijer & Eggen, 2014). The Dutch criminal justice system does not allow pretrial detainees to post bail.

Dutch pre-trial detention is similar to the local jail system in the United States. Both consist of detainees held for stays typically less than one year. However, there are important differences between the two systems. Most importantly, jails in the United States consist of a heterogeneous population of detainees at stages of pre-arraignment, awaiting trial, or sentenced jail terms (usually less than one year). This contrasts with Dutch detention centers, where all detainees are awaiting trial and the average detention duration is approximately three and a half months. Additionally, a larger proportion of the Dutch incarcerated population is in pre-trial detention. According to the World-Pre-trail/Remand Imprisonment List established by the International Centre for Prison Studies (Walmsley, 2014), the percentage of the 2010 total incarcerated population that is in pre-trial/remand custody is 47% in the Netherlands versus 22% in the United States.

Other differences between the two systems include (1) plea bargaining is not possible for Dutch pre-trial detainees, (2) prison conditions are relatively mild in the Netherlands compared to the United States, with low levels of violence and no overcrowding, and (3) the majority of detainees reside in individual cells (Beijersbergen, Dirkzwager, Eichelsheim, Van der Laan, & Nieuwbeerta, 2015; Dervan, 2011; Dirkzwager & Kruttschnitt, 2012). Lastly, and relevant to our study, Dutch pretrial detention centers, in contrast to jails in the United States, have a regime of limited association, meaning that detainees remain locked in their cells when not participating in communal or group activities. However, Dutch law also prescribes that pre-trial detainees be allowed 18 to 63 hours per week outside of their cells.

Dutch detainees thus have fewer opportunities to spend time with peers than their American jail counterparts, but continue to have 2.5–9 hours per day to build or avoid meaningful peer relationships.

Participants

Data collection for The Prison Project started in the period between October 2010 and April 2011. From the 3,983 persons who entered one of the 32 Dutch pre-trial detention facilities and met our selection criteria (male, aged 18–65 years, and born in The Netherlands) 2,841 detainees were approached and informed of the study (71%). The majority of detainees who could not be approached had already been released. Of those approached, 1,904 (67%) participated in the study. This sample was followed for several years, and questioned repeatedly both during and after their confinement period. The final sample, according to registered data of the Dutch Prison Service, was representative of all pre-trial detainees on age and marital status, but participants differed from non-participants in the type of crime for which they had been arrested. Participants, compared to refusers, were less likely to have been arrested for a property crime (30.7% versus 36.2%; χ^2 (3) = 11.14, p <0.05) (Beijersbergen et al., 2015).

The Prison Project has multiple measurement waves, monitoring participants at the beginning of pretrial detention, during confinement, and after release from prison. The first measurement wave (T1) entailed a Computer-Assisted Personal Interview (CAPI) and a written questionnaire, and took place about two weeks after entering pre-trial detention. Thereafter, inmates were asked to fill in written questionnaires at multiple times during their confinement (3 months (T2), 6 months (T3) and 9 months (T4) after their arrival in pretrial detention). Six months (R1) and 24 months (R2) after release from prison, two reentry measurement waves were collected with CAPI interviews. In this paper, we primarily rely on data from the second measurement wave (T2), when detainees had been confined in pre-trial detention for approximately three months. Of the initial sample of 1,904 detainees who had just entered pre-trail detention, 1,283 (67%) remained in that status three months later and were invited to participate in the second wave. Of the possible T2 detainees, 219 (17%) were released before interviews could be scheduled. Because of relatively short sentences compared to the American context, many of the eligible inmates already fulfilled their sentences and were released from detention prior to an interview. The 219 released detainees at T2 were then approached for the first reentry measurement, R1. Of the 1,064 respondents who remained in pre-trial detention at T2, 846 (80%) agreed to participate in the T2 interview. T2 participants were similar to T2 refusers on a wide range of variables (e.g., age, prior imprisonments), but differed by ethnic background and educational level (refusers were more often non-Dutch and with lower educational level (Beijersbergen et al., 2015). An advantage of the T2 survey is that it concluded with relationship questions for up to three other detainees that respondents “get along with best.” These network nominations allowed us to operationalize the quality of detainees’ informal peer ties. However, not all sampled detainees nominated a “get along with most” tie and therefore were missing a measure of tie quality. Forty detainees (5%) exited the questionnaire prior to the network module, 60 detainees (7%) were excluded because they had more than 5% missing values on the total questionnaire, and 230 detainees (27%) did not nominate at least one “get along with most”

tie. Unfortunately, it was impossible to determine if a lack of peer nominations was due to skipping the section or not having any such ties. Due to the unknown bias that would result from conflating these two categories, we chose to focus our analyses on detainees with at least one reported peer tie (*N*=516). Additionally, 14 detainees nominated a "get along with best" peer, but did not indicate the levels of trust in these contacts. These respondents were excluded from analyses. Finally, 35 detainees (7%) were missing values for our dependent or independent variables and omitted from analyses. Sample comparisons showed no significant differences between included and excluded detainees on any dependent variable. Our final analytic sample therefore includes 467 detainees.

Measures

Dependent Variables

Peer Aggression: In the T2 interview, detainees reported their own aggressive behavior against other detainees during their first three months of pre-trial detention. They indicated whether they had ever verbally of physically victimized other detainees. A dichotomous outcome was constructed for aggression directed at other detainees with values of "0" representing no aggression and values of "1" indicating verbal and/or physical aggression.

Psychological health: We assess detainees' psychological health with the 'Brief Symptom Inventory' (BSI; Derogatis, 1993). The BSI is a well-known and reliable index of psychological distress consisting of 53 items assessing somatic complaints, cognitive problems, interpersonal sensitivity, depression, anxiety, hostility, phobic anxiety, paranoia, psychotic symptoms. Respondents reported on a 5-point Likert scale (range: 0 – 4) to what extent they experienced these complaints in the last week. Along with mean BSI total scores, we also predict mean values of the Depression dimension (6 items), which may be particularly relevant to mental distress associated with the transition to confinement (Lindquist, 2000). Internal consistency of both scales was high (Cronbach's alpha .96 and . 87, respectively).

Primary Independent Variable

Peer Trust: We capture the quality of respondents' detention center ties with a name generator/interpreter method frequently used in the social network field (McCallister & Fischer, 1978). This method incorporates two types of questions. First, detainees identified the names, nicknames or initials of peer friendships within the facility ("With which three fellow detainees can you get along best?"). For each nomination, additional questions were asked about that person's characteristics and his relationship with the respondent. Relevant for our study, detainees rated how much they trusted each nominated alter on a 5-point Likert scale (1= *not at all* to 5 = *very much*). Answers were dichotomized, with scores 1 (*not at all*) to 3 (*somewhat*) coded as low peer trust, and scores 4 (*much*) and 5 (*very much*) coded as high peer trust. We then distinguished two groups of detainees: those who reported low trust in all nominated peers and those with at least one peer who they had high trust. Almost half (42%, *n* = 199) of our sample did not report high trust in any peer.

Control Variables

Number of Peer Nominations—We focus our theoretical attention on the quality of peer ties (i.e., peer trust). However, other scholars have measured social integration as the number of social ties (Lindquist, 2000). We therefore include a measure, ranging from 1 to 3, for the number of friendship nominations each detainee made to his peers. Although useful as a control variable, the censoring of this variable both at zero and at three makes it less attractive as a primary social integration measure.

Friendship Visitations—We create a dichotomous measure for whether a respondent was visited by at least one out-of-facility friend during his pre-trial confinement.

Partner—As previous research has found marriage to be a significant (negative) predictor of detainee mental health (Lindquist, 2000), we include a romantic relationship indicator in our analyses (0 = no relationship; 1 = relationship). This variable captures whether respondents were involved in a romantic relationship lasting at least three months at the time they were initially detained.

Facility Employment—We constructed a dichotomous indicator for whether detainees were working in the detention facility during their pre-trial detainment.

Cellmate: Contrary to most American detainment facilities, Dutch detainees commonly do not share cells. We create a dichotomous indicator for the 19% of our sample who were assigned a cellmate during their detainment period.

Offense Type—We include indicators for each detainees's primary index offense to account for potential selection or stigma effects (i.e., some offenders may find it more difficult to make friends due to negative perceptions of their offense type). Five types of crime were distinguished: violent (reference category), sex, property, public order, drugs, and other offenses.

Age—We measure respondent age at the time he entered pre-trial detention and divide this number by 10 to ease the presentation of results.

Ethnicity—We create a dichotomous indicator for Dutch descent. Data on ethnicity was obtained from municipal records (GBA). Ethnic background was measured, as defined by Statistics Netherlands (CBS), by the country of birth of the mother. In cases where the mother was of Dutch descent, and the father was not, the country of birth of the father defined the ethnic background of the respondent. All other respondents were of Dutch descent (both parents born in The Netherlands). All participants in our study were themselves born in The Netherlands.

Psychological Health at T1—To capture stability in psychological health over time, we include T1 (i.e., 3 months prior to T2) measures of the BSI psychological health outcomes in our final models, which were constructed in a similar manner as our T2 BSI measures described above. We thus include T1 BSI total scores (for the models with BSI total score as the dependent variable) and T1 BSI depression (for the models with BSI depression as the

dependent variable). Like the T2 measures, the internal consistency of T1 BSI total and BSI depression was high (Cronbach's alpha .98 and .90, respectively).

Analyses

To test our hypotheses, we first compare descriptive statistics (i.e., independent sample t-tests) for detainees with trusting peer ties versus those with no trusting ties across levels of peer aggression, psychological health, and theoretically relevant control variables (e.g., age, ethnicity, having a partner, and type of index offense). Secondly, we estimate multivariate models predicting detainee peer aggression and psychological health from our measure of peer trust and control variables. As they have dichotomous distributions, models of peer aggression are estimated with multivariate logistic regressions. Models of psychological health are estimated using multivariate Ordinary Least Squares (OLS) linear regression models that include a lagged measure of psychological health to account for initial levels at entrance to the pre-trial detention facility. Statistical significance is reported at $p < .05$ and $p < .01$ for all analyses. Logically, models of peer aggression do not include a lagged measure of peer aggression as detainees would have only just entered pre-trial detention and aggressive interactions with fellow detainees were thus not collected at the initial wave. Lastly, we examine if the association between peer trust and our health outcomes varies by detainees visitation from outside friends. These analyses test if out-of-prison ties buffer the effects of low peer integration on detainee health.

Results

Descriptive analyses

Table 1 presents descriptive statistics and bivariate analyses comparing characteristics of detainees who did not trust their facility-based peers to detainees who trusted at least one peer. The low and high peer trust groups did not differ significantly with respect to their levels of aggression towards other detainees. However, these groups did significantly differ in their T2 BSI Total and T1 Total and Depression values. In all cases, those with at least one trusted peer reported significantly greater mental health problems. It is also worth noting that, for all detainees, average mental health problems decreased between intake to pre-trial detention (T1) and three months after pre-trial detention (T2). This result is perhaps not surprising, as initial entrance into the criminal justice system is likely accompanied by greater stress and psychological discomfort. Of interest for our study is if, net of earlier mental health, do detainees with trusted peers continue to exhibit psychological distress.

In addition to our primary outcomes, detainees who trusted at least one of their facility-based peers reported more peer ties and were more likely to share their cells with another detainee than detainees with no trusted peers. Having trusted social contacts was not related to being employed in pre-trial detention or being visited by out-of-facility friends. Peer trust was also unrelated to other control variables, except that detainees with trusting peer ties were less often detained because of a drug offense.

Multivariate Analyses

Peer Trust and Aggression—Table 2 presents estimates and odds ratios from multivariate logistic regressions of respondent-reported aggression towards other detainees during pre-trial confinement. In Model 1, findings revealed that having trusted contacts was unrelated to detainee aggression. This finding fails to support the hypothesis, derived from control theories, that individuals with weak peer bonds would demonstrate greater antisocial behavior while confined. Of the remaining covariates, facility employment and older age were associated with a lower likelihood of peer aggression. Additionally, conviction for a drug-related offense, compared to a violent offense, was negatively associated with peer aggression. In unlisted analyses, we rotated the reference category and found that drug offenders were also significantly ($p < .001$) less likely to display peer aggression than property offenders. Interestingly, and inconsistent with prior literature, visitation by out-of-facility friends and prior mental health problems were not predictive of peer aggression.

Model 2 introduces an interaction term between peer trust and out-of-facility friend visitation to Model 1. This interaction's positive and significant coefficient suggests that the association between peer trust and peer aggression is greater when detainees are visited by out-of-facility friends. Figure 1 helps visualize this association with predicted probabilities for the four possible conditions of peer trust and aggression. As can be seen, detainees who are either the most peer-integrated (i.e., high peer trust and visited by out-of-prison friends) or the least peer integrated (i.e., low peer trust and no friend visitations) were at greatest risk of peer aggression. Those detainees with either high peer trust or friendship visitations had probabilities of peer aggression 25–40% lower than the categories high or low on both peer trust and friendship visitation.

Peer Trust and Psychological Health—Table 3 lists estimates from multivariate OLS linear regression models for our BSI Total and Depression score dependent variables. Model 1 regresses each outcome on our primary independent variable, peer trust, and control variables. Model 2 adds lagged (i.e., 3 months prior) measures of each dependent variable and the T2 measure of peer aggression to Model 1. Introducing the lagged psychological health measure gains leverage on potential spuriousness in the peer trust and mental health association (e.g., detainees who are particularly distressed during intake may select themselves into trusting peer ties and this may explain the association between peer trust and later mental health). Adding the T2 aggression covariate tests if an association between peer trust and psychological distress is due to increased peer violence.

Model 1 shows that, net of control variables, significant positive associations exist between both BSI Total scores and BSI Depression scores and peer trust. Having a trusted peer was related to higher levels of BSI Total scores and BSI Depression scores, indicating higher levels of psychological distress. Consistent with prior literature on prison visitation (Cochran & Mears, 2013), detainees who reported visits from out-of-facility friends had lower levels of psychological distress than detainees who were not visited by out-of-facility friends. Additionally, sex offenders, compared to violent offenders, had higher BSI Depression scores. No significant associations were identified between the psychological health outcomes and other control variables.

Model 2 adds lagged outcome measures and T2 aggression. As expected, levels of BSI scores upon entry to the detention facility were positively related to BSI scores after three months of incarceration, capturing the stability in mental health status over time. Adding the lagged outcomes also attenuated approximately 30–40% of the peer trust coefficients in the BSI Total score and BSI Depression score models, making the latter non-significant at $p < .05$. Interestingly, T2 aggression was uncorrelated with either T2 mental health outcome.

The coefficients for out-of-facility friends were also attenuated to non-significance for both BSI outcomes once the lagged outcome measures were added to the models. In addition, for BSI Depression, the positive coefficient for romantic partner became significant in the presence of lagged depression. The cellmate coefficient was also negative and significant for both mental health outcomes net of prior mental health. Finally, being incarcerated for a sex offense, compared to a violent offense, was related to increased levels of both BSI Total scores and BSI Depression scores when the lagged outcome was controlled.

In analyses that are not presented, we also estimated interactions between peer status and friend visitation. Contrary to expectations, these interactions did not approach statistical significance. To present a more parsimonious model, we excluded these nonsignificant interactions from our tables.

Discussion

This article explored the associations between peer social integration, aggression, and psychological health among Dutch men held in pre-trial detainment facilities. Some prior research of general population prisoners suggests that low social integration is associated with increased mental distress and decreased health (Kruttschnitt & Gartner, 2005), findings that are consistent with control theory expectations and studies of social integration and health among non-inmates. An alternative prediction, derived from social learning theory, asserts that the association between peer integration and health may reverse in conditions of confinement, particularly temporary confinement, because trust placed in criminal peers reinforces health-risk behaviors and contributes to poor mental health.

With social network and self-reported aggression and psychological health measures collected from over 500 Dutch male detainees, we found that respondents with low peer trust reported fewer psychological problems than respondents with high peer trust. Additionally, peer trust was uncorrelated with reported rates of peer aggression while detained. In other words, the men in our study who placed trust in their peers appeared to put themselves at greater risk of mental distress and were no more protected from peer violence than their fellow detainees without trusting ties. Overall, these findings do not support control theory expectations: Detainees with weak peer bonds were not at increased risk of peer aggression. Our study thus adds to a small body of literature that finds social integration within correctional settings may not operate in the same way it does in the general population, and may actually contribute to adverse mental health outcomes (Lindquist, 2000; Rivlin, Hawton, Marzano, & Fazel, 2013).

We also observed that the introduction of a lagged psychological health measure collected during intake to pre-trial detention attenuated much of the association between peer trust and detainee mental health measured three months later. Indeed, the association between peer trust and depression was reduced to non-significance with lagged depression controlled. These temporal patterns suggest that detainees under mental distress upon entering pre-trial detainment are more likely than non-impaired detainees to seek out trusting peer relationships, perhaps to relieve their distress. Similar patterns are observed with out-of-facility visitation, where the protective association between these visits and psychological health are primarily explained by prior psychological health. Thus, detainees who are highly distressed upon entering pre-trial detainment also are more likely to establish ties inside and outside the facility, but in the case of trusting ties with detainee peers, this strategy appears particularly unsuccessful at improving psychological health.

Although we did not observe a main effect of peer trust on reported aggression against peer detainees, we did find that the association between peer trust and aggression varied by visitation from out-of-facility friends. Detainees who were least socially integrated (i.e., had low peer trust and no friend visitations) and the most socially integrated (i.e., had high peer trust and at least one friend visitation) reported the highest levels of aggression. The former pattern provides some support for control perspectives, as the most isolated detainees showed greater-than-average peer aggression. However, the latter pattern is more supportive of learning arguments, as the most highly integrated detainees showed the most aggression within the facility. Remaining unknown are the friend characteristics for the highly integrated detainees. One may speculate that these individuals are embedded in cohesive criminal groups or gangs, but lacking measures of friend characteristics we must rely on future research to investigate this hypothesis.

On the whole, our findings suggest that strong peer ties in temporary detainment facilities come with greater costs than rewards for detainees. We argued that the temporary nature of pre-prison detainment, along with a pool of high-risk peers, increase the costs of friendship for detainee mental health. Absent measures of peer characteristics, however, we are unable to rigorously test this hypothesis. For example, it may be that trusting peer ties allows depression to diffuse more easily from one detainee to another. To adequately test this hypothesis, however, requires longitudinal measures of trust and depression across the detainee network, which were unavailable in the Prison Project. A promising future analytical design would therefore be measuring friendship and health dynamics for all detainees within a particular detainment facility (i.e., the facility's global network: Kreager et al., forthcoming). A global network design would also allow researchers to explore the association between peer status (i.e., the number of incoming friendship or respect ties from peers) and health-related behaviors. It may be that peer status buffers the mental health costs associated with prison peer integration. Complete network data for all individuals within a confinement facility would allow for a test of this and other research questions related to network structural position and health outcomes.

Although withholding trust in conditions of temporary confinement appears beneficial to detainee mental health, we are quick to note that such a strategy may be detrimental during periods of long-term confinement. A failure to create reciprocal and quality ties over an

extended period (e.g., solitary confinement) may heighten feelings of monotony, loneliness, and isolation inherent in prolonged confinement. Under these circumstances, establishing at least one trusting relationship could dramatically improve inmates' mental health. Future research should examine this possibility with longitudinal health and network data collected in prison settings.

Limitations

We asserted that the conditions of temporary confinement should increase the costs of peer integration regardless of context, but our data of Dutch male facilities limits our ability to generalize findings to detention facilities in other settings or countries. There may be unobserved characteristics that make the Dutch context unique and thus explain our results. As we point out in the introduction, Dutch pre-trial confinement is comprised of a relatively homogeneous detainee population held for determinate and fairly short periods of confinement relative to their American jail counterparts. The heterogeneity of local jails across the United States complicates any attempts at generalities. It might also be that the processes we observe do not operate in female facilities, particularly given prior research findings that female prisons often include pseudo-kinship networks with family-like roles and consensual sexual relationships (Giallombardo, 1966; Ward & Kassenbaum, 1965). It is encouraging that our findings are generally consistent with Linquist's (2000) study of social integration in an American county jail, but future studies should study detainee friendships and health in other geographic and gender settings.

Policy Implications

This study's findings also have potential policy implications. Perhaps the most significant implication for facility administrators is that policies that limit detainees' opportunities for creating strong and lasting peer ties while temporarily confined should not result in greater violence and likely benefit detainee mental health. Complete and extended social isolation have been shown to negatively impact inmate mental health (Guenther, 2013; Haney, 2003; Rhodes, 2004), so policies that increase inmate solitary confinement appear inappropriate even in temporary facilities. Our finding that detainees who shared cells had fewer mental health problems further suggest that at least some social contact is beneficial. However, results from this study also suggest that policies allowing temporary detainees to "do their own time" without the ability to create strong peer ties may benefit inmate health and maintain facility safety.

Acknowledgments

This work was supported by a grant from the Netherlands Institute for Advanced Study in the Humanities and Social Sciences (NIAS). The first author was supported by grants from the National Science Foundation (1457193) and National Institutes of Health (NIAAA 1R21AA023210-01A1).

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Highlights

- Peer integration appears detrimental to mental health of pre-trial detainees
- Trust in peers is positively associated with detainee mental distress (BSI)
- Friend visitation moderates the peer trust and mental health association
- Trust in peers is unassociated with detainee self-reported aggression

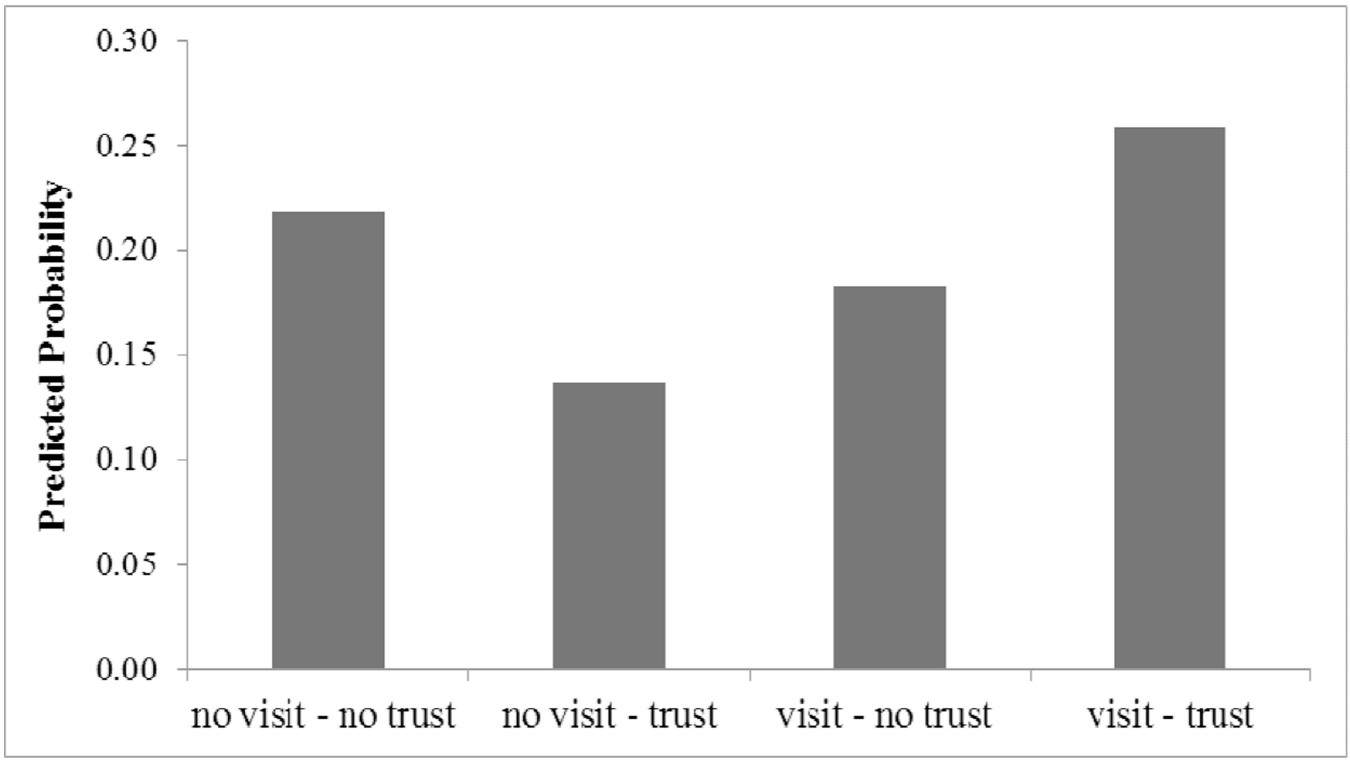

Figure 1.
Predicted probabilities of aggression towards other detainees by peer trust (trust/no trust) and visitation by out-of-facility friends (visit/no visit).

Table 1

Descriptive statistics of dependent and independent variables for total sample, detainees without trusted contacts, and detainees with trusted contacts

	All (*N* =467)	Has no trusted peers (*n*=199)	Test[a]	Has at least one trusted peer (*n*=268)
Aggression towards detainees(%)	0.21	0.20		0.21
Psychological Health(range 0–4)				
BSI Total scale (Time 2)	0.57 (0.50)	0.51 (0.44)	*	0.62 (0.54)
BSI Depression scale (Time 2)	0.87 (0.81)	0.80 (0.72)		0.91 (0.87)
BSI Total scale (Time 1)	0.74 (0.73)	0.65 (0.63)	*	0.81 (0.80)
BSI Depression scale (Time 1)	0.85 (0.94)	0.77 (0.83)		0.92 (1.02)
Control Variables				
Number of peer nominations (1–3)	2.37 (0.79)	2.25 (0.84)	**	2.47 (0.75)
Visited by out-of-facility friend (%)	0.64	0.63		0.65
Romantic Partner (%)	0.51	0.54		0.49
Facility employment (%)	0.77	0.75		0.78
Has Cellmate (%)	0.19	0.13	**	0.24
Type of offense (%)				
Violent	0.48	0.47		0.49
Sex	0.04	0.05		0.04
Property	0.21	0.18		0.24
Vandalism	0.04	0.04		0.04
Drugs	0.15	0.19	*	0.12
Age (years/10)	3.06 (1.09)	3.07 (1.06)		3.06 (1.11)
Dutch Ethnicity (%)	0.67	0.64		0.70

Notes.

* $p < .05$;

** $p < .01$.

Standard deviations in parentheses, BSI = Brief Symptoms Inventory

[a] Tests comparing “Has no trusted peers” and “Has at least one trusted peer” columns are t-tests (continuous) and chi-square tests (dichotomous)

Table 2

Logistic Regressions predicting Aggression towards peer detainees (*N*=467)

	Model 1			Model 2		
	B	***SE***	***OR***	***B***	***SE***	***OR***
Peer trust	−0.01	0.25	0.99	−0.90*	0.44	0.41
Number of peer nominations	0.10	0.16	1.11	0.07	0.16	1.07
Visited by out-of-facility friend	0.40	0.26	1.45	−0.39	0.39	0.68
Romantic Partner	0.12	0.24	1.13	0.11	0.24	1.12
Facility employment	−0.63*	0.27	0.53	−0.61*	0.27	0.54
Has Cellmate	−0.10	0.32	0.93	−0.09	0.32	0.91
Type of offense						
Violent (reference)						
Sex	−1.24	1.06	0.29	−1.39	1.06	0.25
Property	0.47	0.29	1.61	0.47	0.29	1.59
Vandalism	−0.44	0.66	0.64	−0.66	0.68	0.52
Drugs	−1.38*	0.55	0.25	−1.46**	0.56	0.23
Other	−0.10	0.50	0.91	−0.17	0.51	0.85
Age (years/10)	−0.38**	0.14	0.96	−0.40**	0.14	0.96
Dutch ethnicity	0.20	0.27	1.22	0.19	0.27	1.21
BSI total (Time 1)	0.13	0.16	1.14	0.16	0.17	1.17
Peer trust × Visited by friends				1.33*	0.53	3.80
Nagelkerke R^2	0.13			0.15		

Notes.

* p <.05;

** p <.01,

B = Unstandardized coefficient, *SE* = Standard error, *OR* = Odds ratio, BSI = Brief Symptoms Inventory

Table 3

Linear Regression Analyses predicting Psychological Health and Depression (*N*=467)

	BSI Total				BSI Depression			
	Model 1		Model 2		Model 1		Model 2	
	B	***SE***	***B***	***SE***	***B***	***SE***	***B***	***SE***
Peer trust	0.14**	0.05	0.09*	0.04	0.15*	0.08	0.10	0.07
Number of peer nominations	−0.03	0.03	−0.03	0.03	−0.02	0.05	−0.02	0.04
Visited by out-of-facility friend	−0.16**	0.05	−0.10*	0.04	−0.21**	0.08	−0.09	0.07
Romantic Partner	0.03	0.05	0.06	0.04	0.08	0.08	0.16*	0.07
Facility employment	−0.05	0.06	−0.02	0.05	0.00	0.09	0.01	0.08
Has cellmate	−0.10	0.06	−0.12*	0.05	−0.16	0.10	−0.16	0.09
Type of offense								
Violent (reference)								
Sex	0.18	0.12	0.24*	0.10	0.50*	0.19	0.54**	0.17
Property	−0.03	0.06	0.00	0.05	−0.10	0.10	−0.04	0.09
Vandalism	0.13	0.12	0.11	0.10	0.34	0.19	0.24	0.17
Drugs	0.02	0.07	0.07	0.06	0.06	0.11	0.15	0.10
Other	−0.10	0.09	−0.07	0.08	−0.07	0.15	−0.02	0.13
Age (years/10)	0.01	0.02	−0.02	0.02	0.02	0.04	0.00	0.03
Dutch ethnicity	−0.07	0.05	−0.07	0.05	−0.05	0.08	−0.07	0.07
Psychological Health (Time 1)			0.35***	0.03			0.42***	0.04
Aggression Toward Peers (Time 2)			0.05	0.05			0.03	0.08
R^2	0.06		0.31		0.07		0.29	

Notes.

* $p < .05$;

** $p < .01$,

B = Unstandardized coefficient, *SE* = Standard error, BSI = Brief Symptoms Inventory