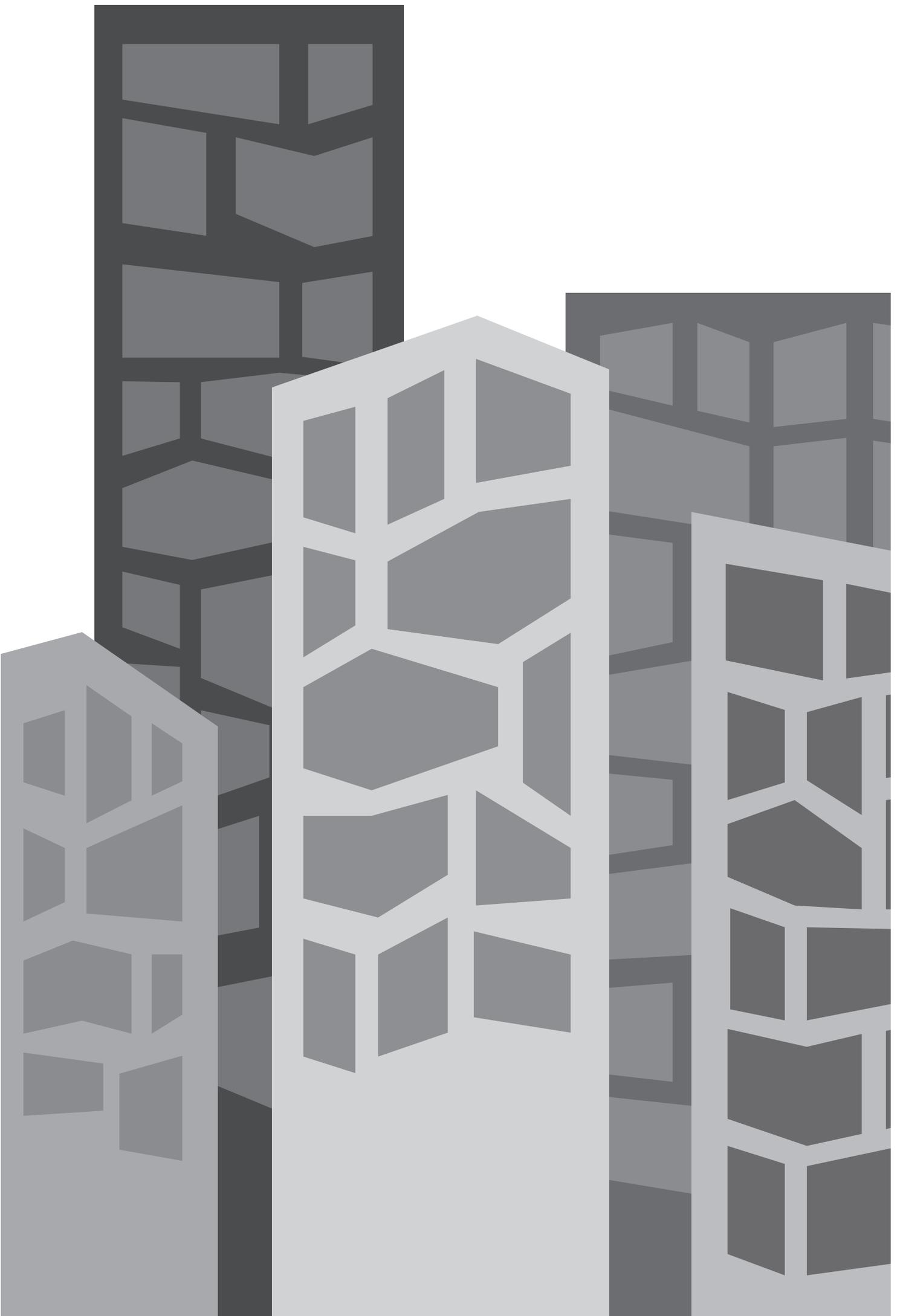




# Part III.

Beyond Unstructured Socializing:  
Specifying Criminogenic Behavior Settings

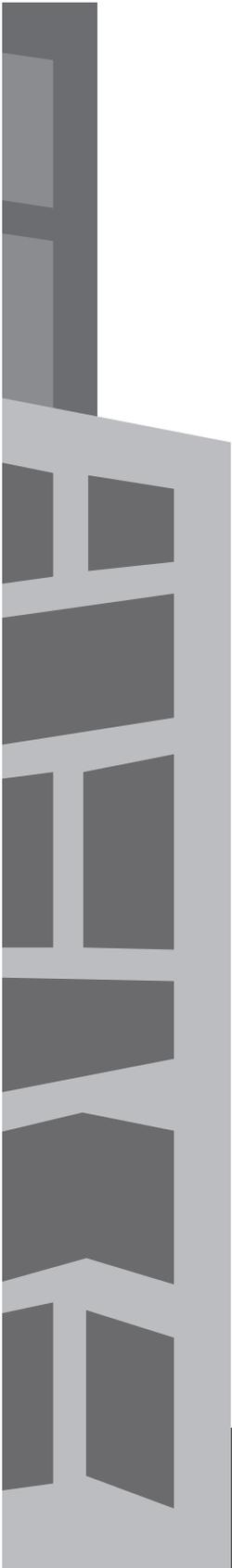




# Chapter Five.

## Responsibilities of Places

Hoeben, Evelien M., and Frank M. Weerman. 2014. Situational conditions and adolescent offending: Does the impact of unstructured socializing depend on its location?  
*European Journal of Criminology* 11(4): 481-499.





## Responsibilities of Places

*Chance is sometimes a wonderful accomplice in crime – Émile Gaboriau*

Empirical studies have confirmed that individuals who spend more time in ‘unstructured socializing’ have higher delinquency rates (e.g., Anderson and Hughes, 2009; Haynie and Osgood, 2005; Osgood and Anderson, 2004; Osgood et al., 1996). However, previous research has paid little attention to the *location* where unstructured socializing occurs. We do not know whether, for example, unstructured socializing on the street has the same impact on offending as unstructured socializing in other locations. This limits our understanding about when and why spending time with peers has an impact on adolescent delinquency.

The current study specifically investigates the role of the location in the association between unstructured socializing and adolescent delinquency. ‘Location’ does not refer to a geographical space. In the current study, ‘location’ refers to a distinction of places based on their function. The effect of unstructured socializing on delinquency is investigated for three categories of location: Private, semi-public and public. These locations are further classified into public entertainment settings, public transportation, other semi-public settings, streets and squares, shopping centers and open spaces. The study builds on the unstructured socializing approach of Osgood et al. (1996) and on the classification of responsibilities of places of Felson (1995). To control for selection effects that occur if crime prone individuals prefer to spend time in settings that do not require discipline or supervision, we use a random intercept panel model.

Data for the current study were collected with a *space-time budget interview*. This instrument was developed to assess hourly activities and whereabouts of adolescents (Wikström and Butterworth, 2006; Wikström et al., 2012a) and it enables us to determine the exposure to unstructured socializing in different locations. With two-wave data from space-time

budget interviews among 615 adolescents in The Hague (the Netherlands), we will investigate: 1) Whether involvement in unstructured socializing is positively associated with delinquency and 2) whether the location where unstructured socializing takes place specifies this association.

## Unstructured socializing

Osgood et al. (1996) coined the term 'unstructured socializing' in a paper in which they applied a routine activity approach to explaining individual behavior. Both the routine activity theory (Cohen and Felson, 1979) and the lifestyle theory (Hindelang, Gottfredson, and Garofalo, 1978) focus on how routine behavior exposes individuals to certain situations, which shapes the risk of becoming involved in crime (as victim or offender). The lifestyle theory puts more emphasis on personal antecedents that affect people's choices to engage in activities, for example, their age, gender and other demographics; (economic) constraints; role expectations; adaptations to constraints and role expectations; and social associations. The routine activity theory, on the other hand, has a macro level perspective and emphasizes the role of everyday life and the convergence of people and situations (Maxfield, 1987). Osgood et al. (1996) apply the routine activity approach to individual behavior by interpreting activities in everyday life as a source of exposure to crime conducive situations. They assume that individuals who spend more time in crime conducive activities have higher deviance rates. Adolescent activities that present opportunities for delinquency are, according to Osgood et al. (1996), activities that include: 1) The presence of peers, 2) lack of structured activity and 3) the absence of authority figures. The *presence of peers* stimulates delinquency, because it makes delinquency easier and more rewarding. Osgood et al. (1996) state that peers serve as resources in delinquency: They can function as 'back-ups' or 'look-outs' when adolescents get into fights or commit theft. Peers may also serve as an audience, and therefore make delinquency rewarding in terms of status and reputation. The *lack of structured activity* stimulates delinquency, because it leaves time for deviant activity. According to Osgood and colleagues (1996: 641), "greater structure means that more time will be spent in designated ways", and that this time will not be available for delinquency. The *absence of*

*authority figures* stimulates delinquency, because it limits social control and reduces the chance of ‘getting caught’. Osgood et al. (1996) use ‘unstructured socializing’ to refer to activities that incorporate these conditions.

## The role of location: Responsibility of places

To theorize the possible role of location in the association between unstructured socializing and adolescent delinquency, we build on Felson’s (1995) classification of four kinds of responsibilities of places (which is, in turn, based on the distinction by Clarke, 1992, between formal, employee and natural surveillances). Felson (1995) distinguishes personal responsibility, assigned responsibility, diffuse job responsibility and general responsibility. *Personal responsibility* is the responsibility for places taken by those who own them or who are intimately related to the owners. Their incentive for reacting to crime is protecting their own property. *Assigned responsibility* for places is taken by employees who are assigned to take responsibility, for example, bouncers and receptionists. Their incentive to respond to crime is that they might be disciplined or even dismissed if something happens in the place under their watch. In the case of *diffuse job responsibility* (or ‘non-assigned job responsibility’), the responsibility for a place is taken by employees who are not explicitly assigned to do so. The incentive to take non-assigned job responsibility is protecting a location with which one has a personal connection. *General responsibility* for a place is taken by incidental passers-by or bystanders whose presence discourages crime or who respond to illegal behavior.<sup>16</sup> There is no obvious incentive to respond to crime.

The four categories of responsibility correspond to four categories of urban space (Newman, 1972), that is: Private, semi-private, semi-public and public space, respectively. Felson (1995: 61) states that “it stands to reason that private spaces are primarily looked over by those with personal responsibility”. He further notes that ‘purely’ public spaces are monitored solely by persons with general responsibility.<sup>17</sup> Felson (1995) finds semi-

<sup>16</sup> The distinction between guardians, handlers and place managers is considered to be beyond the scope of this study.

<sup>17</sup> The police, of course, also monitor public spaces. We leave the police out of our classification since they have responsibility for public spaces as well as for the other spaces.

private and semi-public more difficult to classify, since they may be within distant vision of owners, but may also be monitored both by assigned and non-assigned employees *and* by people who have no particular relation to the place but happen to be there. We therefore treat unstructured socializing in semi-private and semi-public spaces as one category.

Felson (1995) states that one's tendency to intervene in a situation varies with the type of responsibility and that the order in which one may expect directness of the response is: Personal responsibility (highest chance of direct intervention), assigned and non-assigned job responsibility, and general responsibility (lowest chance of direct intervention). Since these types of responsibility correspond to categories of urban space, the directness of response to crime is inherent in the function of a location. For example, crimes that take place in private spaces are more likely to evoke a direct response than crimes that take place in public spaces. This differentiation in responsibility and directness of response explains differential discouragement of delinquency in functional spaces. It can also be expected to influence the association between unstructured socializing and adolescent delinquency. We expect unstructured socializing to be most strongly related to delinquency when it occurs in public spaces and least strongly when it occurs in private spaces.

### Specification of locations within private, semi-public and public spaces

The presented classification of spaces (private, semi-public and public) can be classified further into public entertainment settings, public transportation, other semi-public settings, streets and squares, shopping centers and open spaces. Previous studies suggest that unstructured socializing is particularly related to delinquency when it occurs in those locations, and these studies provide additional theoretical arguments for the crime conduciveness of those locations (Miller, 2013; Wikström and Butterworth, 2006; Wikström et al., 2010; Wikström et al., 2012a). *Public entertainment* settings incorporate spaces where substances (tobacco, alcohol or drugs) are available and that are usually more crowded than other locations. Those characteristics will evoke temptation and provocation, respectively (Wikström et al., 2010).

Locations with a public entertainment function include pubs, fast food restaurants and clubs. *Public transportation* incorporates transportation by bus, train and underground. These locations may offer temptation in the form of elements that can be vandalized or graffitized. Public transportation may also provoke function specific offences (as argued by Miller, 2013). *Other semi-public spaces* are, for example, schools, youth societies and sports clubs. *Streets* may offer temptation in the form of elements that can be demolished or graffitized. *Shopping centers* refers to both shopping malls and city shopping centers.<sup>18</sup> Shopping centers contain a lot of ‘hot products’: Products that are concealable, removable, available, valuable, enjoyable and disposable (Clarke, 2002), which may tempt adolescents to steal. *Open spaces* are spaces that are further away from ‘watching eyes’ than the other public spaces, because they are characterized by a lack of buildings. Open spaces are, for example, public playing fields, parks and car parks. We expect unstructured socializing in public entertainment settings, public transportation or open spaces to be more strongly related to delinquency than unstructured socializing in other semi-public spaces, streets or shopping centers.

## Previous studies

The association between involvement in unstructured socializing and delinquency is empirically confirmed in several studies. Osgood et al. (1996) were the first<sup>19</sup> to demonstrate the association between delinquency and unstructured socializing. Employing a fixed effects analysis, their results suggested that the effect of unstructured socializing even holds with strong controls for between-person differences. Other studies that reported an association between unstructured socializing and delinquency are those of Anderson and Hughes (2009), Bernburg and Thorlindsson (2001), Haynie

18 In contrast to other countries, large shopping malls are rare in the Netherlands. It is far more likely for adolescents to spend time in a city shopping center than in a shopping mall. Because both locations contain the same temptation (the presence of expensive consumer goods), we refer to them as ‘shopping centers’.

19 Earlier studies had already confirmed associations between delinquency on the one hand and one or more of the components of unstructured socializing (time spent with peers, time spent unsupervised or time spent in unstructured leisure activities) on the other hand (e.g., Agnew and Petersen, 1989; Riley, 1987).

and Osgood (2005), Maimon and Browning (2010), Osgood and Anderson (2004) and Vazsonyi et al. (2002).<sup>20</sup>

Interestingly, most of those studies did not explicitly operationalize unstructured socializing. The unstructured socializing approach explicitly defines three conditions of a situation in which time spent with peers is related to delinquency (presence of peers, absence of authority figures and lack of structured activity). Nevertheless, six of the seven studies did not measure these three conditions but assumed they are present in certain activities. For example, Osgood et al. (1996) included four unstructured activities in their analyses that are assumed to occur in the presence of peers and the absence of adults: Riding around in a car for fun, getting together with friends informally, going to parties, and spending evenings out for fun and recreation. Only some studies, for example that of Osgood and Anderson (2004), measured all three conditions with a single item: ‘In an average week, how many hours do you spend hanging around with your current friends, not doing anything in particular, where no adults are present?’

The *locations* where unstructured socializing takes place have hardly been studied. A few studies investigated *activity patterns* (not unstructured socializing) and found effects of the location where adolescents spent time on delinquency (Mahoney and Stattin, 2000; Messner and Blau, 1987; Miller, 2013; Svensson and Oberwittler, 2010; Thorlindsson and Bernburg, 2006). Other studies distinguished a few conditions of unstructured socializing (either with peers, without authority figures or in unstructured activity) and took into account the crime conducive nature of spending time in *public spaces* (e.g., Bernasco et al., 2013b; Steketee, 2012; Weerman et al., 2013). The studies by Wikström et al. considered particular crime conducive locations. Analyzing space-time budget data, Wikström and Butterworth (2006) found that most offending by adolescents occurs when they spend time with other peers and when they spend time in public spaces, primarily in streets, parks or recreational areas. Wikström et al. (2010) found a significant relationship between the exposure to time spent unsupervised with peers in public entertainment settings and self-reported crimes. Wikström et al. (2012a)

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20 A number of studies consider a similar association, namely the effect of a risky lifestyle on delinquency. In these studies, participation in unstructured activities is viewed as an integral part of a risky lifestyle, as are consuming alcohol and involvement with delinquent peers (e.g., Svensson and Pauwels, 2010; Wikström and Svensson, 2008).

distinguished involvement in unstructured socializing in recreational settings (city centers and local centers) from involvement in unstructured socializing in outdoor public places (streets, parks and 'moving around').<sup>21</sup> They found that the crime rate per thousand hours is higher during unstructured socializing on the street than during unstructured socializing in parks or 'moving around', for both the city center and local centers.

## Current study

First and particularly, the current study contributes to the literature by examining in detail in which locations involvement in unstructured socializing is, and is not, related to delinquency. Different locations are distinguished explicitly. Second, the current study employs space-time budget data to get an adequate operationalization of unstructured socializing: A situation in which peers are present, authority figures are absent and there is a lack of structured activity. These space-time budget data are also used to precisely operationalize the locations where unstructured socializing occurs. Finally, the current study uses longitudinal data and two-level random intercept models to control for time-stable individual characteristics that might generate spurious relations between involvement in unstructured socializing in different locations and delinquency.

Based on the theoretical considerations addressed earlier in this chapter, the following hypotheses were formulated:

*H1:* Involvement in unstructured socializing is positively associated with delinquency.

*H2:* The location where unstructured socializing takes place specifies the relationship between unstructured socializing and delinquency, in the sense that:

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<sup>21</sup> Both studies (Wikström et al., 2010; Wikström et al., 2012a) also study the effect of exposure to areas with low collective efficacy. The division of areas into low, medium or high collective efficacy is considered to be beyond the scope of this study (but see Chapter 6).

*H2A: Unstructured socializing in private spaces is less strongly related to delinquency than unstructured socializing in semi-public or public spaces.*

*H2B: Unstructured socializing in public spaces is more strongly related to delinquency than unstructured socializing in semi-public or private spaces.*

*H2C: Within the semi-public spaces, unstructured socializing in public entertainment settings and public transportation is more strongly related to delinquency than unstructured socializing in other semi-public spaces.*

*H2D: Within the public spaces, unstructured socializing in open spaces is more strongly related to delinquency than unstructured socializing in streets or shopping centers.*

## Data and methods

Data are used from the Study of Peers, Activities and Neighborhoods (SPAN) project. The SPAN project is designed to investigate associations between delinquency, individual characteristics, contextual influence and spatial activity patterns. In total, 40 secondary schools in the city of The Hague and its suburbs were approached and 10 schools agreed to participate in the study. Since the study is also aimed at exploring age differences in activity patterns and delinquency, it was conducted among 1st graders (aged approximately 12 and 13 years) and 4th graders (aged approximately 15 and 16 years). Of the 942 1st and 4th graders approached, 843 adolescents in the age range 11-17 years participated fully in the study in 2008-2009.

All 843 respondents were approached to participate in the study a second time in 2010-2011 (two years later) and 615 of them participated again. Therefore, the response rate for the second wave is 73 percent.<sup>22</sup> The

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<sup>22</sup> The reasons for attrition varied for the 227 dropouts: 65 percent refused because they did not have time and/or were not willing to participate; for 11 percent contact approaches were given up after numerous attempts, 5 percent could not be reached at all because we could not find their contact information; in 9 percent of the cases, the parents of the respondent refused participation; and 10 percent exited for other reasons. One respondent did participate, but was later excluded from the analyses because half of the interview (the space-time budget part) went missing owing to technical difficulties.

dropouts were generally older than the participants (respectively, 14.9 and 13.9 years in the first wave,  $T = 8.0$ ,  $p < .01$ ,  $r = .27$ ), they did *not* score higher on self-reported delinquency during the first wave than the participants (Mann-Whitney test:  $Z = -1.550$ ,  $p = .121$ ), but they *were* more involved in unstructured socializing during the first wave than the participants (respectively, median scores of 5.2 and 3.1,  $Z = -2.477$ ,  $p < .05$ ,  $r = -.10$ ). This is owing to differences in unstructured socializing in public transportation; no differences were found for unstructured socializing in the other locations.

Only the respondents who participated in both waves were included in the analyses of the current study ( $N = 615$ ). The two-wave sample consists of 52.6 percent boys and 47.4 percent girls. Ages range from 11 to 17 years in the first wave and from 13 to 20 years in the second wave, with a mean age of 14.3 years in the first and 16.5 years in the second wave. Of the respondents, 57.3 percent belong to the youngest cohort (the initial 1st graders) and 42.7 percent belong to the oldest cohort (the initial 4th graders). The data for both waves were collected over several months and, therefore, the time period between the waves is not exactly the same for every respondent. For almost all respondents (99.4 percent), the time lag between the two waves is between 1.6 and 2.6 years. Although the majority of the sample is of native Dutch descent, a relatively large portion of the sample comes from ethnic minorities (45 percent). Relatively many adolescents come from lower forms of secondary education; 17.9 percent of the respondents were recruited in schools offering 'practice education', the lowest level of secondary education, and 47.7 percent of the respondents were following preparatory education during the first wave of the study, which is the most common form of secondary education in the Netherlands. The remaining respondents were recruited at medium level schools (10.5 percent) or at the highest level of secondary education (23.8 percent). Because the sample was drawn from a non-random selection of schools in The Hague, it is not a representative sample of Dutch youth, but it is highly varied in terms of ethnicity, with a focus on lower educated youths from a highly urbanized region of the Netherlands.

## Measures

Two research instruments from the SPAN study were used in the current study: A *questionnaire* and a *space-time budget interview*. Both instruments

are similar to the ones used in the Peterborough Adolescent and Young Adult Development Study conducted by Wikström et al. (Wikström and Butterworth, 2006; Wikström et al., 2010; Wikström et al., 2012a). These instruments were translated into Dutch and adapted slightly for the SPAN study.

The *questionnaire* was used to create an index of self-reported delinquency. Four respondents completed the questionnaire simultaneously. This took one school period of 45-50 minutes and was supervised by a research assistant.

The dependent variable of self-reported *total delinquency frequency* comprises 20 items from the questionnaire. The items indicate how often the respondent committed various types of offences in the preceding school year. Example items are 'stole something from a shop' and 'kicked or hit somebody who was injured as a result'. The alpha of the scale is .90 in the first wave and .85 in the second wave. The answering codes that were used for each item were 'never' (0), 'once' (1), 'twice' (2), 'three to five times' (3), 'six to ten times' (4) and 'more than ten times' (5).

The *space-time budget interview* asked the respondents about their hourly activities and whereabouts in the four days preceding the interview, including Friday, Saturday and the two most recent week days. For every hour, the respondents were asked about the nature of their main activity, the geographical location and the functional location (e.g., home, school, street) of this activity and who the respondent was with during the activity, specified as different members of 'family', 'peers' and 'other people'. The space-time budget interviews were conducted individually, in a face-to-face interview with each respondent. Although the space-time budget method is relatively new, time use research is a well-developed area in the social sciences (Harvey and Pentland, 1999; Wikström et al., 2012a).

To explore the validity of the measures on activities, we analyzed the correspondence between the hourly activities reported in the space-time budget interviews and the activity patterns reported in the questionnaires about the time spent on the street, in parks or in playing fields and the time spent with friends at youth centers and (sport) societies. Two checks for inconsistency between the questionnaire and the space-time budget interviews were conducted. We first studied the number of respondents who reported being involved '(almost) daily' in certain activities but did not report any hours involved in corresponding activities during the four space-time budget days. Of the respondents involved '(almost) daily' in

time spent with peers *on the streets and in parks*, 88 percent reported at least one hour involved in corresponding activities in the space-time budget interview in wave 1 and 87 percent reported at least one hour in wave 2. Of the respondents involved ‘(almost) daily’ in time spent with peers *at youth centers and societies*, 75 percent reported at least one hour of corresponding activities in the space-time budget interview of wave 1 and 87 percent reported at least one hour in wave 2. As a second check for inconsistency, we conducted Pearson correlations between the questionnaire and the space-time budget measures. Correlations between the measures expressing ‘time with peers on the streets and in parks’ were .435 in wave 1 and .428 in wave 2. Correlations between the measures expressing ‘time with peers at youth centers and societies’ were .377 for wave 1 and .439 for wave 2. Although the validity of space-time budget methods needs to be further explored, we felt that the correspondence between the questionnaire and space-time budget measures is sufficient, especially when taking into account the fact that the space-time budget interview records only four days and uses different units from those of the questionnaire.

The collected data were used to create variables regarding the amount of hours that the respondents had spent in *unstructured socializing* and regarding the *locations* in which they had spent these hours. Since we make the assumption that the activities during the space-time budget interviews represent respondents’ normal routines, non-typical days were excluded from the analysis. Days were classified as ‘non-typical’ when a respondent was ill that day or had a day off school.<sup>23</sup>

*Involvement in unstructured socializing* is the total number of hours per individual (for all four days covered by the space-time budget interviews) spent in ‘unsupervised unstructured peer-oriented activity’. Detailed information about every hour in the space-time budget interview enabled us to accurately scrutinize whether each condition of ‘unstructured socializing’ was present. The variable ‘involvement in unstructured socializing’ incorporates only the hours in which one or more peers were present and in which no adult family member or other significant adult was present. Further, we included

23 The exclusion of non-typical days is not expected to bias the results, because they are rare. During the first wave, 2.5 percent of the space-time budget days were non-typical. During the second wave, 3.6 percent of the space-time budget days were non-typical. To control for the exclusion of the non-typical days, we divided the sum score of the individuals by the number of hours that were included and then multiplied the score by 100.

only the hours in which a respondent was involved in unstructured activity, defined as ‘activities in which there are no rules or only (unwritten) rules that can be easily broken by every individual who is involved in the activity’ (for example, ‘hanging around’ or ‘walking around without a destination’). A list of all activities that are defined as ‘unstructured’ is included in Appendix A at the end of this book. We used a broad definition of ‘unstructured activity’ to avoid excluding activities that might be both structured and unstructured. For example, in a situation where a group of adolescents goes from one friend to another, ‘transport’ can function as an unstructured activity. As a robustness check, all analyses were also conducted with an unstructured socializing variable that was operationalized with a more narrow definition of ‘unstructured activity’ (only the activities of ‘hanging around’, ‘walking or biking around without a goal’, ‘socializing’, ‘talking’, ‘going out’, ‘socializing and having a drink’ and combinations of socializing). The analyses with this alternative unstructured socializing variable showed substantially similar results.

Several variables specify the locations in which unstructured socializing took place. A list of locations per category is presented in Appendix 5A at the end of this chapter. Unstructured socializing *in private spaces* is the total number of hours spent in unstructured socializing in locations that are primarily observed by those with personal responsibility, such as owners, family and friends (e.g., the respondent’s house or houses of friends). Unstructured socializing *in semi-public spaces* is the total number of hours spent in unstructured socializing in locations that are not private or public spaces. Semi-public spaces are divided into *public entertainment*, *public transportation* and *other semi-public settings* (such as school and clubs). Unstructured socializing *in public spaces* is the total number of hours spent in unstructured socializing in locations that are monitored solely by people with general responsibility. Public spaces are divided into *streets and squares*, *shopping centers* and *open spaces*.

## Analytical strategy

To investigate the association between unstructured socializing, locations and adolescent delinquency, we used multilevel analyses to estimate *within-person* as well as *between-person* differences. The *within-person* analyses are used to

control for selection effects effects that occur when crime prone individuals prefer settings that do not require discipline or supervision to other settings. Within-person analyses investigate whether an increase in involvement in unstructured socializing (in different locations) over time for one person is associated with an increase in delinquency for the same person, regardless of his or her initial participation in unstructured socializing or delinquency and regardless of other relevant differences in (stable) person characteristics. In addition, the *between-person* analyses investigate whether person A, who is more involved in unstructured socializing (in different locations) than person B, is also more involved in delinquency than person B.

Since our data includes two observations per respondent (two observations within person over time), we estimated a random *intercept* model instead of a random *slope* model.<sup>24</sup> We added two parameters to the random intercept model for each independent variable: A between-person parameter and a within-person parameter. The between-person parameter is computed by averaging the scores on the independent variables across both observations for each respondent. The within-person parameter is computed by subtracting the between-person score from the score on each observation.

The random intercept models were executed by employing negative binomial regression, since the dependent variable ‘delinquency’ is highly positively skewed and violates basic assumptions of OLS regression.<sup>25</sup> No transformations were made to the dependent or independent variables. Multicollinearity diagnostic tests were performed on cross-sectional versions of each model by estimating variation inflation factors (VIF). None of the VIF values was higher than 1.16, indicating that no model is characterized by multicollinearity. Wald tests were applied to examine differences between the parameters in the models. ‘Age’ was included in the model as a control,

24 With only two observations per respondent, it is not possible to separately identify random slope variance from residual variance, as conducted in a random slope model. It is, however, possible to conduct random intercept models. Even though two-wave panel analyses are somewhat restricted compared with three-wave (or more) panel analyses, they still enable the researcher to separate the between-person effects from the within-person effects because they enable the study of *change* within a person. Cross-sectional analyses are useful for studying the between-person effects but not for studying within-person effects.

25 We did not use Tobit regression, even though Osgood, Finken, and McMorris (2002) argue in favor of Tobit since they consider ‘delinquency’ to be a variable censored at zero. The reason for choosing negative binomial over Tobit regression was that multilevel regression is not possible with Tobit regression, whereas it is possible with negative binomial regression. As a robustness check, we conducted cross-sectional analyses with both Tobit and negative binomial models. The results were very similar.

because it is known to be related to both delinquency (e.g., Hirschi and Gottfredson, 1983) and involvement in unstructured socializing (e.g., Osgood et al., 1996).<sup>26</sup>

## Findings

Table 5.1 offers descriptive information about delinquency, involvement in unstructured socializing and the locations where unstructured socializing takes place. The findings show that a majority of the respondents were involved in at least one offence during the preceding school year (approximately 70 percent) and at least one hour of unstructured socializing during the four space-time budget days (approximately 80 percent). The mean number of hours spent on unstructured socializing per individual during the four days of the space-time budget interview (96 hours in total) is approximately 5.3 for the first wave and approximately 6.0 for the second wave. Unstructured socializing occurs most often in public spaces (2.8 hours in wave 1 and 2.1 hours in wave 2) and least often in private spaces (.7 hours in wave 1 and 1.6 hours in wave 2). From the three categories of semi-public spaces, unstructured socializing occurs for most of the hours in public transportation in wave 1 (0.8 hours) and in public entertainment in wave 2 (1.3 hours). Among the three categories of public spaces, unstructured socializing occurs for most hours on the street (1.77 and 1.26 hours in waves 1 and 2, respectively).

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<sup>26</sup> The well-known age-crime curve predicts a positive effect of age on delinquency before the age of approximately 16 and a negative effect of age on delinquency afterwards (Hirschi and Gottfredson, 1983). To control for this curvilinear relationship, we added three variables to the model: Age, expressing the effect of age on delinquency over time; an age dummy, expressing whether a respondent was 14 years or younger at the first observation (0:  $\geq 14$ ; 1:  $\leq 14$ ); and an interaction term of 'age' and 'age dummy', expressing whether the age effect on delinquency differs for the two age cohorts (the youngest cohort was 14 or younger during the first observation and the oldest cohort was older than 14 during the first observation). Findings indicate a negative age effect on delinquency for the oldest cohort and no age effect on delinquency for the youngest cohort. Given the ample time lag between the two waves, we consider our data insufficient for studying the complete age-crime curve and we therefore consider further questions regarding the role of age beyond the scope of our research.

**Table 5.1.** Descriptive statistics of delinquency, unstructured socializing and the locations where unstructured socializing occurs

	Percentage of individuals involved in delinquency and unstructured socializing (N = 615)		Mean score on delinquency		Mean number of hours involved in unstructured socializing per individual (N = 96 per individual)		Wilcoxon signed rank test	
	Wave 1	Wave 2	Wave 1	Wave 2	Wave 1	Wave 2	Z	
	Mean	(SD)	Mean	(SD)	Mean	(SD)		
Delinquency	71.5	64.9	5.958	(9.452)	4.810	(7.929)		-3.254**
Unstructured socializing	78.5	78.0	5.300	(6.036)	6.061	(6.533)		2.583*
Private space	19.2	35.4	.712	(1.997)	1.587	(3.221)		7.015**
Semi-public space	49.6	52.0	1.751	(2.579)	2.318	(3.514)		2.958**
Public entertainment	16.4	28.8	.557	(1.609)	1.309	(2.899)		6.228**
Public transportation	29.3	28.0	.781	(1.531)	.711	(1.437)		-.964
Other semi-public	19.5	13.5	.413	(1.161)	.298	(1.093)		-2.186*
Public space	61.3	57.9	2.820	(4.220)	2.134	(3.259)		-3.799**
Streets	44.6	40.3	1.768	(3.372)	1.255	(2.506)		-3.744**
Shopping center	16.4	22.0	.395	(1.135)	.595	(1.478)		2.981**
Open spaces	18.9	11.5	.656	(1.906)	.284	(1.133)		-4.276**

ABBREVIATION: SD = standard deviation.

\*p < .05, \*\*p < .01 (two-tailed).

Involvement in delinquency decreased from wave 1 to wave 2, whereas involvement in unstructured socializing increased. The increase in involvement in unstructured socializing is location specific: Unstructured socializing in private spaces, public entertainment and shopping centers increases, whereas unstructured socializing in other locations decreases or remains the same. These findings indicate that there are age specific preferences for the locations where adolescents meet their peers.

### Unstructured socializing, location and delinquency

Table 5.2 shows the results of three random intercept models. To simplify interpretation of the findings, we report the incidence rate ratios (IRRs) instead of the regular coefficients<sup>27</sup>. Model 1 in Table 5.2 shows the relationship between involvement in unstructured socializing and delinquency. Model 2 and 3 specify this relationship for the locations where unstructured socializing takes place. In Model 2, the involvement in unstructured socializing is specified for the three main categories: Private, semi-public and public spaces. Model 3 further categorizes the semi-public spaces into public entertainment, public transportation and other semi-public spaces, and the public spaces into streets, shopping centers and open spaces.

Model 1 incorporates the effect of involvement in unstructured socializing, which appears to be significant for both the within-person and the between-person variable. The within-person effect can be interpreted as follows: An increase of *one hour* in involvement in unstructured socializing between the two waves is associated with an increase of approximately 2.7 percent in the delinquency variable *for the same person* (IRR = 1.027,  $p < .01$ ). The between-person effect can be interpreted as follows: The score on delinquency is approximately 10 percent higher for person A, who is on average *one hour* more involved in unstructured socializing compared with person B (IRR = 1.100,  $p < .01$ ). It is important to note that these percentages express changes in delinquency for each *extra hour* of unstructured socializing, which implies that the total effects may be stronger than they seem. To illustrate this: An increase of *two* hours in unstructured socializing

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<sup>27</sup> IRRs report the exponentiated coefficients ( $e^b$ ) instead of the regular coefficient  $b$ . In negative binomial models, exponentiated coefficients have the same interpretation as IRRs. The regular coefficient is calculated with  $\ln(\text{IRR})$ .

is associated with an increase of (2\*2.7) 5.4 percent in delinquency *within* a person and with an increase of (2\*10) 20 percent in delinquency *between* persons. The *between-person* effect is clearly bigger than the *within-person* effect. This finding implies that underlying factors (individual characteristics that differ between persons) explain the bigger part of the relationship between unstructured socializing and delinquency, but that the relation still remains when controlled for these factors.

**Table 5.2.** Delinquency regressed on overall unstructured socializing and on unstructured socializing specified for location ( $N_{\max} = 615$ )

	Model 1		Model 2		Model 3	
	IRR	(SE)	IRR	(SE)	IRR	(SE)
Within-person effects						
Unstructured socializing	1.027**	(.006)				
Private space			.988	(.013)	.986	(.013)
Semi-public space			1.030*	(.012)		
Public entertainment					1.036*	(.015)
Public transportation					1.038	(.025)
Other semi-public					.998	(.032)
Public space			1.045**	(.009)		
Streets					1.051**	(.012)
Shopping center					1.000	(.031)
Open spaces					1.050*	(.020)
Between-person effects						
Unstructured socializing	1.100**	(.008)				
Private space			1.137**	(.020)	1.138**	(.021)
Semi-public space			1.077**	(.017)		
Public entertainment					1.051*	(.023)
Public transportation					1.144**	(.038)
Other semi-public					1.110*	(.048)
Public space			1.096**	(.014)		
Streets					1.096**	(.017)
Shopping center					.998	(.040)
Open spaces					1.169**	(.037)
Age	.809**	(.028)	.835**	(.031)	.843**	(.032)
Age dummy (youngest cohort = 1)	.031**	(.023)	.043**	(.033)	.037**	(.029)
Age* Age dummy	1.257**	(.060)	1.237**	(.061)	1.247**	(.061)
Constant	16.395**	(10.104)	9.661**	(6.318)	8.441**	(5.521)

NOTES: Results from random intercept two-level negative binomial models.

ABBREVIATIONS: SE = standard error; IRR = incidence rate ratio.

\*  $p < .05$ ; \*\*  $p < .01$  (two-tailed).

The results of Model 2 indicate that the *within-person effects* of unstructured socializing on delinquency do not apply for all locations. More specifically: Changes in involvement in unstructured socializing between the two waves are associated with changes in delinquency only when unstructured socializing takes place in public spaces and, to a lesser extent, in semi-public spaces. Unstructured socializing in public spaces accounts for a 4.5 percent increase in the delinquency variable (IRR = 1.045,  $p < .01$ ) and unstructured socializing in semi-public spaces accounts for a 3.0 percent increase in the delinquency variable (IRR = 1.030,  $p < .05$ ). As in the previous model, it is important to note that these effects express changes in delinquency for each extra *hour* unstructured socializing. Results of Wald tests indicate that the association between delinquency and unstructured socializing in private spaces is significantly weaker than the association between delinquency and unstructured socializing in semi-public spaces ( $\chi^2 = 5.06$ ,  $p < .05$ ) and public spaces ( $\chi^2 = 10.88$ ,  $p < .01$ ). The associations between delinquency and unstructured socializing in public and semi-public spaces do not differ significantly ( $\chi^2 = .92$ ,  $p > .05$ ).

The results of Model 2 indicate that the *between-person effects* of unstructured socializing on delinquency apply for all locations. Findings from Wald tests indicate that the association of delinquency with unstructured socializing in private spaces is stronger than the association of delinquency with unstructured socializing in semi-public spaces ( $\chi^2 = 4.20$ ,  $p < .05$ ). The other *between-person* associations in Model 2 do not differ significantly from each other (private-public:  $\chi^2 = 2.29$ ,  $p > .05$ ; semi-public-public:  $\chi^2 = .66$ ,  $p > .05$ ). These findings imply that individuals who are more involved in unstructured socializing are more likely to participate in delinquency than individuals who are less involved in unstructured socializing, regardless of the location where the unstructured socializing takes place. Nevertheless, once the relationship is controlled for individual characteristics that might influence both involvement in unstructured socializing and delinquency, only the effect of unstructured socializing in public and semi-public spaces remains.

Model 3 represents a more detailed analysis of unstructured socializing in six categories of semi-public and public spaces. The results of this model indicate that an increase of one hour in involvement in unstructured socializing between the two waves is associated with an increase in the delinquency variable only when these hours of unstructured socializing

take place in public entertainment, on the street or in open spaces. It then accounts *per extra hour* of unstructured socializing for increases of 3.6 percent, 5.1 percent and 5.0 percent, respectively, in the delinquency variable (public entertainment: IRR = 1.036,  $p < .05$ ; streets: IRR = 1.051,  $p < .01$ ; open spaces: IRR = 1.050,  $p < .05$ ). However, findings from Wald tests indicate no significant differences in the associations between delinquency and unstructured socializing in the six categories ( $\chi^2$ 's vary from .00 to 2.49, no significance level is smaller than .115). The *between-person* effects on delinquency apply for unstructured socializing in all six categories of semi-public and public spaces except for shopping centers. Findings from the Wald tests indicate that the association between delinquency and unstructured socializing is significantly weaker in public entertainment settings compared with public transportation ( $\chi^2 = 4.35$ ,  $p < .05$ ) and open spaces ( $\chi^2 = 7.28$ ,  $p < .01$ ). The association between delinquency and unstructured socializing in shopping centers is significantly weaker compared with open spaces ( $\chi^2 = 9.71$ ,  $p < .01$ ), public transportation ( $\chi^2 = 5.70$ ,  $p < .05$ ) and streets ( $\chi^2 = 4.65$ ,  $p < .05$ ). The other between-person associations in Model 3 do not differ significantly from each other ( $\chi^2$ 's vary from .07 to 3.29, no significance level is smaller than .070).

## Discussion and conclusion

The main aim of the current study was to identify in what locations unstructured socializing is, and is not, related to individual involvement in delinquency. We built on a body of research suggesting that involvement in unstructured socializing is strongly related to adolescent delinquency (Anderson and Hughes, 2009; Haynie and Osgood, 2005; Osgood and Anderson, 2004; Osgood et al., 1996; Vazsonyi et al., 2002). We further hypothesized that the crime conduciveness of a location resides in the extent of responsibility for that location, based on Felson's (1995) distinction between personal responsibility, assigned responsibility, diffuse job responsibility and general responsibility for private, semi-private, semi-public and public spaces, respectively. We used detailed data, derived from space-time budget interviews among 615 respondents in The Hague, the Netherlands, about the hourly activities and whereabouts of adolescents.

Overall, three important findings emerged. First, a majority of the respondents in this study are involved in unstructured socializing. Nearly 80 percent of the respondents participated for at least one hour in these activities during the four days covered by the space-time budget interview. Second, involvement in unstructured socializing is positively associated with delinquency. The association remains when controlled for stable individual characteristics. This is in line with our first hypothesis based on previous studies, in particular on the work from Osgood et al. (1996). Third, the location where adolescents spent their time in unstructured socializing specifies the relationship between unstructured socializing and delinquency. Unstructured socializing in semi-public and public spaces is related more strongly to delinquency than unstructured socializing in private spaces. This is in line with our Hypothesis 2A, which was based on Felson's approach to responsibilities of spaces (Felson, 1995). In contrast to our Hypothesis 2B, unstructured socializing in public spaces is not related more strongly to delinquency than unstructured socializing in semi-public spaces. Hypotheses 2C and 2D state, respectively, that unstructured socializing in public entertainment settings and public transportation is more strongly related to delinquency than unstructured socializing in other semi-public spaces and that unstructured socializing in open spaces is more strongly related to delinquency than unstructured socializing in streets or shopping centers. Once controlled for stable individual differences, unstructured socializing is significantly related to delinquency only when it occurs in public entertainment settings, on the streets and in open spaces. This is in line with Hypothesis 2C and partly in line with Hypothesis 2D (unstructured socializing in open spaces and on the streets seems similarly strongly related to delinquency). However, the findings of the Wald tests did not show significant differences between the categories. This is not in line with Hypotheses 2C and 2D.

The current study has a few limitations that should be mentioned. The first and most basic limitation is that the space-time budget interviews, from which our independent variables are derived, cover only four days in the week preceding the interview. The assumption that those days are representative of the entire year leaves room for measurement error. Most evident is the possibility of seasonal influences. It is likely that respondents' activity patterns vary with the weather, especially when these activities occur outside. The

first wave of the data collection took place between October until March and covered autumn, winter and spring. The second wave took place between November and June and therefore covered winter, spring and the start of summer. Although the four days limit the representation of daily activities, the space-time budget method seems to have less risk of retrospective bias than asking respondents 'how many hours in the past week were spent in certain activities', as previous studies did (Anderson and Hughes, 2009; Haynie and Osgood, 2005; Maimon and Browning, 2010; Osgood and Anderson, 2004; Osgood et al., 1996). In addition, we use the space-time budget method mainly to test etiological theories and not to describe (inter) national activity patterns among adolescents. A possible second limitation of the study is that some of the respondents from the first wave did not participate in the second wave (27 percent). The dropouts were generally older than the participants and differed from them with regard to unstructured socializing, but no selection bias was found for self-reported delinquency. We have no reasons to believe that this somewhat selective dropout biased our results, other than providing a relatively conservative test of the effect of unstructured socializing on delinquency. A third limitation is that, although we based our classification of locations on Felson's approach, we did not directly analyze the assumed mechanisms underlying the location-delinquency association. We therefore do not know to what extent this offers a valid explanation for the relationship. Other explanations are possible: Miller (2013) argues that the level of criminality of activity settings is determined by the presence of targets and facilitators. Situational action theory argues that the causal mechanisms of a setting relevant to engagement in crime are temptations, provocations and deterrence (Wikström, 2004; 2005).

Despite these limitations, our findings strongly suggest that the association between exposure to unstructured socializing and involvement in delinquency depends on the location in which unstructured socializing occurs. The current study, therefore, indicates that the unstructured socializing perspective of Osgood et al. (1996) may be extended with a fourth condition: Whether an activity occurs in a semi-public or public space and, more specifically, whether it occurs in public entertainment settings, on the street or in open spaces. More research is necessary to support this extension.

Our findings may lead to other research questions as well. First, it would be interesting to study the role of social disorganization and disorder

within neighborhoods, because the current study indicates strong effects of unstructured socializing on the street and in open spaces. This area is not undeveloped. For example, Maimon and Browning (2010) have already made an effort to integrate social disorganization theory with the unstructured socializing perspective. Second, future studies could clarify which characteristics affect adolescents' exposure to unstructured socializing (in different functional locations) and to what extent peer pressures play a role in this regard. Our findings indicate that adolescents who are more often involved in unstructured socializing are more likely to be involved in delinquency and that between-person differences explain the bigger part of this relation. These findings imply the presence of selection effects. A third issue that needs to be addressed in the future is that of the interaction effects between individual characteristics and exposure to unstructured socializing in different functional spaces. Situational action theory (Wikström, 2004; 2005) posits that some individuals are more vulnerable than others to exposure to certain settings because of morality and self-control. The effect of unstructured socializing in, for example, open spaces, may therefore be more problematic for adolescents with low self-control than for adolescents with high self-control. Fourth, future studies could further elaborate the set of relevant conditions under which time spent with peers is related to adolescent delinquency. Fifth, future studies could clarify the mechanisms through which peers and these locations interact in their influence on adolescents' delinquency.

Studies on unstructured socializing contribute to our knowledge about adolescents' exposure to criminogenic settings and they improve our understanding about peer processes in their relationship to adolescent delinquency. The idea that solely 'time spent with peers' may lead to adolescent delinquency is clearly out of date. The effect of time spent with peers is dependent on the conditions under which it occurs, as confirmed in several prior studies (for example, Weerman et al., 2013). The current study adds another situational condition to the list of criminogenic conditions defined by unstructured socializing, namely, the location where these activities take place.

## Appendix 5A

**Table 5A.1.** Classification of locations

Functional location	Code labels in space-time budget interviews
Private	Home, alternative home (e.g., other parent's home), others' home, other (garden of a house), moving around: by car, workplace: babysit (other person's house).
Semi-public	Entertainment and recreation facilities
	Entertainment (general code), games arcades (e.g. laser games, go-kart), theatre, cinema, pub/bar, disco/club, restaurant/café, theme park/fairground, youth club/community center, library, festival grounds/party hall, indoor swimming pool, museum, billiard or snooker club, snack bar, coffee shop (café where one can buy soft drugs), takeaway (e.g. McDonalds/Burger King/KFC), videotheque, indoor ski track, ice rink, outdoor swimming pool, swimming pool, bowling alley, skate park.
	Public transportation
	Moving around: by bus, moving around: by train, moving around: by underground, railway station, airport.
	Semi-public other
	School (general code), classroom, other place in school buildings (e.g., corridors, dinner hall), outdoors school grounds (e.g., school field, including during sports lesson), homework institute, other school or outdoor school grounds of other school, canteen of a society, sport (general code), football ground, rugby ground, cricket ground, athletics ground, snooker club, golf course, sports center: volleyball/handball/basketball, hockey pitch, tennis courts, gymnastic club, fitness center (fitness and aerobic), other sports or leisure club, riding school, church/mosque/religious center, school of music, dancing school, hospital, doctor, dentist, hairdresser, beauty salon, hotel, caravan site/holiday apartment, other (e.g., parent's office), psychologist/therapist/psychiatrist, moving around: by airplane, petrol station/garage, supermarket/store, workplace (general code), workplace: building site, workplace: nursing home, workplace: children's playgroup/nursery, workplace: children's playgroup/nursery, workplace: office, workplace: hairdresser/beauty salon, workplace: shop, workplace: pub, workplace: restaurant/café, workplace: garage, workplace: factory, workplace: agriculture/greenhouses, workplace: snack bar, workplace: petrol station, workplace: takeaway, other workplaces.
Public	Streets and squares
	Streets, squares and places (general code), streets/street corner, square, moving around (general code), moving around: by foot, moving around: by bike, moving around: by moped/motorcycle/scooter, boulevard, bus station/stop.
	Shopping center
	Shops/shopping arcades/shopping centers (general code), The Hague shopping center (city center), shopping center elsewhere, market, megastores The Hague.
	Open spaces
	Car park, industrial estate, cross field (bike/moped), street football ground, street basketball ground, playing field, lawn, playground, parks, beach, lake, forests, sea, dunes.