



The role of peer delinquency and unstructured socializing in explaining delinquency and substance use: A state-of-the-art review[☆]



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ARTICLE INFO

Article history:

Received 12 August 2016

Accepted 13 August 2016

Available online xxxx

Keywords:

Peer delinquency
unstructured socializing
delinquency
substance use
review

ABSTRACT

Purpose: Peer delinquency and unstructured socializing have been identified as important correlates of delinquency and substance use. This state-of-the-art review explicates research into these associations to identify important trends in the literature and directions for future research.

Methods: A search of the criminological literature and literatures of allied disciplines was executed to identify studies that have examined the potential influence of peer delinquency and unstructured socializing on delinquency and substance use.

Results: The review highlights the theoretical underpinnings of the two constructs, issues of measurement quality, the generality of effects on delinquency and substance use, advances in the respective literatures, and important remaining gaps for future research to fill.

Conclusions: While considerable attention has been given to studying the potential influence of peer delinquency and unstructured socializing on delinquency and substance use, there remain a number of ways in which these literatures can be advanced to provide a more complete understanding of the relevance of these constructs for the etiology of delinquency and substance use.

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Peers occupy a central position in discourse on the causes of delinquency and substance use (Pratt, Cullen, Sellers, Winfree, Madensen, Daigle, Fearn, & Gau, 2010; Warr, 2002). As a result, a large body of research has been produced investigating the many ways that peers are believed to contribute to antisocial behavior. The purpose of this study is to provide readers with a state-of-the-art narrative review concerning two of the most widely investigated peer constructs in the criminological literature – peer delinquency and unstructured socializing – and the manner in which they are associated with delinquency and substance use. To be sure, there are other peer-related constructs that are relevant to discussions of antisocial behavior, including peer attitudes (e.g., Megens & Weerman, 2012; Ragan, 2014; Warr & Stafford, 1991), susceptibility to peer influence (e.g., Meldrum, Miller, & Flexon, 2013; Steinberg & Monahan, 2007), and peer pressure (e.g., Hay, Wang,

Ciaravolo, & Meldrum, 2015; Sullivan, 2006; Walters, 2014). However, given the rapid pace at which research has been published focusing on the potential influence of peer delinquency and unstructured socializing on delinquency and substance use, a review of contemporary findings which have emerged from these two literatures is warranted, as well as identification of gaps in knowledge which still require additional scrutiny.

Readers might reasonably question our decision to provide a narrative review rather than to conduct a formal meta-analysis. To be clear, we view the use of meta-analytic techniques as essential to establishing the relative importance of various theoretical constructs as they relate to delinquency and substance use. At the same time, such methods are not necessarily well-suited to identifying and discussing certain trends or issues in the literature, including those pertaining to measurement and the manner in which peer-related constructs interact with other theoretical constructs to explain delinquency and substance use. Further, unlike the construct of peer delinquency, which has been the subject of a recent meta-analysis (Pratt et al., 2010), researchers have yet to provide a comprehensive review of the accumulated body of research investigating the influence of unstructured socializing on delinquency and substance use, and so a narrative review is an important step in this direction. Accordingly, we divide this review into two major

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sections, the first focused on peer delinquency and the second focused on unstructured socializing. Within each section we begin with a brief discussion of the theoretical underpinnings of the relevant construct, followed by commentary on the methods used to measure each construct. We then discuss the generality of the association between each construct and delinquency and substance use, differentiating studies based on such things as the form of delinquency investigated, whether a study was cross-sectional or longitudinal, and the location of the data collection. We proceed by discussing advances in the respective literatures and conclude by identifying important gaps that remain in each of the literatures as guides for future research considerations.

1. Peer delinquency and individual delinquency

1.1. Theoretical background

Peer delinquency is often considered a key theoretical variable for social influence perspectives (e.g., differential association theory [Sutherland, 1947; Sutherland & Cressey, 1955] and social learning theory [Akers, 1973]). One of the earliest arguments for the correlation between peer and individual delinquency, as stated in differential association theory (Sutherland, 1947; Sutherland & Cressey, 1955), was that peers influence the behavior of individuals by teaching them techniques for committing delinquent acts and socializing them to definitions favorable to violation of law. According to differential association theory (Sutherland, 1947; Sutherland & Cressey, 1955), learning delinquent behavior is not unique from learning other forms of behavior: it requires learning the techniques to engage in the behavior as well as rationalizations supportive of the behavior. Definitions and techniques for engaging in delinquent behavior are learned in close, intimate relationships (e.g., friendships). Individuals are differently exposed to definitions favorable to illegal behavior based on social structural location (i.e., differential social organization).

Building on the argument put forth by Sutherland (1947), social learning theory (Burgess & Akers, 1966; Akers, 1973) adds more mechanisms to the process of socialization to delinquent behavior. Social learning theory directs attention to four critical elements. First, *differential association* as stipulated by Sutherland (1947) is retained to account for the importance of variability in relationships that individuals manifest (i.e., frequency, duration, intensity, and priority). Second, also retained from Sutherland is the concept of *definitions*, which are defined as “one’s own orientations, rationalizations, justifications, excuses, and other attitudes that define the commission of an act as relatively more right or wrong...and appropriate or inappropriate” (Akers & Jensen, 2006: 39). The third component is *differential reinforcement*, which consists of the expected rewards and punishments of behavior. The rewards and punishments that motivate or deter delinquent behavior are above and beyond the intrinsic rewards and sanctions of the behavior. Social learning theory focuses attention on the social rewards of delinquency that arise endogenously in peer groups (e.g., group approval, status). Peers thus are believed to have a causal effect on delinquency in that they generate rewards for delinquent behavior or sanctions for abstention and thereby influence individuals’ definitions. Last, social learning theory suggests that *imitation* of behavior, such as delinquency committed by peers, is an important mechanism by which individuals get involved in delinquency.

1.2. Measuring peer delinquency

The relationship between individual and peer delinquency is one of the most well documented findings in the criminological literature and is considered one of the ‘facts’ that a theory must explain (Braithwaite, 1989). However, a lively debate centers on the measurement of peer delinquency. Studies have, generally speaking, measured peer delinquency using one of two approaches. First, the most common approach has been to ask respondents about their friends’ behavior. These measures,

variously referred to as indirect, subjective, or perceptual measures in the literature (Young, 2014) consistently document a positive correlation with delinquency (Bahr, Hoffmann, & Yang, 2005; Brezina & Piquero, 2007; Chapple, Vaske, & Worthen, 2014; De Vries, Engels, Kremers, Wetzels, & Mudde, 2003; Fergusson, Swain-Campbell, & Horwood, 2002; Gallupe & Bouchard, 2013; Garnier & Stein, 2002; Gibbons et al., 2010; Henry, Tolan, & Gorman-Smith, 2001; Hwang & Akers, 2006; Jang, 1999; Matthews & Agnew, 2008; Miller, Loeber, & Hipwell, 2009; Monahan, Rhew, Hawkins, & Brown, 2014; Pierce, Schmidt, & Stoddard, 2015; Weerman, Bernasco, Bruinsma, & Pauwels, 2015a; Wong, 1998; Worthen, 2012; Wright, Beaver, DeLisi, & Vaughn, 2008; Zhang & Messner, 2000). Second, and more recently, social network data have been used to measure the behavior of friends nominated by the respondent. Referred to as network, egocentric, objective, or actual measures in the literature (Young, 2014), studies incorporating this design show effect sizes that are smaller, though consistently positive, than those gleaned by perceptual measures (Alexander, Piazza, Mekos, & Valente, 2001; Augustyn & McGloin, 2013; Brendgen, Vitaro, & Bukowski, 2000; De Kemp, Scholte, Overbeek, & Engels, 2006; Eklund, Kerr, & Stattin, 2010; Ennett et al., 2008; Fujimoto, Unger, & Valente, 2012; Fujimoto & Valente, 2012; Gallupe & Bouchard, 2015; Gaughan, 2006; Haynie, 2002; Haynie & Payne, 2006; Haynie, Giordano, Manning, & Longmore, 2005; Haynie, Doogan, & Soller, 2014; Hochstetler, Copes, & DeLisi, 2002; Kreager & Haynie, 2011; Kreager, Rulison, & Moody, 2011; Lonardo, Giordano, Longmore, & Manning, 2009; Maxwell, 2002; McGloin, 2009; McGloin & Shermer, 2009; Meldrum & Boman, 2013; Mrug & Windle, 2008; Osgood, Feinberg, Wallace, & Moody, 2014; Rees & Pogarsky, 2011; Regnerus, 2002; Reitz, Deković, Meijer, & Engels, 2006; Sanchagrin, Heimer, & Paik, 2014; Schaefer, Haas, & Bishop, 2012; Vitaro, Brendgen, & Wanner, 2005; Weerman, 2011; Wong, 1998).

A concern of research on peer delinquency has been whether the first and most frequent measurement approach, asking a respondent to estimate the delinquency of his or her friends, may artificially inflate the delinquency–peer delinquency association. This phenomenon has been referred to as “projection” (Ross, Greene, & House, 1977; Jussim & Osgood, 1989), “assumed similarity bias” (Byrne & Blaylock, 1963) or “same-source bias” (Haynie & Osgood, 2005). The idea behind this concern is that respondents might transfer their own habits onto that of their friends when asked a question such as “Think of your three best friends, in the past month how many times have they smoked cigarettes?” The concern is that perceptual measures of peer behavior may reflect individual biases, rather than capture peer influence, leading to inaccurate reports of peer delinquency (Young, Barnes, Meldrum, & Weerman, 2011).

Empirical research provides some support for this concern. Thirty years ago, Bauman and Fisher (1986) found that ‘projection’ appeared to artificially inflate the correlation between adolescents’ alcohol use and smoking and that of participant’s friends. Ten years later, Kandel (1996) concluded that correlations between delinquency and perceptual measures of peer delinquency were two to three times higher than correlations between delinquency and peer delinquency measures obtained with social network data (see also Iannotti & Bush, 1992; Kandel, 1996; Meldrum & Boman, 2013; Weerman & Smeenk, 2005). More recently, studies using both dyadic (Rebellion & Modecki, 2014) and network (Young, Rebellion, Barnes, & Weerman, 2015) data have demonstrated that perceptual measures and network measures of peer delinquency reflect two fundamentally separate constructs. Using a nationally representative sample, Haynie and Osgood’s (2005: 1125) findings led them to make a very strong statement that echoes sentiments of other scholars, “...it is inappropriate to investigate normative influence by using respondents’ reports as indicators of the attitudes, values, or behaviors of others”. Importantly, the evidence for bias in respondents’ reports is not limited to the United States. For example, Weerman and Smeenk (2005) found, in a study among Dutch adolescents, that respondents tended to underreport friends’ delinquency,

thereby indicating that respondents may find it difficult to accurately report about the behavior of people they consider friends.

The discrepancy between perceptual measures and network measures of peer delinquency may be explained by different factors. For example, perceptual measures may be biased because they are “pertained to an ill-defined group of friends” (Kandel, 1996: 290). Additionally, perceptual measures may be biased because respondents are unable to accurately report about the delinquent behavior of their friends (Prinstein & Wang, 2005). Misperception of friends' delinquency has shown to be affected by not only actor attributes such as delinquency (Young & Weerman, 2013) and self-control (Young et al., 2011), but also by structural features of relationships. For example, Young et al. (2011) found that individuals in dense networks were more likely to misperceive the delinquency of their peers. Recently, Young, Rebellon, Barnes, and Weerman (2014) used structural equation modeling to examine the degree to which similarity is the consequence of multiple causes. Young et al. (2014) show strong support for the prediction that individuals project their own deviant tendencies inaccurately onto their peers. Conversely, results provided little or no support for the predictions that respondents accurately perceive their peers' deviance or that their perceptions of peer deviance influence their own behavior.

This line of research indicates that it might be worthwhile to elaborate theoretically on the differential impact of perceived peer delinquency and actual peer delinquency on individuals' behavior. That is, while perceived peer delinquency (operationalized with perceptual measures) and actual peer delinquency (operationalized with network measures) have often been treated as the same construct, they might be distinct constructs and relate to delinquent behavior in different ways. Further research is needed to explore and theorize about these differences. This is not only relevant for the peer influence literature, but also for our broader understanding of the etiology of delinquency, because peer delinquency is often used as a control variable in studies examining the predictive value of other theoretical constructs on delinquency. Studies have shown that the effects of other constructs, such as self-control, are underestimated when perceptual measures of peer delinquency are used (Boman & Gibson, 2011; Meldrum, Young, & Weerman, 2009; see also Boman, Rebellon, & Meldrum, 2016).

1.3. Generality of the association between peer delinquency and individual delinquency

A substantial body of research shows that associating with delinquent peers is significantly correlated with a host of negative outcomes. Support for this relationship covers a broad array of behavior including delinquent behavior (Augustyn & McGloin, 2013; Barnes, Hoffman, Welte, Farrell, & Dintcheff, 2007; Brendgen et al., 2000; Brezina & Piquero, 2007; Cotter & Smokowski, 2015; De Kemp et al., 2006; Eklund et al., 2010; Fergusson et al., 2002; Gardner, Roth, & Brooks-Gunn, 2009; Garnier & Stein, 2002; Haynie, 2002; Haynie & Payne, 2006; Haynie et al., 2005, 2014; Henry et al., 2001; Hirtenlehner, Pauwels, & Mesko, 2015; Hochstetler et al., 2002; Jang, 1999; Keijsers et al., 2012; Knecht, Snijders, Baerveldt, Steglich, & Raub, 2010; Kreager et al., 2011; Lonardo et al., 2009; Maggs & Hurrelmann, 1998; Marshal, Molina, & Pelham, 2003; Matsueda & Anderson, 1998; Matthews & Agnew, 2008; McGloin, 2009; McGloin & Shermer, 2009; Miller et al., 2009; Monahan et al., 2014; Mrug & Windle, 2008; Pierce et al., 2015; Posick, 2013; Rebellon, 2006; Rees & Pogarsky, 2011; Regnerus, 2002; Reitz et al., 2006; Reynolds & Crea, 2015; Sanchagrin et al., 2014; Vitaro et al., 2005; Vitulano, Fite, & Rathert, 2010; Weerman, 2011; Weerman et al., 2015a; Worthen, 2012; Wright et al., 2008; Zhang & Messner, 2000). Likewise, a large number of studies find an association between peer delinquency and substance use (Alexander et al., 2001; Augustyn & McGloin, 2013; Bahr et al., 2005; Barnes et al., 2007; Brook et al., 1998; Dishion & Owen, 2002; De Vries et al., 2003; Ennett et al., 2008; Fergusson et al.,

2002; Fujimoto et al., 2012; Fujimoto & Valente, 2012; Gallupe & Bouchard, 2013, 2015; Garnier & Stein, 2002; Gaughan, 2006; Gibbons et al., 2010; Hwang & Akers, 2006; Kreager & Haynie, 2011; Maggs & Hurrelmann, 1998; Maxwell, 2002; Monahan et al., 2014; Osgood et al., 2014; Schaefer et al., 2012; Trucco, Colder, & Wieczorek, 2011).

From a methodological standpoint, these associations have been established using cross sectional data (Ary, Duncan, Duncan, & Hops, 1999; Augustyn & McGloin, 2013; Bahr et al., 2005; Barnes et al., 2007; Boman, Miller, Stogner, Agnich, & Krohn, 2014; Brendgen et al., 2000; Brezina & Piquero, 2007; Brook et al., 1998; Burt & Rees, 2015; Chapple et al., 2014; Church et al., 2012; De Kemp et al., 2006; De Vries et al., 2003; Dishion & Owen, 2002; Dishion, Spracklen, Andrews, & Patterson, 1996; Eklund et al., 2010; Ennett et al., 2008; Fergusson et al., 2002; Fujimoto et al., 2012; Fujimoto & Valente, 2012; Gallupe & Bouchard, 2013, 2015; Gardner et al., 2009; Gaughan, 2006; Gault-Sherman, 2013; Haynie & Payne, 2006; Haynie et al., 2005, 2014; Hochstetler et al., 2002; Hwang & Akers, 2006; Jang, 1999; Jewell, Brown, & Perry, 2015; Keijsers et al., 2012; Knecht et al., 2010; Kreager & Haynie, 2011; Kreager et al., 2011; Lakon et al., 2015; Lonardo et al., 2009; Maggs & Hurrelmann, 1998; Matsueda & Anderson, 1998; Matthews & Agnew, 2008; McGloin, 2009; McGloin & Shermer, 2009; Osgood et al., 2014; Payne & Cornwell, 2007; Pierce et al., 2015; Posick, 2013; Rebellon, 2006; Rees & Pogarsky, 2011; Regnerus, 2002; Reitz et al., 2006; Sanchagrin et al., 2014; Trucco et al., 2011; Vitaro et al., 2005; Vitulano et al., 2010; Weerman, 2011; Weerman et al., 2015a; Wong, 1998; Worthen, 2012; Wright et al., 2008; Zhang & Messner, 2000) and longitudinal data (Alexander et al., 2001; Ary et al., 1999; Augustyn & McGloin, 2013; Bahr et al., 2005; Brendgen et al., 2000; Brezina & Piquero, 2007; Brook et al., 1998; Burt & Rees, 2015; Chapple et al., 2014; Church et al., 2012; De Kemp et al., 2006; De Vries et al., 2003; Dishion et al., 1996; Dishion & Owen, 2002; Eklund et al., 2010; Ennett et al., 2008; Fergusson et al., 2002; Fujimoto et al., 2012; Fujimoto & Valente, 2012; Gallupe & Bouchard, 2013, 2015; Gardner et al., 2009; Garnier & Stein, 2002; Gaughan, 2006; Gault-Sherman, 2013; Haynie, 2002; Haynie & Payne, 2006; Haynie et al., 2005, 2014; Henry et al., 2001; Hochstetler et al., 2002; Hwang & Akers, 2006; Jang, 1999; Jewell et al., 2015; Keijsers et al., 2012; Knecht et al., 2010; Kreager & Haynie, 2011; Kreager et al., 2011; Lakon et al., 2015; Lonardo et al., 2009; Maggs & Hurrelmann, 1998; Matsueda & Anderson, 1998; Matthews & Agnew, 2008; Maxwell, 2002; McGloin, 2009; McGloin & Shermer, 2009; Miller et al., 2009; Neppi, Dhalewadikar, & Lohman, 2015; Osgood et al., 2014; Patterson, Dishion, & Yoerger, 2000; Payne & Cornwell, 2007; Pierce et al., 2015; Ragan, 2014; Rebellon, 2006; Rees & Pogarsky, 2011; Regnerus, 2002; Reitz et al., 2006; Sanchagrin et al., 2014; Schaefer et al., 2012; Siennick, Widdowson, Woessner, & Feinberg, 2015; Trucco et al., 2011; Vitaro et al., 2005; Vitulano et al., 2010; Weerman, 2011; Wong, 1998; Worthen, 2012; Wright et al., 2008; Zhang & Messner, 2000).

Although many studies examining the potential influence of peer delinquency on individual delinquency and substance use have used data collected from youth within the United States (Alexander et al., 2001; Ary et al., 1999; Augustyn & McGloin, 2013; Bahr et al., 2005; Barnes et al., 2007; Boman et al., 2014; Brezina & Piquero, 2007; Burt & Rees, 2015; Chapple et al., 2014; Church et al., 2012; Dishion et al., 1996; Dishion & Owen, 2002; Ennett et al., 2008; Fujimoto et al., 2012; Fujimoto & Valente, 2012; Gallupe & Bouchard, 2015; Gardner et al., 2009; Garnier & Stein, 2002; Gaughan, 2006; Gault-Sherman, 2013; Haynie, 2002; Haynie & Payne, 2006; Haynie et al., 2005, 2014; Henry et al., 2001; Hochstetler et al., 2002; Jang, 1999; Jewell et al., 2015; Keijsers et al., 2012; Kreager & Haynie, 2011; Kreager et al., 2011; Lakon et al., 2015; Lonardo et al., 2009; Maxwell, 2002; Matsueda & Anderson, 1998; Matthews & Agnew, 2008; McGloin, 2009; McGloin & Shermer, 2009; Miller et al., 2009; Neppi et al., 2015; Patterson et al., 2000; Payne & Cornwell, 2007; Pierce et al., 2015; Ragan, 2014; Rebellon, 2006; Rees & Pogarsky, 2011; Regnerus, 2002; Sanchagrin et

al., 2014; Schaefer et al., 2012; Siennick et al., 2015; Trucco et al., 2011; Vitulano et al., 2010; Weerman, 2011; Worthen, 2012; Wright et al., 2008; Zhang & Messner, 2000), work also confirms the relationship internationally. Researchers have examined the association between peer delinquency and individual delinquency in Germany (Maggs & Hurrelmann, 1998), Canada (Brendgen et al., 2000; Vitaro et al., 2005), China (Wong, 1998), The Netherlands (De Kemp et al., 2006; Knecht et al., 2010; Meldrum et al., 2009; Reitz et al., 2006; Weerman, 2011; Weerman et al., 2015a), New Zealand (Fergusson et al., 2002), South Korea (Hwang & Akers, 2006), and Sweden (Eklund et al., 2010). In a study of six European communities (i.e., Denmark, Finland, The Netherlands, Portugal, Spain and the United Kingdom), De Vries et al. (2003) found that adolescent's smoking behavior was strongly influenced by their friends and best friend's smoking habits. More broadly, using data from the Second International Self-Report Delinquency Study (ISR2-2) that collected data from adolescents across 30 countries, Posick (2013) found that adolescent violent and non-violent delinquency was influenced by having delinquent peers.

Empirical studies examining the relationship between peer delinquency and individual delinquency and substance use are based primarily on adolescent samples (Agnew, 1991; Alexander et al., 2001; Ary et al., 1999; Augustyn & McGloin, 2013; Bahr et al., 2005; Barnes et al., 2007; Boman et al., 2014; Brendgen et al., 2000; Brezina & Piquero, 2007; Brook et al., 1998; Burt & Rees, 2015; Chapple et al., 2014; Church et al., 2012; De Kemp et al., 2006; De Vries et al., 2003; Dishion & Owen, 2002; Dishion et al., 1996; Eklund et al., 2010; Ennett et al., 2008; Fujimoto et al., 2012; Fujimoto & Valente, 2012; Gallupe & Bouchard, 2013, 2015; Gardner et al., 2009; Garnier & Stein, 2002; Gaughan, 2006; Gault-Sherman, 2013; Haynie, 2002; Haynie & Payne, 2006; Haynie et al., 2005, 2014; Henry et al., 2001; Hochstetler et al., 2002; Hwang & Akers, 2006; Jang, 1999; Jewell et al., 2015; Keijsers et al., 2012; Knecht et al., 2010; Kreager & Haynie, 2011; Kreager et al., 2011; Lakon et al., 2015; Lonardo et al., 2009; Maggs & Hurrelmann, 1998; Matsueda, 1982; Matsueda & Anderson, 1998; Matthews & Agnew, 2008; Maxwell, 2002; McGloin, 2009; McGloin & Shermer, 2009; Miller et al., 2009; Neppel et al., 2015; Osgood et al., 2014; Patterson et al., 2000; Payne & Cornwell, 2007; Pierce et al., 2015; Piquero, Gover, MacDonald, & Piquero, 2005; Posick, 2013; Ragan, 2014; Rebellon, 2006; Rees & Pogarsky, 2011; Regnerus, 2002; Reitz et al., 2006; Sanchagrin et al., 2014; Schaefer et al., 2012; Siennick et al., 2015; Trucco et al., 2011; Vitaro et al., 2005; Vitulano et al., 2010; Warr, 1993b; Warr & Stafford, 1991; Weerman, 2011; Weerman et al., 2015a; Wong, 1998; Worthen, 2012; Wright et al., 2008; Zhang & Messner, 2000). There is less research, however, assessing the association between peer delinquency and individual delinquency using young adult samples (e.g., Boman & Gibson, 2011; Fergusson et al., 2002; Gardner & Steinberg, 2005; Overbeek et al., 2011). For example, Fergusson et al. (2002) used data from a cohort of New Zealand adolescents and young adults ranging in ages 14–21. They found that peer delinquency had a larger effect on property crime, violent crime, alcohol abuse and cannabis abuse on younger (age 14–15) than older participants (age 20–21). In regards to alcohol consumption, Overbeek et al. (2011) found that best friends' alcohol use was a positive predictor of alcohol consumption in a bar-lab among a sample of young adults (age 18–25). Gardner and Steinberg (2005) found that, although there were peer effects on risky behavior for adolescents (age 13–16) and young adults (age 18–22), the effect was strongest among adolescents. These studies imply that, although peer influence may be stronger during adolescence, it is still apparent among young adults.

Although infrequent, studies have investigated gender differences in the association between peer delinquency and individual delinquency and substance use (Duncan, Boisjoly, Kremer, Levy, & Eccles, 2005; Giordano, 1978; Piquero et al., 2005; Smith & Paternoster, 1987; Suls & Green, 2003; Weerman & Hoeve, 2012). Using a sample of French youth, Hartjen and Priyadarsini (2003) found that exposure to delinquent peers predicted delinquency for both boys and girls. Interestingly,

they also found that the effect of deviant peers on delinquency was equivalent for both genders, similar to the findings of Weerman and Hoeve's (2012) study. On the contrary, Piquero et al. (2005) found that peer delinquency was more strongly associated with delinquency for males than for females. Regarding substance use, the findings of Suls and Green (2003) suggest that males experience more social pressure to engage in alcohol consumption and greater embarrassment from expressing drinking-related problems. Furthermore, males who expressed alcohol-related concerns were found to have trouble fitting in. On the other hand, females were more reluctant to engage in binge drinking, as they feared severe consequences. This suggests that social pressure and perceptions affect individual's behavior. Duncan et al. (2005) found that male college students with a history of binge drinking in high school drank much more in college if assigned a roommate with a previous history of binge drinking, specifically in high school. No significant effects, however, were found for females. Taken together, there seems to be mixed evidence regarding gender differences in the peer delinquency literature.

There has not been a significant amount of research conducted considering racial differences when investigating the link between delinquent peers and delinquency. That being said, Matsueda and Heimer (1997) found peer delinquency to be a stronger predictor of delinquency for black adolescents than for white adolescents. In contrast, Gibbons et al. (2010) found a significant relationship between perceived peer drinking and one's own drinking behavior that was stronger for white adolescents compared to black adolescents. Such findings warrant further research to provide more definitive evidence regarding racial differences in the association between individual and peer delinquency.

1.4. Advances in research on peer and individual delinquency

1.4.1. Moderating effects in the peer delinquency-individual delinquency relationship

Several studies have examined whether the relationship between peer and individual delinquency is conditioned by other major correlates of delinquency. We will discuss here the research on peer factors, parenting factors, individual traits, and genetic predispositions as potential moderators of the association between peer delinquency and individual delinquency.¹

First, studies such as that of Agnew (1991) have found that the effect of delinquent peers on individual delinquency is amplified by several other peer-related variables (i.e., attachment to peers, time spent with friends, peer approval for delinquency, and peer pressure for deviance) (see also Warr & Stafford, 1991; c.f. Megens & Weerman, 2012). Illustrative of this, Agnew found a positive and significant interaction between serious peer delinquency and peer approval on self-reported delinquency: as peer approval for delinquency increased, the effect of peer delinquency on serious delinquency became stronger.

Second, researchers have examined the potential moderating effect of various aspects of parental socialization on the link between peer delinquency and individual delinquency. For example, Dorius, Bahr, Hoffmann, and Harmon (2004) found that the effect of peer's marijuana use on self-reported marijuana use was stronger for respondents reporting lower levels of closeness to their fathers. They also found that if adolescents believed that they would be caught by their parents using marijuana, they were less likely to use marijuana despite their peer's influence. Regarding parental involvement, Wood, Read, Mitchell, and Brand (2004) found higher levels of perceived parental involvement weakened the association between peer behavior and alcohol use and alcohol-related negative consequences. Similar moderating effects have been reported for parental monitoring (Laird, Criss, Pettit, Dodge, & Bates, 2008), parental support (Marshal & Chassin, 2000), parental attachment (Vitaro, Brendgen, & Tremblay, 2000) and parental closeness (Brauer & De Coster, 2015); thus implying that parental support, control and prosocial relationships with parents diminishes the effect of peer delinquency on individual delinquency.

Third, studies indicate that the relationship between peer and individual delinquency is moderated by individual traits. For example, Meldrum et al. (2009) found that peer delinquency had a stronger effect on the delinquency of individuals' among those with higher self-control. Similarly, Vitulano et al. (2010) found that peer delinquency had a stronger effect on the behavior of those with low impulsivity, indicating that individuals with lower levels of impulsivity may be most vulnerable to delinquent peers. In contrast, McGloin and Shermer (2009) found that low self-control did not moderate the effect of deviant peers on delinquency. Hirtenlehner et al. (2015) even reached opposite conclusions to that of Meldrum et al. (2009) and Vitulano et al. (2010), finding that the association between peer and individual delinquency was stronger among those who were lowest in self-control. Clearly, the evidence regarding the moderating effect of self-control is mixed and often contradictory, prompting the need for additional inquiry.

Other research has examined the moderating role of callous-unemotional traits (e.g., lack of empathy, lack of guilt, and shallow affect) and grandiose-manipulative traits (see Kerr, Van Zalk, & Stattin, 2012), novelty seeking, and physical maturity (see Fergusson, Vitaro, Wanner, & Brendgen, 2007). Specifically, Kerr et al. (2012) found that the effect of peer delinquency on individual delinquency was amplified by both peer callous-unemotional and grandiose-manipulative traits, thereby increasing individual's vulnerability to maladaptive behaviors. Fergusson et al. (2007) examined the moderating role of puberty and novelty seeking and found that the relationship between peer delinquency and self-reported delinquency was weakest for those with high levels of novelty seeking. In regards to puberty, the association between peer delinquency and self-reported delinquency was strongest for those with advance puberty, and weakest for those with delayed puberty, suggesting that delayed puberty may be a protective factor against involvement in delinquency.

Fourth, researchers have started to exploit molecular genetic data to investigate the interactive effect between peer delinquency and genetic predispositions to explain individual delinquency. For example, Watts and McNulty (2015) found that the effect of peer delinquency on individual delinquency was amplified by the number of 10R DAT1 alleles that males carry, such that peer delinquency was only associated with individual delinquency for individuals possessing two 10R DAT1 alleles; possessing 1 or 0 of these risk alleles rendered the effect of peer delinquency non-significant. In a slightly different manner, Guo, Roettger, and Cai (2008) found that possessing a particular version of the DRD2 gene amplified the effect of directly measured peer delinquency on respondent delinquency. Other researchers have gone beyond examining the interaction between a single genetic variant and how it interacts with peer delinquency to explain individual delinquency and have instead created composite measures of genetic risk using data pertaining to several genetic variants. Using this approach, Guo, Li, Wang, Cai, and Duncan (2015) found evidence across two separate samples that the effect of peer drinking behavior on an individual's drinking behavior is amplified among individuals who have *medium* genetic risk (relative to those with low or high genetic risk), suggesting the interaction between genetic risk and peer delinquency is complex. Overall, this line of research is fairly new and serves as an important area for future work to examine.

1.4.2. Types of peers: teammates, best friends, romantic partners, and cross-gender friendships

Peer relationships come in different forms, and so it is important to consider whether the association between peer and individual delinquency holds across different types of friendships. In this regard, studies have found positive associations between peer and individual delinquency when focused on teammates (e.g., Fujimoto et al., 2012), best friends (e.g., Bot, Engels, Knibbe, & Meeus, 2005; De Kemp et al., 2006; Gaughan, 2006; Rees & Pogarsky, 2011), and romantic partners (e.g., Haynie et al., 2005). For example, Fujimoto et al. (2012) found that adolescent smoking behavior was significantly influenced by being

exposed to teammates who smoked, and several studies have found that best friends influence each others' delinquency (e.g., De Kemp et al., 2006; Rees & Pogarsky, 2011) and drinking behavior (e.g., Bot et al., 2005; Gaughan, 2006).

In regards to romantic relationships, Haynie et al. (2005) found that the delinquency of romantic partners had a positive and significant impact on their partner's delinquency. Furthermore, they found that this effect was stronger for females than for males, only applying to minor deviance (e.g., smoking cigarettes, intoxication, and truancy). Conversely, McCarthy and Casey (2008) found that there is a negative association between being in a romantic relationship during adolescence and delinquency, implying that romantic relationships have a deterrent effect on involvement in crime. While that is the case, research also shows that friends of romantic partners may be impacted by adolescent drinking patterns (Kreager & Haynie, 2011). Specifically, Kreager and Haynie's (2011) study shows that romantic couples' drinking behavior influenced the drinking behavior of individuals within their peer network, specifically the behavior of their partner's friends, suggesting that romantic relationships can serve as a bridge for deviant behavior.

Cross-gender friendships, which increase greatly during adolescence compared to childhood (Giordano, 2003), have also been the focus of research. As of yet, there is no agreement on symmetry in peer influence within these friendships. It is not clear whether males have a greater influence on females' delinquency and substance use than females have on males. For example, Gaughan (2006) reports that in mixed-sex best friend relationships, males' drinking behavior significantly influences the drinking behavior of their female best friend, while females have no significant influence on behavior of their male best friend. In contrast, Sanchagrin et al. (2014) found that delinquency among males was associated with the behavior of both male and female friends. Females, however, were not affected by delinquency of their friends after controlling for social bond variables and individual characteristics. Further, they found that drinking behavior of males was significantly influenced by the drinking behavior of their female friends but not by the behavior of their male friends. Smoking behavior of males was affected by the smoking behavior of their male friends but not the behavior of their female friends. (Sanchagrin et al., 2014). Although this previous study showed females to be unaffected by their peers behavior, Haynie et al. (2014) found that females were more likely than males to be influenced by their male friends' violent and nonviolent behaviors.

1.5. Directions for future research on peer delinquency

As discussed above, a major contribution to the understanding of how peers influence individual involvement in delinquency has been through the collection of social-network data. These data have identified limitations of traditional perceptual measures. Yet, it is important to recognize that network data also have disadvantages (see Young, 2014). First, social network analysis requires boundaries to networks to make valid inferences. The majority of studies collect information on friendship networks in schools or grades, using a roster method. Those networks thus incorporate all relationships within a school or grade, but provide no information on friendships outside of the school or grade. As a consequence, potentially important data on friendships outside of the network boundary may be missing. Operationalizing peer delinquency with these data requires the assumption that friends outside of school engage in delinquency at the same rate as the friends within school. This may be an unreasonable assumption, as multiple studies show that delinquency is a risk factor for dropping-out of school. As Hagan and McCarthy (1998) have shown, using the school as the unit of sampling may fail to capture important relationships among individuals, especially for individuals at risk for a variety of delinquent behaviors. Thus, research is needed that includes the network of friends outside of school, although this is difficult to achieve.

Problems relating to hard to reach populations are not specific to criminological research. A number of populations in social network

research are difficult to reach due to stigmatization, lack of involvement in an institutionalized setting, or a variety of other reasons. In other words, the sampling frame for the target population is not available in many contexts (Gile & Handcock, 2010). Respondent-driven sampling (RDS) (see Heckathorn, 1997) has emerged as a data collection mechanism for hard to reach populations. RDS is a type of snowball or link-tracing sampling in which “network links from sampled members of the target population are followed (traced) to select subsequent members to add to the sample” (Gile & Handcock 2010: 287). Although the ability to make valid, statistical inferences is difficult to achieve under such a design, the ability to reach populations and make initial estimates may prove valuable for research assessing the association between peer and individual delinquency.

A second disadvantage of network data is that they are often limited in the identification of friends. One area that is important to reflect on is individuals' perceptions of networks. From a measurement standpoint, there is concern about the validity of individuals' ability to accurately report on social structural relations. From a theoretical standpoint, the ability to compare individuals' beliefs about social structure with their actual social position and the structure of the network in which they are embedded may prove valuable for advancing our understanding of the role of networks. Krackhardt (1987) notes that there is an important difference between the set of relationships in a network and an individual's perception of these relationships. Jointly, relations and perceptions of relations form the *cognitive social structure* of a particular context. Obtaining information about this structure will be useful for examining how individuals' beliefs about peer behavior influence their own social network behavior.

An additional line of inquiry avoids many of the pitfalls discussed above by utilizing an experimental design. In the absence of random assignment, the complicated dependence structure of social networks will create difficulties in estimating social influence parameters (this is further discussed by Young, 2014). As a consequence, recent attempts to embed social influence in an experimental design appear promising. For example, Paternoster, McGloin, Nguyen, and Thomas (2012) found that individuals were more likely to cheat on a memory/recall task if they observed a confederate cheating and justifying the behavior (i.e., the treatment). Likewise, Gallupe et al. (2016) found that, compared to a control group, subjects were more likely to steal a gift card if a confederate provided a verbal prompt and modeled the behavior. Gardner and Steinberg (2005) used an experimental design to examine the relationship between peer influence and risk taking. They found that respondents took more risks, made riskier decisions, and focused more on the benefits than the costs of risky behavior when they were with peers (the experimental condition) than alone. Harakeh and Vollebergh (2012) found that adolescents and young adults (age 16–24) smoked more cigarettes if a confederate smoked during a 30-minute music task, even if the confederate did not actively offer cigarettes to the participant. Last, Cohen and Prinstein (2006) found that male adolescents changed their response in a hypothetical scenario on aggressive and health-risk behavior following the preprogrammed opinions of high-status peers to which they were exposed in a chat room experiment. Although the external validity of such studies can be called into question, they may provide a valuable addition to social network studies for disentangling social processes through which peers influence delinquency and substance use. Thus, continued efforts should be made to replicate and extend these experimental designs.

A final direction for future research concerns the finding that perceptions of peer behavior and directly measured peer behavior represent distinct concepts (e.g., Meldrum & Boman, 2013). Studies show that indirect, perceptual, measures of peer behavior reflect more than merely “contaminated” indicators of ostensibly objective peer behavior, but at the same time indirect peer behavior measures are more than merely “alternative” indicators of one's own behavior. Future research should therefore elaborate existing theories or develop new theories that recognize indirect measures of peer behavior reflect a

fundamentally distinct concept vis-à-vis both direct measures of peer behavior and measures of personal behavior. Future work would benefit from developing an integrated framework for understanding how the behavior of others, one's perceptions of those behaviors, and one's own behavior are linked. Recent work by McGloin and Thomas (2016) is within this vein and focuses on empirically determining what drives perceptions of peer behavior. By treating perceptions of peer behavior as a dependent variable and asking respondents about how they form these perceptions, McGloin and Thomas (2016) show that individuals rely on peer behavior and communication about behavior to form their perceptions. Their approach provides a foundation for refining the concept of perception as a causal mechanism that is similar to research on perceptions of sanctions.

2. Unstructured socializing and delinquency

2.1. Theoretical background

Researchers have drawn from several theoretical perspectives to account for the relationship between unstructured time spent with peers and delinquency (see Agnew & Petersen, 1989). For example, some studies have applied social bond theory (Hirschi, 1969), arguing that unconventional leisure activities with peers may weaken social bonds and provide opportunities for delinquency (Hawdon, 1996). Other researchers have drawn on subcultural deviance theory, arguing that participation in unstructured activities with peers such as ‘hanging out’, ‘going to parties and dances’, or ‘driving around in a car’ shows subcultural preferences associated with a party subculture that values idleness and disdain for school and exposes adolescents to delinquent individuals (Hagan, 1991), increasing their own involvement in delinquency. Still others have adapted principles from strain theory to argue that certain leisure activities with peers provide individuals with ways to channel frustrations and their need for excitement in socially acceptable ways. A lack of such alternatives may therefore result in delinquent behavior (Agnew, 1992; Roberts, 1985). In addition, several studies discuss the relationship between unsupervised time with peers and antisocial behavior under the guise of after-school care arrangements (Flannery, Williams, & Vazsonyi, 1999; Galambos & Maggs, 1991; Pettit, Bates, Dodge, & Meece, 1999). Further, some scholars have applied routine activity theory to argue that leisure activities cause adolescents to spend time further away from home, thereby decreasing opportunities for parental supervision and thus increasing the risk for delinquency (Felson & Gottfredson, 1984; Felson, 1986; Riley, 1987).

While the above perspectives have each provided plausible explanations for the association between unstructured activities with peers and delinquent behavior, the most widely investigated argument for why time spent with peers in unstructured activities should contribute to delinquency and crime was developed by Osgood, Wilson, O'Malley, Bachman, and Johnston (1996), who adapted routine activity theory (Cohen & Felson, 1979) and lifestyle theory (Hindelang, Gottfredson, & Garofalo, 1978) to an individual-level perspective. Their unstructured socializing perspective explains the association between daily activities and individual patterns of delinquency. Essential to this perspective are two arguments. First, some routine activities are more conducive to deviance than others. Second, individuals who spend more time in ‘deviance conducive’ routine activities should engage in greater deviance.

Pertaining to the first argument, Osgood et al. (1996) theorized three features increase the risk of deviance for a given activity: the presence of peers, the absence of authority figures, and a lack of structure. The presence of peers during an activity should promote deviance because peers can serve as resources in fostering delinquency by providing practical help (e.g., serving as back-ups or look-outs) and by making deviance more rewarding by conferring status and reputation to individuals. The absence of authority figures decreases the risk of getting caught, thereby reducing the potential consequences of deviant behavior and increasing the perception that a deviant act can successfully be

completed. A lack of structure² further enables engagement in deviance because “greater structure means that more time will be spent in designated ways, and that this time will not be available for deviance” (Osgood et al., 1996: 641). Organized activities are also more likely to assert responsibilities for social control to one or more of the present individuals than unstructured activities. Hence, individuals engaging in unstructured activities will have less social control exerted over them. Based on these assertions, Osgood et al. (1996) coined the term *unstructured socializing* to represent an activity done with peers, in the absence of authority figures, without any structure.

Regarding the second argument, Osgood et al. (1996) argued that most adolescents are open to the idea of deviance because the motivation for delinquency can be inherent in situations (as opposed to within the individual; Briar & Piliavin, 1965) and because most adolescents are open to deviant values. This does not mean that adolescents reject conventional values. ‘Subterranean values’ that can be linked to delinquency, such as a search for excitement and approval of recklessness and toughness, can exist alongside conventional values (Matza & Sykes, 1961). Although Osgood et al. (1996) did not assume that all adolescents are equally likely to respond to opportunities for delinquency, they argued that “most people have the potential for at least occasionally succumbing to an opportunity for deviant behavior” (Osgood et al., 1996: 639). In summary, the theory developed by Osgood et al. (1996) posits that unstructured socializing provides individuals with socially rewarding *situational opportunities* for delinquency (a contrast from the view of the role of peers provided by social learning theories). As such, individuals who spend more time in unstructured socializing should engage in more delinquency.

2.2. Measuring unstructured socializing

As the previous discussion makes clear, the concept of unstructured socializing encompasses three elements: the presence of peers, the absence of authority figures, and a lack of structure. Recognizing this, the measurement quality of unstructured socializing has varied considerably across studies. In fact, a review of the literature suggests that most existing studies do not *explicitly* measure all three conditions that define a situation of unstructured socializing. This may not be all that surprising given the variety of theoretical perspectives developed prior to the work of Osgood et al. (1996). Yet, even studies which have sought to explicitly test Osgood et al.’s (1996) theory often times rely on imprecise measures of unstructured socializing. Herein we distinguish between three major approaches that have been used when examining the association between unstructured socializing and delinquency.

The first, and most common, approach is measuring unstructured socializing in such a way that at least one of the three elements are present but where at least one other element is ambiguous. Many studies use survey items that adequately refer to respondent involvement in specific unstructured activities that are generally assumed to occur in the presence of peers. However, such measurement strategies are often ambiguous about whether authority figures are present. For example, the measures appearing in Osgood et al. (1996) asked respondents about the frequency with which they participated in the following activities: riding around in a car (or motorcycle) just for fun, getting together with friends informally, going to parties or other social affairs, and going out for fun and recreation. Importantly, these are all unstructured activities that are likely to occur in the presence of peers. Yet, the absence of authority figures is only *implied* by these items. While many studies employ measures that are ambiguous about the presence or absence of authority figures, other studies adequately measure unsupervised time spent with peers, yet are not specific about the activity being engaged in (e.g., Lam, McHale, & Crouter, 2014; Pettit et al., 1999). Also assigned to this category of studies are those which employ measures that either ask about involvement in unstructured activity, but not explicitly about whether peers are present (‘How often do

you hang out in the local neighborhood?’, ‘How often do you go to amusement arcades?’ Smith & Ecob, 2013), or that ask about time spent with friends, but not about the kind of activity (‘How many times in the past week did you just hang out with friends?’ Augustyn & McGloin, 2013). Some of the operationalizations in this category included items about going to bars and nightclubs (e.g., Bernburg & Thorlindsson, 2001; Miller, 2013). This was explicitly rejected by Osgood et al. (1996), because such activities are closely associated with alcohol use and because visiting nightclubs is often prohibited for kids in early and middle adolescence. Those activities would therefore be deviant themselves, which makes an established relationship with delinquency or substance use tautological.

The second approach to measuring unstructured socializing explicitly captures all three conditions articulated by Osgood et al. (1996) by asking respondents in stylized questionnaire formats about their exposure to certain situations. For example, several studies (Greene & Banerjee, 2009; Higgins & Jennings, 2010; Müller, Eisner, & Ribeaud, 2013; Osgood & Anderson, 2004; Thomas & McGloin, 2013) have employed measures such as the following: ‘How many hours do you spend hanging out with friends, not doing anything in particular, where no adults are present?’ This type of measurement leaves little room for ambiguity when respondents are trying to interpret what it is the item is specifically referring to. Such operationalizations clearly possess greater face validity as indicators of unstructured socializing than those falling under the first approach discussed above.

A third, still relatively scarce approach to measuring unstructured socializing relies on the use of time diary data (Bernasco, Ruiter, Bruinsma, Pauwels, & Weerman, 2013; Hoeben & Weerman, 2014, 2016; Janssen, Eichelsheim, Deković, & Bruinsma, 2016; Janssen, Weerman, & Eichelsheim, in press; Posner & Vandell, 1999; Riley, 1987; Weerman et al., 2015a; Wikström & Butterworth, 2006; Wikström, Ceccato, Hardie, & Treiber, 2010; Wikström, Oberwittler, Treiber, & Hardie, 2012³). Time diaries systematically record respondents’ allocation of time spent engaging in various activities by questioning respondents about daily activities in small time units (e.g., ten minutes or one hour), where the activities took place, and who else was present during each activity. The information gleaned from these instruments can be applied to specify respondents’ exposure to certain situations: they can combine information about the activity (whether it was structured or unstructured) with information about whether peers were present, and whether parents or other adults were present. Thus, studies based on the use of time diaries enable a very detailed and accurate operationalization of unstructured socializing.

2.3. Generality of the association between unstructured socializing and delinquency⁴

Keeping in mind the above considerations, a large number of studies find a positive association between unstructured socializing and delinquent behavior regardless of the measurement strategy employed. From a methodological standpoint, an association is found in both cross-sectional studies (Agnew, 1991; Agnew & Petersen, 1989; Anderson, 2003; Anderson & Hughes, 2009; Barnes et al., 2007; Bernburg & Thorlindsson, 2001, 2007; Chen, Grube, Nygaard, & Miller, 2008; DiPietro & McGloin, 2012; Flannery et al., 1999; Gage, Overpeck, Nansel, & Kogan, 2005; Greene & Banerjee, 2009; Hawdon, 1996, 1999; Hay & Forrest, 2008; Hirschi, 1969; Hughes & Short, 2014; Hundleby, 1987; Junger & Wieggersma, 1995; LaGrange & Silverman, 1999; Lotz & Lee, 1999; Meldrum, Barnes, & Hay, 2015; Meldrum & Clark, 2015; Miller, 2013; Moore & Ohtsuka, 2000; Op de Beeck & Pauwels, 2010; Osgood & Anderson, 2004; Posick, 2013; Riley, 1987; Steketee, 2012; Sun & Longazel, 2008; Svensson & Oberwittler, 2010; Thorlindsson & Bernburg, 2006; Vazsonyi, Pickering, Belliston, Helsing, & Junger, 2002; Wallace & Bachman, 1991; Weerman & Hoeve, 2012; Weerman et al., 2015a; West & Farrington, 1977;

Wikström & Butterworth, 2006; Wong, 2005; Yin, Katims, & Zapata, 1999; Zimmerman, 2016) and longitudinal studies (Augustyn & McGloin, 2013; Bernasco et al., 2013; Boman, 2013; Burrington, 2015; DiPietro & McGloin, 2012; Felson, Osgood, Horney, & Wiernik, 2012; Fleming et al., 2008; Galambos & Maggs, 1991; Gardner et al., 2009; Goldstein, Eccles, & Davis-Kean, 2005; Haynie & Osgood, 2005; Higgins & Jennings, 2010; Hoeben & Weerman, 2014, 2016; Lam et al., 2014; Maimon, 2009; Maimon & Browning, 2010; McGloin & Shermer, 2009; McHale, Crouter, & Tucker, 2001; Meldrum et al., 2009, 2015; Mercer, Keijsers, Crocetti, Branje, & Meeus, 2016; Müller et al., 2013; Novak & Crawford, 2010; Osgood et al., 1996; Pettit et al., 1999; Posner & Vandell, 1999; Regnerus, 2002; Rulison, Feinberg, Gest, & Osgood, 2015; Sentse, Dijkstra, Lindenberg, Ormel, & Veenstra, 2010; Smith & Ecob, 2013; Staff, Osgood, Schulenberg, Bachman, & Messersmith, 2010; Thomas & McGloin, 2013; Weerman & Hoeve, 2012; Weerman, Bernasco, Bruinsma, & Pauwels, 2015b; Wikström et al., 2010, 2012).

In addition, unstructured socializing is associated with a wide variety of delinquent behaviors. Most common, an association is found when general measures of delinquency (that often include items tapping substance use in addition to delinquency) are the focus (Agnew, 1991; Agnew & Petersen, 1989; Augustyn & McGloin, 2013; Barnes et al., 2007; Bernasco et al., 2013; Bernburg & Thorlindsson, 2007; Boman, 2013; Flannery et al., 1999; Fleming et al., 2008; Galambos & Maggs, 1991; Gardner et al., 2009; Goldstein et al., 2005; Hawdon, 1999; Hay & Forrest, 2008; Haynie & Osgood, 2005; Higgins & Jennings, 2010; Hirschi, 1969; Hoeben & Weerman, 2014, 2016; Hughes & Short, 2014; Hundleby, 1987; Junger & Wieggersma, 1995; LaGrange & Silverman, 1999; Lam et al., 2014; McGloin & Shermer, 2009; McHale et al., 2001; Meldrum & Clark, 2015; Meldrum et al., 2009, 2015; Mercer et al., 2016; Müller et al., 2013; Novak & Crawford, 2010; Op de Beeck & Pauwels, 2010; Osgood & Anderson, 2004; Osgood et al., 1996; Pettit et al., 1999; Posner & Vandell, 1999; Regnerus, 2002; Riley, 1987; Sentse et al., 2010; Smith & Ecob, 2013; Staff et al., 2010; Steketee, 2012; Svensson & Oberwittler, 2010; Thomas & McGloin, 2013; Vazsonyi et al., 2002; Weerman et al., 2015a, 2015b; Weerman & Hoeve, 2012; West & Farrington, 1977; Wikström & Butterworth, 2006; Wikström et al., 2010, 2012; Wong, 2005; Yin et al., 1999).

Studies also find significant effects of unstructured socializing on violent behavior (Anderson, 2003; Anderson & Hughes, 2009; Bernburg & Thorlindsson, 2001; Burrington, 2015; DiPietro & McGloin, 2012; Felson et al., 2012; Flannery et al., 1999; Gage et al., 2005; Hughes & Short, 2014; LaGrange & Silverman, 1999; Lotz & Lee, 1999; Maimon, 2009; Maimon & Browning, 2010; Meldrum & Clark, 2015; Miller, 2013; Posick, 2013; Vazsonyi et al., 2002; Wong, 2005; Zimmerman, 2016) and property offending (Anderson, 2003; Anderson & Hughes, 2009; Bernburg & Thorlindsson, 2001; Felson et al., 2012; Hawdon, 1999; LaGrange & Silverman, 1999; Lotz & Lee, 1999; Meldrum & Clark, 2015; Miller, 2013; Müller et al., 2013; Posick, 2013; Regnerus, 2002; Vazsonyi et al., 2002; Wong, 2005). The association between unstructured socializing and several forms of substance use, such as use of cigarettes, alcohol, and drugs, has also been confirmed in a number of studies (Anderson, 2003; Anderson & Hughes, 2009; Augustyn & McGloin, 2013; Barnes et al., 2007; Flannery et al., 1999; Gage et al., 2005; Greene & Banerjee, 2009; Hawdon, 1996, 1999; Hundleby, 1987; Lotz & Lee, 1999; Meldrum & Clark, 2015; Miller, 2013; Osgood et al., 1996; Rulison et al., 2015; Staff et al., 2010; Sun & Longazel, 2008; Thorlindsson & Bernburg, 2006; Vazsonyi et al., 2002; Wallace & Bachman, 1991; Warr, 1998; Wong, 2005).

Studies examining the link between unstructured socializing and delinquency can also be classified according to specific demographic characteristics. For example, the association between unstructured socializing and delinquency/substance use has been observed in a number of different cultural contexts. While many studies have been based on samples from the United States (Agnew, 1991; Agnew & Petersen, 1989; Anderson, 2003; Anderson & Hughes, 2009; Augustyn &

McGloin, 2013; Barnes et al., 2007; Boman, 2013; Burrington, 2015; Chen et al., 2008; DiPietro & McGloin, 2012; Felson et al., 2012; Flannery et al., 1999; Fleming et al., 2008; Gage et al., 2005; Gardner et al., 2009; Goldstein et al., 2005; Greene & Banerjee, 2009; Hawdon, 1996, 1999; Hay & Forrest, 2008; Haynie & Osgood, 2005; Higgins & Jennings, 2010; Hirschi, 1969; Hughes & Short, 2014; Lam et al., 2014; Lotz & Lee, 1999; Maimon, 2009; Maimon & Browning, 2010; McGloin & Shermer, 2009; McHale et al., 2001; Meldrum & Clark, 2015; Meldrum et al., 2015; Novak & Crawford, 2010; Osgood & Anderson, 2004; Osgood et al., 1996; Pettit et al., 1999; Posner & Vandell, 1999; Regnerus, 2002; Rulison et al., 2015; Staff et al., 2010; Sun & Longazel, 2008; Thomas & McGloin, 2013; Vazsonyi et al., 2002; Wallace & Bachman, 1991; Warr, 1998; Yin et al., 1999; Zimmerman, 2016), supportive studies have been conducted in The Netherlands (Bernasco et al., 2013; Hoeben & Weerman, 2014, 2016; Junger & Wieggersma, 1995; Meldrum et al., 2009; Mercer et al., 2016; Sentse et al., 2010; Vazsonyi et al., 2002; Weerman et al., 2015a, 2015b; Weerman & Hoeve, 2012), England (Riley, 1987; West & Farrington, 1977; Wikström & Butterworth, 2006; Wikström et al., 2010, 2012), Scotland (Miller, 2013; Smith & Ecob, 2013), Iceland (Bernburg & Thorlindsson, 2001; Bernburg & Thorlindsson, 2007; Thorlindsson & Bernburg, 2006), Germany (Svensson & Oberwittler, 2010), Sweden (Svensson & Oberwittler, 2010), Canada (Galambos & Maggs, 1991; Hundleby, 1987; LaGrange & Silverman, 1999; Wong, 2005), Hungary (Vazsonyi et al., 2002), Australia (Moore & Ohtsuka, 2000), Switzerland (Müller et al., 2013; Vazsonyi et al., 2002), and Belgium (Op de Beeck & Pauwels, 2010). A few studies have established the relationship cross-nationally (Posick, 2013; Steketee, 2012; Svensson & Oberwittler, 2010; Vazsonyi et al., 2002).

The majority of studies finding an association between unstructured socializing and delinquency/substance use have been based on samples of adolescents (Agnew, 1991; Agnew & Petersen, 1989; Anderson, 2003; Anderson & Hughes, 2009; Augustyn & McGloin, 2013; Barnes et al., 2007; Bernasco et al., 2013; Bernburg & Thorlindsson, 2001, 2007; Flannery et al., 1999; Fleming et al., 2008; Gage et al., 2005; Galambos & Maggs, 1991; Goldstein et al., 2005; Greene & Banerjee, 2009; Hawdon, 1996; Hay & Forrest, 2008; Haynie & Osgood, 2005; Higgins & Jennings, 2010; Hoeben & Weerman, 2014, 2016; Hirschi, 1969; Hughes & Short, 2014; Hundleby, 1987; Junger & Wieggersma, 1995; LaGrange & Silverman, 1999; McGloin & Shermer, 2009; McHale et al., 2001; Meldrum & Clark, 2015; Meldrum et al., 2009, 2015; Mercer et al., 2016; Miller, 2013; Müller et al., 2013; Op de Beeck & Pauwels, 2010; Osgood & Anderson, 2004; Pettit et al., 1999; Posick, 2013; Regnerus, 2002; Riley, 1987; Rulison et al., 2015; Sentse et al., 2010; Smith & Ecob, 2013; Staff et al., 2010; Steketee, 2012; Svensson & Oberwittler, 2010; Thomas & McGloin, 2013; Thorlindsson & Bernburg, 2006; Vazsonyi et al., 2002; Wallace & Bachman, 1991; Weerman et al., 2015a, 2015b; Weerman & Hoeve, 2012; Wikström & Butterworth, 2006; Wikström et al., 2010, 2012; Yin et al., 1999). Two studies focused exclusively on children (McHale et al., 2001; Posner & Vandell, 1999) and confirmed the relationship between unstructured socializing and problem behavior among samples of, respectively, 10 to 12-year-olds and 8 to 11-year olds. A few studies have covered a broad age range and therefore included children as young as eight (Burrington, 2015; DiPietro & McGloin, 2012; Gardner et al., 2009; Lam et al., 2014; Maimon & Browning, 2010; Wong, 2005; Zimmerman, 2016). In addition, several studies find supportive evidence among samples comprised either primarily or exclusively of young adults (Barnes et al., 2007; Boman, 2013; Chen et al., 2008; Felson et al., 2012; Hawdon, 1996, 1999; Hughes & Short, 2014; Lotz & Lee, 1999; Meldrum & Clark, 2015; Moore & Ohtsuka, 2000; Novak & Crawford, 2010; Op de Beeck & Pauwels, 2010; Osgood et al., 1996; Sun & Longazel, 2008; Thomas & McGloin, 2013; Vazsonyi et al., 2002; Wallace & Bachman, 1991; Warr, 1998; West & Farrington, 1977).

Though examined relatively infrequently, studies also suggest the association between unstructured socializing and delinquency holds

across both male and female samples (Barnes et al., 2007; Gage et al., 2005; Goldstein et al., 2005; Lam et al., 2014; Steketee, 2012; Weerman et al., 2015b; Yin et al., 1999), though not all studies reach this conclusion. Some studies find that unstructured socializing has a stronger effect on delinquency for males than for females (Augustyn & McGloin, 2013; Lotz & Lee, 1999; Novak & Crawford, 2010; Sentse et al., 2010), whereas outcomes of another study suggested that the relationship was stronger for females (Galambos & Maggs, 1991). Regarding substance use, studies confirm the relationship holds for both males and females (Augustyn & McGloin, 2013; Barnes et al., 2007; Gage et al., 2005; Lotz & Lee, 1999).

Racial differences have rarely been considered in studies examining the link between unstructured socializing and delinquency/substance use. Among those that have, there is some evidence to suggest that the association is stronger for whites relative to non-whites (Barnes et al., 2007; Posner & Vandell, 1999), but other research finds this may not be the case (Goldstein et al., 2005; Lotz & Lee, 1999).

We should also point out that, while the vast majority of studies have supported the conclusion that greater time spent in unstructured socializing is positively associated with delinquency and substance use, not all studies have found this to be the case (Gottfredson, Cross, & Soulé, 2007; Janssen et al., 2016, in press; LaGrange & Silverman, 1999; Müller et al., 2013; Mustaine & Tewksbury, 2000; Schepers, 2016; Weerman, 2011). Nonetheless, having reviewed the existing body of research on unstructured socializing, the weight of the evidence supports the contention that the construct exerts substantive effects on delinquency and substance use. With this established, we next turn attention to important advances of the literature on unstructured socializing and directions for future research.

2.4. Advances in research on unstructured socializing and delinquency

2.4.1. Macro-level effects of unstructured socializing

One significant advancement in understanding the relationship between unstructured socializing and delinquency has been extending the focus to the macro-level. This extension can be traced to the influential work of Osgood and Anderson (2004), who argued that a contextual effect of unstructured socializing exists that can be used to explain rates of delinquency, not simply individual involvement in delinquency. Osgood and Anderson (2004) cite two primary reasons for the potential existence of a macro-level effect of unstructured socializing on rates of delinquency. First, a higher mean-level of unstructured socializing in a particular locale will serve to increase the potential pool of companions for youth to associate with in unstructured activity. Second, increases in mean-levels of unstructured socializing will increase the rate at which groups of adolescents engaging in unstructured socializing encounter one another. In the words of Osgood and Anderson (2004: 523), “These patterns would produce context effects because the general level of unstructured socializing affects the number of opportunities for deviance available to everyone”.

Osgood and Anderson (2004) tested these arguments using data collected from over 4000 eighth grade students attending 36 schools who participated in a multi-site school-based gang prevention program (see Esbensen & Osgood, 1999). As a first step, they identified that the average amount of time spent in unstructured socializing varied substantially across the 36 schools, with students attending some schools spending well over twice as much time in this activity as students attending other schools. Having established this they then assessed whether mean-levels of unstructured socializing at the school-level accounted for variation in rates of delinquency between schools, finding that a contextual effect was indeed present above and beyond individual-level involvement in unstructured socializing. Thus, the work of Osgood and Anderson (2004) provided an important extension of work focused on the relationship between unstructured socializing and delinquency.

Several other studies have investigated macro-level effects of unstructured socializing, with some reaching conclusions consistent with the findings of Osgood and Anderson (2004). For example, school-level variations in unstructured socializing were also reported by Bernburg and Thorlindsson (2007) and Müller et al. (2013), and neighborhood-level variations in unstructured socializing were reported by Maimon and Browning (2010). Further, using data from the first wave of the Add Health Study, Anderson and Hughes (2009) found contextual-level effects of unstructured socializing on rates of violence and marijuana use. At the same time, they found no significant contextual effects of unstructured socializing when property offending and alcohol use were the focus. In addition, two other studies provide indirect support for the arguments made by Osgood and Anderson (2004). First, the seminal paper by Sampson and Groves (1989) testing social disorganization theory using data collected from 238 British communities found that community-level perceptions of the presence of unsupervised peer groups were significantly associated with community-level rates of violence and property offending. Second, Wikström et al. (2012) applied space-time budget data derived from approximately 700 adolescents to investigate the locations where they spent their time unstructured socializing, finding that spatial concentrations of high-risk youth spending time in unstructured socializing were predictive of police recorded crime rates in those areas.

Though the above findings are generally supportive of the arguments made by Osgood and Anderson (2004), not all studies have found significant macro-level effects of unstructured socializing on delinquency. For example, using data collected in Chicago during the late 1950s and early 1960s, Hughes and Short (2014) found no significant effect of group-level differences in time spent hanging around in the streets on group rates of fighting. Likewise, in their evaluation of after-school programs focused on reducing delinquency, Gottfredson et al. (2007) found that program-level differences in unstructured socializing were not related to program-level differences in delinquency and substance use.

2.4.2. Moderating effects in the unstructured socializing-delinquency relationship

Given the large volume of studies which have supported the link between unstructured socializing and delinquency, it is not surprising that researchers have devoted attention to specifying the conditions under which the effect of unstructured socializing on delinquency is either amplified or diminished. In this section we briefly review the factors and situations that have been examined as potential moderators.

First, researchers have focused attention on the potential interaction between unstructured socializing and individual traits. For example, multiple studies have investigated whether unstructured socializing interacts with self-control or closely related concepts. In this regard, the evidence supporting an interactive effect is weak and often mixed. Most studies that have investigated self-control or impulsivity did not find a significant interaction with unstructured socializing in predicting delinquency (LaGrange & Silverman, 1999; Maimon & Browning, 2010; McGloin & Shermer, 2009; Thomas & McGloin, 2013). Still, some studies offer partial support for moderation. For example, LaGrange and Silverman (1999) found positive interactions between risk seeking and unstructured socializing when predicting violence, but not when predicting property offenses and drug offenses. They also reported null findings for moderation by most of the other indicators for self-control (temper, carelessness, being present oriented), although they did find that ‘carelessness’ interacted with ‘time spent driving around with friends’ in their effect on drug offenses. A study by Hay and Forrest (2008) provides somewhat more convincing, but nevertheless mixed evidence for the interaction between unstructured socializing and self-control in predicting general crime. Other individual traits have also been examined as potential moderators of the association between unstructured socializing and delinquency. Among these studies, support has been found for an amplifying effect of unstructured

socializing on delinquency among individuals holding definitions more favorable to delinquency (Bernburg & Thorlindsson, 2001), and for a diminishing effect of unstructured socializing on delinquency among individuals scoring higher on composite scales of morality and self-control (Wikström & Butterworth, 2006; Wikström et al., 2010, 2012).

Second, studies were concerned with the potential interaction between unstructured socializing and community characteristics and individual background variables. With regard to community characteristics, unstructured socializing has been found to be more strongly related to delinquency among adolescents enrolled in schools with higher levels of instability (residential mobility and family disruption; Bernburg & Thorlindsson, 2007), more strongly related to violence among adolescents who reside in neighborhoods with lower levels of collective efficacy (Maimon & Browning, 2010), and more strongly related to externalizing problem behavior for adolescents who reside in neighborhoods rated as 'unsafe' (Gage et al., 2005; Pettit et al., 1999). On the other hand, Anderson (2003) did not find interactions with population density and neighborhood dilapidation. Other investigated background characteristics seem to be of less relevance to the unstructured socializing–delinquency relationship: there is limited evidence that the relationship is moderated by immigrant generational status (DiPietro & McGloin, 2012), and no evidence that the relationship is moderated by socio-economic status (Barnes et al., 2007).

Third, several studies have examined whether the effect of unstructured socializing on delinquency is moderated by peer variables, particularly peer delinquency. Findings have been mixed, with some studies concluding that peer delinquency amplifies the effect of unstructured socializing on delinquency (Bernburg & Thorlindsson, 2001; Mercer et al., 2016; Sentse et al., 2010; Svensson & Oberwittler, 2010; Wikström et al., 2012) and on substance use (Thorlindsson & Bernburg, 2006), whereas other studies did not find support for an interactive effect (Agnew, 1991; Haynie & Osgood, 2005), or found a diminishing effect (McGloin & Shermer, 2009). Relatedly, Thorlindsson and Bernburg (2006) found that the unstructured socializing–substance use relationship was amplified for adolescents who thought their peers would respond positively to substance use. These studies did not examine the friends with whom adolescents were actually engaged in unstructured socializing, but rather looked into general reports about peers' delinquency or attitudes. An exception is the study by Lam et al. (2014), who found that unstructured socializing was only significantly related to delinquency if it occurred in the context of a mixed-sex peer group but not if it occurred in the context of a same-sex peer group.

Fourth, researchers have focused on how parenting-related variables moderate the effect of unstructured socializing on delinquency. For example, Bernburg and Thorlindsson (2001) found that the effect of unstructured peer interaction on violence and property offending was weaker for adolescents who had a stronger bond with their parents. These same researchers later reported that the influence of unstructured socializing on delinquency was diminished for adolescents whose parents knew their friends and the parents of their friends (Bernburg & Thorlindsson, 2007). Similarly, studies have found that the relationship between unstructured socializing and delinquency is diminished among individuals who experience greater parental acceptance (Galambos & Maggs, 1991), who find it easy to talk to their parents about bothersome issues (Gage et al., 2005), who have a better relationship with their parents (Janssen et al., *in press*), whose parents are involved with school (Gage et al., 2005), and for adolescents who experience more parental monitoring (Galambos & Maggs, 1991; Janssen et al., *in press*; Pettit et al., 1999). On the other hand, some studies report null findings with regard to moderation between unstructured socializing and parenting-related variables. Specifically, Barnes et al. (2007) found no evidence that the effect of unstructured socializing on delinquency and substance use was moderated by time spent with parents. Likewise, Janssen et al. (*in press*) reported null findings for the potential interaction between unstructured socializing and parental limit-setting,

and Galambos and Maggs (1991) found no interaction between unstructured socializing and parent–child conflict.

Fifth, situational conditions have been found to moderate the unstructured socializing–delinquency relationship. In particular, Weerman et al. (2015a) found that time spent with peers was only related to delinquency when it was combined with at least two of the following conditions: just socializing, being in public, and being unsupervised. This provides some support that *public location* is a moderator, which was further investigated by Hoeben and Weerman (2014). Their findings confirmed that unstructured socializing in semi-public spaces and public spaces was more strongly related to delinquency than unstructured socializing in private spaces. Moreover, they found that unstructured socializing in public entertainment facilities, on the streets and in open spaces was related to increases in adolescent delinquency, more so than unstructured socializing in public transportation, shopping centers and 'other' semipublic settings such as schools and sports-clubs. Relatedly, Wikström et al. (2012) found that crime rates per 1000 person hours were higher for unstructured peer-oriented activities in local centers than in city centers, and higher on the streets and in parks than while 'moving around'. They also found that crime rates per 1000 person hours were higher for unstructured peer-oriented activities in areas with medium levels of collective efficacy than in other areas. Additionally, Wikström et al. (2012) found that the reported crime rates per 1000 person-hours were higher for unstructured peer-oriented activities during evenings as opposed to the middle of the day.

Other variables that have been studied as potential moderators of the unstructured socializing–delinquency relationship are school bonds, extracurricular activities, and strain. With regard to school bonds, Bernburg and Thorlindsson (2001) found that the influence of unstructured socializing on violence and property offending was diminished for adolescents with stronger bonding to school. With regard to extracurricular activity, Gage et al. (2005) found that the association between unstructured socializing and problem behavior was stronger for girls who spent less than one day a week in extracurricular activities. With regard to experienced strain, Op de Beeck and Pauwels (2010) found that the links between family strain (e.g., divorce), school strain (e.g., poor school performance; repeating a grade) and offending were stronger among youths who were not involved in unstructured socializing, a finding that contradicted their expectations.

2.5. Directions for future research on unstructured socializing

A first direction for future research would be to examine with greater specificity the variables that mediate the association between unstructured socializing and delinquency. Identifying mediating factors would enhance our understanding about why involvement in unstructured socializing increases delinquency and substance use. Although a few studies have investigated mediation of the unstructured socializing–delinquency/substance use relationship (Agnew & Petersen, 1989; Bernasco et al., 2013; Bernburg & Thorlindsson, 2001; Boman, 2013; Greene & Banerjee, 2009; Hawdon, 1996; Hughes & Short, 2014; Regnerus, 2002; Riley, 1987; Wong, 2005), these studies generally did not scrutinize the effects of separate variables but instead added several variables to models simultaneously, making it difficult to identify unique mediating effects. A recent exception to this pattern is a study conducted by Hoeben and Weerman (2016), who investigated four separate mediating factors. Their findings indicate that involvement in unstructured socializing is related to delinquency, because in situations of unstructured socializing 1) adolescents are exposed to delinquent peers, which increases 2) their exposure to opportunities for delinquency, and 3) their tolerance toward substance use. These mediating factors differed somewhat across the three investigated types of delinquency: theft, violence, and vandalism. Future research should seek to extend this line of research by investigating other potential mediating factors, such as substance use and bonds with parents and school.

A second direction for future research is to examine potential reciprocal effects between unstructured socializing and delinquency. While the main body of literature examining unstructured socializing has been concerned with establishing how involvement in unstructured socializing affects delinquency, some studies have found that delinquency influences future involvement in unstructured socializing (Fleming et al., 2008; Vásquez & Zimmerman, 2014). McHale et al. (2001), for example, found that conduct problems at age 10 were predictive of time spent hanging out with friends at age 12. Further, this effect was found to be reciprocal: time spent hanging out at age 10 also predicted conduct problems at age 12. Other studies reported mixed evidence (Goldstein et al., 2005), or concluded that delinquency predicted unstructured socializing but that evidence for an effect of unstructured socializing on delinquency was inconsistent (Posner & Vandell, 1999). With so few studies investigating the potential for reciprocal effects, additional investigation is warranted.

A third direction for future research is the association between unstructured socializing in *virtual space* (i.e. the internet, chat rooms, text messaging, etc.) and delinquency. Time spent socializing with peers on the phone, via text-messaging, or on social-networking websites may create situational inducements for delinquency in ways similar to unstructured socializing on street corners or in parks. As recently noted by Meldrum and Clark (2015), this may be particularly true because communication in virtual space often occurs discreetly and without the knowledge of parents or other authority figures. On this point, research finds that teens are quite willing to discuss and plan deviant behavior using technology such as text messaging (Underwood, Rosen, More, Ehrenreich, & Gentsh, 2012), supporting the possibility that greater time spent socializing with peers in virtual space could create opportunities for delinquency and substance use. Two studies have explicitly examined the association between socializing with peers in virtual settings and antisocial behavior. First, Weerman et al. (2015a) found significant bivariate associations between virtual time spent socializing with peers and delinquency, though the positive association was reduced to non-significance in multivariate models. Second, Meldrum and Clark (2015) examined the association between virtual time spent socializing with peers and both delinquency and substance use. Consistent with the findings of Weerman et al. (2015a), the authors found minimal evidence of an association between virtual time spent socializing with peers and individual measures of delinquency. However, they did find evidence of a positive association between virtual time spent socializing with peers and alcohol use and marijuana use, net of a number of demographic and theoretical controls, including physical time spent with peers. Given the limited attention devoted to this area of research and the increasing amount of time spent online and on smart phones among youth, we hope future studies will be able to provide more insight regarding the robustness of such findings. Additionally, it might be worthwhile to explore relationships between virtual unstructured socializing and online forms of deviance, such as cyberbullying and logging into others' accounts without permission.

A final direction for future research is to examine whether the effects of unstructured socializing on delinquency and substance use remain when accounting for genetic confounds, and whether the effects are moderated by certain genetic predispositions (i.e., gene x environment interaction). While research has begun investigating these issues when focusing on the construct of peer delinquency (e.g., Guo et al., 2015), we are unaware of any research that has extended such considerations to the construct of unstructured socializing. Given the increased attention being given to issues of genetic confounding within the field of criminology (see Barnes, Boutwell, Beaver, Gibson, & Wright, 2014) and whether antisocial phenotypes are the product of gene x environment interaction (e.g., Gajos, Fagan, & Beaver, 2016), it will be critical for future research focused on unstructured socializing to investigate these issues.

3. Discussion

In this review we sought to provide readers with an up-to-date synthesis of the research focused on the association between two prominent peer constructs in the criminological literature – peer delinquency and unstructured socializing – and involvement in delinquency and substance use. As our review indicates, considerable attention has been directed at investigating these associations, with clear evidence that peer delinquency and unstructured socializing play important roles in understanding the etiology of delinquency and substance use, albeit perhaps through different processes. What is also clear, however, is that these relationships are far from simple, with the influence of peer delinquency and unstructured socializing on delinquency and substance use being conditional upon a variety of individual, social, and contextual characteristics. In addition, the manner in which these peer constructs are measured is central to understanding their potential influence on delinquency and substance use.

Our review also highlights important areas for future research to consider. Some of our suggestions for future research pertain to topics which have thus far received only limited attention. This includes, for example, the factors that mediate the effect of unstructured socializing on delinquency, and the extent to which direct and indirect measures of peer delinquency reflect distinct constructs that independently contribute to delinquency. Thus, replication studies are needed to assess the robustness of such findings. Other suggestions, such as the need to consider whether the effect of unstructured socializing on delinquency is moderated by genetic predispositions, have thus far, to our understanding, been entirely neglected by criminologists. As such, despite the voluminous body of research concerning the potential influence of peer delinquency and unstructured socializing on delinquency and substance use, there are several remaining gaps in knowledge that future research should address.

We should also point out that, though it was beyond the scope of current considerations, it is important to consider the factors that contribute to peer delinquency and unstructured socializing and, thereby, indirectly to delinquency and substance use. Peer delinquency and unstructured socializing have been shown to partially explain the effects of other predictors of delinquency and substance use. For example, peer delinquency has been shown to mediate the effect of gender (Weerman & Hoeve, 2012), age (Warr, 1993a), neighborhood disadvantage (Haynie, Silver, & Teasdale, 2006), and parenting-related variables (Janssen et al., 2016; Keijsers et al., 2012; Warr, 1993b) on delinquency and substance use. Likewise, unstructured socializing has been shown to mediate the effects of gender (Osgood et al., 1996; Weerman et al., 2015b), age (Higgins & Jennings, 2010; Osgood et al., 1996), socioeconomic status (Goldstein et al., 2005; Osgood et al., 1996), employment (Staff et al., 2010), and parenting-related variables (Bernburg & Thorlindsson, 2007; Goldstein et al., 2005; Osgood & Anderson, 2004) on delinquency and substance use.

This line of research is embedded in perspectives that differentiate between proximate causes for behavior (i.e., being in a situation that facilitates delinquency or substance use) and distal causes for behavior (i.e., factors that affect exposure to such situations, such as origins and demographics), also referred to as the difference between 'causes' and 'causes of the causes' (Wikström et al., 2012). Unstructured socializing is generally considered to be a proximate predictor of delinquency and substance use, as it describes a situation where deviance is facilitated and sometimes even stimulated. Peer delinquency, on the other hand, can function as both a proximate factor and a distal factor of individual delinquency and substance use. Peers can exert immediate influence on others' behavior (Costello & Hope, 2016; Warr, 2002), for example by instigating, reinforcing or provoking a delinquent act, and thus offering proximate cause for deviance. As follows from social learning theories, however, peers can also shape moral frameworks and thereby indirectly affect behavior, thus forming a distal predictor of delinquency and substance use. Research into underlying factors of peer

constructs, unstructured socializing in particular, is still not widely established, but has the potential to provide further insight into social differentiation in delinquency and substance use (e.g., differential involvement across gender, socioeconomic status, and life-course). This topic, like others we have identified in this review, merits additional attention.

In conclusion, this review raises awareness about the ways in which the peer delinquency and unstructured socializing literatures have advanced understanding of the causes of delinquency and substance use. At the same time, it is evident that within each of the respective literatures, there are important areas of inquiry that require additional scrutiny. To that end, we hope this review inspires future scholars to further disentangle the various ways in which peers prevent or stimulate involvement in delinquency and substance use.

Notes

¹ Studies have also considered whether structural features of friendship networks moderate the effect of peer delinquency on individual delinquency (e.g., Haynie, 2001; McGloin & Shermer, 2009), but such studies are not reviewed here.

² Unstructured activities, according to Osgood et al. (1996: 640) are activities that “carry no agenda for how time is to be spent”. More recently, Wikström et al. (2012: 280) defined unstructured activities as activities that are not “organized or directed toward a particular end”.

³ Lam et al. (2014) and Pettit et al. (1999) also applied time diary data but did not specify whether activities were unstructured.

⁴ Most of the studies included in this review are summarized in Table B1 in Hoeben (2016).

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