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Understanding the Service Needs of Gang-Involved Youth: Social Identity and Ecological  
Influences on Health Decision-Making

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**Abstract**

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**Abstract**

Gang-involved youth experience multiple forms of marginalization and are members of communities experiencing significant health disparities (e.g., youth of color, poor). Yet, research and policy narratives routinely center delinquency, violence, and legal system intervention with limited attention to health and well-being. To develop relevant and responsive service approaches to address needs and reduce disparities, research is needed to examine how and why health varies within the youth gang population. Broadly informed by social ecological, social determinants of health, and health lifestyle frameworks, this dissertation used multiple methodologies to examine health experiences among gang-involved youth. *Methods:* Paper 1 was a scoping review of 65 studies to understand how researchers are currently approaching the

gang-health link. A thematic analysis was undertaken to explore how and why health variation might emerge within the gang context. Papers 2 and 3 utilized latent class analysis to test for unobserved health decision-making profiles among a statewide, school-based sample of self-identified youth gang members. Quantitative analyses also examined how emerging health profiles differentiated according to youths' social identities and living contexts. *Results:* The review illuminated key gaps in our current understanding of the influence of gangs and gang membership on adolescent health. Authors of the reviewed studies theorized that gangs represent social-cultural contexts where norms and values shape health behavior, and that these norms and behaviors may often be gendered in nature. Despite this theorizing, few studies operationalized gang context measures beyond individual membership. Additionally, authors frequently took an ecological approach in their theorizing, citing neighborhood and family influences as important for youth gang members' health. Yet, the potential mediating role of gang membership in the environment-health link was neglected in analyses, and few studies examined how ecological factors help explain health variation within gangs. The quantitative analyses of this dissertation tested for, and found, distinct profiles of sexual and physical health decision-making. For both sexual and physical health, a pattern emerged whereby youth of color and those identifying as lesbian, gay, bisexual, or who were questioning their sexual identity (LGBQ) were disproportionately represented in profiles characterized by fewer health promoting behaviors and greater environmental adversities (e.g., poverty, housing instability, limited health care access, violence exposure). Gender varied, with males represented in more vulnerable sex profiles and females in poorer physical health profiles. *Discussion:* Findings suggest that health disparities exist among gang-involved youth, and that these disparities may be attributable to youths' ecological contexts. Findings have several implications for research and practice. First, gang-

involved youth are a heterogeneous group with respect to health, and flexible service approaches are needed. Second, heterosexuality within youth gangs is not universal and those who identify otherwise may be at heightened vulnerability for adverse health, highlighting the need for intersectional approaches to research and practice. Third, the structural and environmental drivers of gang membership (e.g., racism, poverty, neighborhood violence) are also undermining health for these youth, indicating the need for an intentional research and policy focus on macro- and meso-level factors. *Conclusion:* Youth gang membership in the U.S. is highly racialized, and emerging research suggests that youth gangs are gendered and heteronormative. Failing to attend to the health challenges of, and within, this population represents a complex, yet pressing social justice issue. Addressing health disparities for gang-involved youth will require research and practice frameworks with a multilevel focus on health promotion, issues of intersectionality, and the structural and environmental drivers of adverse health.

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## **DEDICATION**

I have overcome many obstacles and made endless sacrifices on my path towards completing this dissertation and my doctoral degree. There are too few opportunities in life to acknowledge and honor the challenges and adversities we face in pursuit of our goals. Of course, I could not have completed this dissertation without the endless support and love I received from my mentors and chosen family. But I choose to dedicate this dissertation to the little girl who grew up in the trailer park. She had wild blonde hair, a stubborn determination, and a fierce sense of injustice in the broken world she lived in. Because even when they said you couldn't, wouldn't, or shouldn't, you did anyway.

## **STATEMENT OF RESEARCHER REFLEXIVITY**

As a critical scholar and in line with my social justice commitments, I would like to situate myself in relation to this research. My identities as a White, able-bodied, educated, (pan)sexually fluid, cis woman shape my worldviews and the lens through which I engage as researcher and scholar. I have experienced poverty, housing instability, family violence, parental substance abuse and incarceration, religious fundamentalism, and political conservatism; I have privileged from generations of colonialism and systemic racism. My interest in youth gangs stems from experiences witnessing the dehumanization and criminalization of kids who are doing their best to survive in a world that excludes them and deems them as undeserving.

Growing up, I saw that gang involvement afforded my Mexican American/Latinx friends a social network that provided stability, protection, and identity, even as it heightened their exposure to physical and emotional harm. My friends joined gangs because they felt like they had no choice; they were excluded from the services and supports that were afforded to White youth in our small, rural community. In this environment, the strategies that were used to address the “youth gang problem” included policing and cultural repression (e.g., school policies prohibiting rosaries despite youth identifying as Catholic). My early practice experience working with youth echoed this pathologizing approach. As a case manager, I was tasked with implementing a gang prevention program that emphasized legal consequences with no attention to health; the program was perceived as devaluing and misguided by the youth it sought to serve.

My research and scholarship related to youth gangs is grounded in a critical, intersectional standpoint; I am committed to shifting the political and social narratives that continue to perpetuate the marginalization and oppression of gang-involved youth. This dissertation, and the intentional focus on health, represents one step toward this objective.

## INTRODUCTION

National estimates indicate there are 1.06 million youth gang members in the United States, with approximately 401,000 youth joining gangs annually (Pyrooz & Sweeten, 2015). Over the past century, a robust research literature has aimed to document the associations between gang membership, delinquency, and violence (e.g., Krohn & Thornberry, 2008; O'Brien et al., 2013; Pyrooz et al., 2015; Thrasher, 1927). These efforts have largely focused on features of delinquency and violence as they relate to gang joining, consequences of gang membership, and more recently, the processes of gang desistance.

Strikingly less attention has been paid to health and well-being, or if health is examined, it is frequently situated in relationship to features of delinquency and violence (e.g., substance use or trauma as cause and consequence of violence perpetration and victimization; Kerig et al., 2016; MacKenzie et al., 2006). Yet, gang-involved youth disproportionately experience social, cultural, and economic marginalization (Miller, Barnes et al., 2011; Quinn, Walsh et al., 2019; Vigil, 2002), and are members of communities who, as a result of structural inequities, are likely experiencing significant health disparities (e.g., youth of color, poor). This indicates the need for a stronger, more intentional focus on understanding features of health within the youth gang population.

Adolescence is a critical developmental period where decisions regarding health behaviors not only impact health during this period but also set the stage for long-term health and well-being (e.g., Burdette et al., 2017; Frech, 2012). In order to develop relevant and responsive service approaches to address needs and reduce disparities for gang-involved youth, research is needed to understand *how* and *why* health varies within the youth gang population. In response, this three-paper dissertation uses multiple methodologies to examine health experiences of gang-

involved youth.

Paper 1 was a scoping review of the youth gang literature as it pertains to health. Scoping reviews are particularly useful for answering questions about the scope of available evidence and theoretical boundaries of an existing literature in order to identify research gaps (Munn et al., 2018). I undertook a scoping review with this objective in mind – to understand how researchers are currently approaching the gang-health relationship with the aim of identifying gaps and directions for future research. This included a thematic analysis to explore *how* and *why* health variation might emerge among gang-involved youth, with specific attention to potential differences in health experience by social identity and features of youths' living contexts (or environments). My review of the literature illuminated key gaps in our current understanding of the influence of gangs and gang membership on adolescent health, which subsequently informed the study aims and analysis directions for the remaining two papers.

Research on health behaviors and outcomes of gang-involved youth has largely focused on these youth's differences from non-gang youth, thus treating gang-involved youth as a homogeneous group with similar ecological risks. Although this approach has yielded a robust literature on behavioral differences between gang and non-gang youth, it has also contributed to the development of programs and services that generalize needs to all gang youth. Although qualitative accounts of the lives of gang-involved youth point to variation in health experiences within the shared gang context (e.g., Hunt et al., 2000, 2002; MacKenzie et al., 2006), few studies have quantitatively tested for heterogeneity in health decision-making. Papers 2 and 3 aimed to address this gap by using latent class analysis (LCA) to test for distinct profiles of sexual and physical health decision-making (identified as understudied health domains in the scoping review) among a large, school-based sample of self-identified youth gang members.

Extant research also suggests that health variation in gangs may be due, in part, to cultural norms and expectations related to youths' social identities and features of their living environments (e.g., Hunt et al., 2000, 2002; MacKenzie et al., 2006). Thus, analyses for Papers 2 and 3 also examined how emergent health profiles established through LCA were differentiated by features of youths' social identity (i.e., gender, sexual orientation, race/ethnicity, social class) and living contexts. Findings from these studies add to an emerging literature on youth gangs and health to support a more comprehensive portrait of the health challenges and subsequent service needs of this population.

### **Theoretical Underpinnings**

The three dissertation papers are broadly unified by social determinants of health, social ecological, and health lifestyle theoretical frameworks.

From a social determinants of health perspective, structural inequities (e.g., poverty, racism, oppression) produce marginal and adverse living environments for certain social groups, which in turn, exert influence on individual health and contribute to population-level disparities (Weinstein et al., 2017). These same structural factors driving adverse health have also been theorized to shape the living conditions that propel individual youth to join gangs (e.g., Howell, 2015; Shaw & McKay, 1942; Vigil, 2002; Vigil & Yun, 2002), and are therefore likely to account for health disparities within the youth gang population.

The social ecological model provides an organizing framework for understanding the multiple levels of social influence – or social determinants – for impacting adolescent health. All youth, including those who are gang-involved, are embedded in social systems or environments that exert influence on health (Bronfenbrenner & Morris, 2006; Shonkoff & Garner, 2012). These influences can operate directly via interpersonal relationships across the family, peer,

neighborhood and school contexts, or indirectly via trickle down effects of broader community and societal factors (i.e., macro-level or structural) that shape more proximal contexts (e.g., economic inequality shapes family and neighborhood structures, which in turn, impacts youths' access to resources). The social ecological framework has been used to identify and organize the contextual factors (or social determinants) that influence health during adolescence (e.g., Challa et al., 2018; Garrido et al., 2018; Maness et al., 2016). It also provides a useful framework for conceptualizing the proximal and macrosocial factors that influence variation in health decision-making among gang-involved youth (e.g., Kassab et al., 2014; Miller, Levenson et al., 2011).

In addition to ecological influences, variation in health decision-making may be attributable, in part, to a youth's social status or group identity. Health lifestyles theory suggests that choices about health behavior – such as sexual decision-making, exercise, and diet – are constrained by socialization experiences and the availability of resources as determined by a youth's social status or identity (Cockerham, 2005, 2013, 2017). From this perspective, patterns of health decision-making among gang-involved youth may vary according to different social identities. Several qualitative studies using gang-only samples point to potential differences in sexual experiences and expectations by gender (e.g., Dickson-Gomez et al., 2017; Quinn, Dickson-Gomez et al., 2019), and to a lesser extent, ethnicity or cultural background (Brotherton, 1996; Schalet et al., 2003). Whether these or other social identities align with specific patterns of sexual or physical health is underexplored for gang-involved youth, particularly with respect to sexual orientation (Panfil & Peterson, 2015; Quinn, Dickson-Gomez et al., 2019).

Together, the social determinants of health, social ecological, and health lifestyle frameworks suggest that understanding how health decision-making varies according to, in this case, gang-involved youths' social identities and multilevel contextual influences will be

imperative moving forward. Understanding whether and how disparities emerge within the youth gang population as a function of social identities or environmental adversities will be particularly salient for ensuring service approaches are developmentally and contextually relevant to youths' lived experiences. Specific applications of these theoretical frameworks and subsequent findings are reported in each paper and summarized in the conclusion of this dissertation.

### **Social Work Relevance**

Youth gang membership in the U.S. is highly racialized, and emerging research suggests that youth gangs may be gendered and heteronormative. Failing to attend to the health challenges of, and within, this population while maintaining a consistent focus on crime and punishment represents a complex yet pressing social justice issue. Through an intentional focus on health from an integrated, ecological and intersectional perspective, this dissertation aims to illuminate key areas of service need among gang-involved youth and identify remaining gaps in our understanding of the health challenges faced by this population. In doing so, this dissertation represents one effort to shift the research paradigm related to youth gangs to maintain a more intentional focus on health.

The analyses and subsequent findings of this dissertation address important knowledge gaps and contribute to an emerging body of research related to youth gangs and health. By building this knowledge base, and in line with social work's mission, this work will help guide shifts in policy and practice towards responsive service approaches to address needs, promote health, and reduce disparities for the youth gang population.

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## PAPER 1:

### YOUTH GANG MEMBERSHIP AND HEALTH: A SCOPING REVIEW

#### **Abstract**

Research suggests youth gang membership is associated with delinquency, but links to health decision-making and outcomes have received considerably less attention. A scoping review of 65 studies used thematic analysis to examine the theoretical and methodological approaches of a research literature examining the relationship between youth gang membership and health. Themes illustrate the varied approaches used in this research, including diversity in how the gang is conceptualized; theoretical variation regarding the gang-health link; and the importance of gender and ecological influences for this area of study. Our analysis suggests that future research should focus on developing a theoretical foundation that meaningfully links gangs and gang membership to health. This should include 1) expanding definitions and measurement approaches to capture multiple dimensions and levels of influence as well as the complex role of gender and related identities within the gang context, and 2) specifying exact theoretical linkages between gang membership and health, as well as the relative influence of the gang when other aspects of a youth's environment are accounted for. Building a theoretical foundation will help advance a science to better understand *how* and *why* gangs and gang membership influence health during adolescence.

*Key words:* Youth gang membership, health, social ecology, scoping review

## Introduction

National estimates indicate there are 1.06 million youth gang members in the United States, with approximately 401,000 youth joining gangs annually (Pyrooz & Sweeten, 2016). Many gang-involved youth experience social and economic marginalization, and like other marginalized youth, are likely experiencing heightened risks to health and well-being (Sanders et al., 2013; Sanders, Schneiderman, et al., 2009). Yet, youth gang research has heavily focused on delinquency and violence, with attention to health commonly situated in relationship to these features (e.g., substance use or trauma as cause and consequence of violence perpetration and victimization). While there is evidence of health challenges in the current youth gang literature, policies and programs remain focused on violence prevention, gang desistance, and legal system intervention (Bjerregaard, 2015; Esbensen, 2015; Gebo et al., 2015; Simon et al., 2013), with health promotion as a secondary objective within this broader programmatic focus.

Addressing health needs and broader disparities for this growing population will require service approaches that are responsive to the unique needs of gang-involved youth and their environmental realities. Despite a robust literature on youth gangs, questions remain regarding the specific needs of this population, including *whether* and *how* the gang itself contributes to health decision-making and adverse outcomes. Scoping reviews are particularly useful for answering questions about the scope of available evidence and theoretical boundaries of an existing literature (Munn et al., 2018). Thus, we use a scoping review methodology to synthesize what is known about the relationship between youth gang membership and health. We aim to illuminate gaps in our current understanding of this relationship to inform future research regarding what is needed to address health needs and broader disparities. We see this as a critical step toward developing relevant and effective service approaches for the youth gang population.

## **Linking Youth Gang Membership and Health**

A well-established body of youth gang research and scholarship has emerged over the past century. Trends in focus and priority have included efforts to identify the risk and protective factors for gang joining, the consequences of gang membership, and more recently, the processes of gang desistance. These efforts have largely focused on documenting the associations between gang membership, delinquency, and violence (Pyrooz et al., 2015; Thrasher, 1927). For instance, gang membership during adolescence has been found to be a risk factor for drug selling (Thornberry, 1998), weapon carrying (Harper & Davidson, 1999), and violence perpetration (Carson & Esbensen, 2017). Further, remaining in a gang during adolescence can increase the likelihood of ongoing delinquency and violence (Cepeda et al., 2016; Gilman et al., 2014; Thornberry et al., 2003), including arrest (Pyrooz & Decker, 2011) and victimization (Pyrooz et al., 2014; Katz et al., 2011). At the same time, research has also shown life stressors and childhood adversity to be linked to gang joining, including financial hardship (Pyrooz & Sweeten, 2015), family instability (Quinn et al., 2017), exposure to neighborhood and family violence (Quinn et al., 2017), and perceptions of school as unsafe (Lenzi et al., 2015).

Despite a robust literature on youth gangs, research examining the relationship between youth gang membership and health remains limited. This may be due, in part, to research and policy concerns over identifying and addressing factors that disproportionately contribute to the crime problem – of which gangs and gang membership have garnered significant attention. Even public health and nursing approaches to youth gangs have commonly focused on understanding and addressing violence (Akiyama, 2015; Gebo, 2016; McDaniel et al., 2014; Simon et al., 2013). There is an established connection between gang membership and delinquency, yet weak and mixed effects have also been documented (e.g., Pyrooz et al., 2015). This may be due, in

part, to variations in sampling and measurement approaches, but it also poses questions and alternative explanations about the causal influence of gang membership. For example, researchers have suggested that risk behaviors among gang-involved youth may be driven, in part, by environmental conditions (e.g., disadvantaged neighborhoods, limited access to resources and opportunities) rather than gang membership per se; it may also be a combination of gang involvement and embeddedness within adverse living environments beyond the gang context which fuels greater risk (Connolly & Jackson, 2019; Pyrooz et al., 2015).

From a social determinants of health perspective, structural inequities (e.g., poverty, racism, oppression) produce marginal and adverse living environments for certain social groups, which in turn, exert influence on individual health and contribute to population-level disparities (Weinstein et al., 2017). These same structural factors that drive adverse health have also been theorized to contribute to both the emergence of street gangs generally and shape the living conditions that propel youth to join gangs (e.g., Howell, 2015; Shaw & McKay, 1942; Vigil, 2002; Vigil & Yun, 2002). For example, Vigil's (2002) multiple marginality framework posits that macrohistorical (e.g., racism, social and cultural repression) and macrostructural (e.g., immigration, residential instability) forces result in multiple forms of marginalization (e.g., poverty, lack of opportunity, fragmented social control institutions) for communities of color. In the face of social, economic, and cultural exclusion from mainstream society, youth within these communities may seek alternatives for resources, opportunities, and inclusion, and gang membership becomes a viable, if not sole, alternative.

The parallel in structural drivers of youth gang membership and health inequity, combined with documented associations between gang membership and adversity, point to potential linkages between gang membership and health. That is, if youth gangs and gang

membership emerge as a function of marginalization, and experiences of marginalization are linked to adverse health, it is reasonable to assume that a gang-health link is present and warranting attention. It may be that gang-involved youth experience increased health risks as a result of adverse environmental exposures such as violence. On the other hand, the marginal living conditions (e.g., neighborhood disadvantage, limited access to resources and opportunities) in which gang-involved youth are disproportionately embedded may exert direct or indirect influences on health, irrespective of gang involvement. What remains unclear is whether adverse health is simply due to the increase in health risk behaviors during adolescence (which is a common feature of this developmental period irrespective of gang involvement) or whether there are distinct features of gangs that contribute to health vulnerabilities beyond environmental exposures. For youth embedded within adverse living environments or for those experiencing oppression because of their social identities, it may also be the case that gangs serve a stress buffering or social support role, which in turn, may have health promoting effects.

### **The Youth Gang Context and Health Decision-Making**

All youth, including those who are gang involved, are embedded in systems of relationships that promote or inhibit healthy development, and subsequently, health decision-making. From a social ecological perspective, health risk behaviors during adolescence (e.g., binge drinking, unsafe sex) are informed by key proximal contexts including family, peer, neighborhood, and school. Yet, in the case of youth gangs, it is often unclear exactly what these behaviors are embedded *in* (Wood, 2014; Wood & Alleyne, 2010). This question becomes more complex given the multilevel or cross-contextual influence that gangs may have for youth. For example, researchers have suggested that because gangs navigate and create meaning in geographic space (e.g., hanging out, selling drugs), gang and neighborhood networks may be

entangled and almost indistinguishable in certain circumstances (Papachristos & Hughes, 2015). Other research points to family gang involvement for influencing youth membership and youth behavior (e.g., Augustyn et al., 2017; Hoffman et al., 2014; Quinn, Walsh et al., 2019).

Social context can be interpreted as an external condition or dynamic process, referring either to cultural norms or micro-social interactions (Bronfenbrenner, 1979; Bronfenbrenner & Morris, 2006; Fagan, 1993). From this perspective, and as Brotherton (1996) suggests, the gang may be a focal group (mode of individual and group behavior) and a social context (subculture with norms and values). Gang researchers have been attending to definitional issues of what constitutes a gang as well as identifying best practices for measuring individual gang membership for empirical study for some time (e.g., Boxer et al., 2015; Decker et al., 2014; Esbensen et al., 2001). Common definitions and measurement approaches center delinquency and violence as key features of youth gangs and gang membership (e.g., Wood & Alleyne, 2010). What remains unclear is whether the gang constitutes a unique context for health decision-making, and if so, *what* features are more or less likely to shape health risks including *how* and *why* patterning or variation might emerge within this shared context.

### **Current Study**

These questions and related theorizing reflect a need to understand how researchers are approaching the gang-health link. We use a scoping review methodology to examine the youth gang literature through a health-focused lens to address the following research question: What is known about the relationship between youth gang membership and health? At this stage, such a review points to common frameworks for understanding the gang-health link; the role of the gang itself for health decision-making; and individual and environmental influences on this link. We aim to identify gaps to inform future research regarding what is needed to systematically

study and attend to the health disparities faced by this population.

### **Methods**

A scoping review was conducted using methodology proposed by Arksey and O'Malley (2005) and further advanced by Levac et al. (2010) and Peters et al. (2015). A scoping review is designed to identify the extent and nature of a body of research, balancing breadth and depth to identify gaps in a current literature. It is commonly used to understand how research is being conducted on a topic or field, providing an overview of key concepts and findings. This is accomplished via a descriptive summary and qualitative analysis of the literature (Levac et al., 2010). Scoping reviews are a useful precursor to systematic reviews in order to ensure a body of literature is appropriate for synthesis (Peters et al., 2015). Thus, scoping reviews differ from systematic reviews in that they do not assess the quality and rigor of studies (i.e., no critical appraisal); they also differ from traditional literature reviews as an analysis rather than a narrative summary of the broad nature and specific features of the literature is undertaken. In an effort to increase methodological rigor and transparency (Lockwood & Tricco, 2020), we registered the review protocol with the Open Science Framework (OSF) prior to data extraction and analysis (Bishop, Rousson et al., 2020) and followed the PRISMA extension for scoping reviews checklist (PRISMA-ScR: Tricco et al., 2018).

### **Search Strategy and Study Selection**

Articles were included in the review if they met the following criteria: 1) were published in English in peer-reviewed journals from 1990 onward; 2) studied youth (generally ages 12-24) using samples in the United States; and 3) examined the relationship between gang membership and health. We set the publication period to begin in 1990 because gang research experienced a rapid growth in the early 1990s (Pyrooz & Mitchell, 2015). Studies where gang membership was

measured via individual self-report were included as this approach has been widely used and validated in youth gang research (e.g., Boxer et al., 2015; Decker et al., 2014; Esbensen et al., 2001). Additionally, studies were included if health outcomes aligned with core indicators of four domains of adolescent health as identified by the Healthy People 2020 initiative (Healthy People 2020, 2012): physical health, sexual health, mental health, and substance use. Given the objective of examining the gang-health link, studies were excluded where gang membership was the dependent variable in multivariate analyses. Quantitative and qualitative studies were included, and the literature search process concluded as of April 2020. Directly prior to analysis (October 2020), we replicated our search which resulted in the inclusion of one additional article.

Articles were found using academic search engines (Academic Search Complete, Web of Science, PubMed, CINAHL Complete, PsychINFO, Social Work Abstracts, Sociological Abstracts), Google Scholar, and reference lists of manuscripts. In search engines, combinations of search terms established a-priori were used to identify relevant articles. These included *youth, adolescent; gang, gang membership, gang involvement, gang affiliation; health, health risk, health behavior, mental health, substance use, physical health, sexual health*. Titles, abstracts, and full texts were reviewed in a systematic process to ensure studies met the scope of this review and satisfied the inclusion criteria. Corresponding authors of four studies were contacted for additional information regarding their sample and sampling approach; these studies were determined to meet the inclusion criteria. The study selection process is depicted in Figure 1.

\*\*\*\*\*Figure 1 here\*\*\*\*\*

### **Data Extraction and Analysis**

As recommended by Peters et al. (2015), study characteristics were extracted and entered into a standardized data extraction form. Data elements included the study citation, purpose and

aims, applied theories, sample characteristics, methodology, key findings, and author conclusions.

The analysis of the literature occurred in two steps per Levac et al. (2010). First, studies were characterized according to the sample, study design, measured variables, and analysis techniques. This information was then synthesized into a descriptive summary of studies. Second, studies were analyzed following a thematic analysis approach (Braun & Clark, 2006). This included an inductive, iterative process of 1) extracting and grouping relevant data from the extraction forms into initial thematic codes, 2) using the original articles and research team discussions to enhance credibility and trustworthiness (i.e., researcher and data source triangulation; Miles et al., 2014), and 3) condensing codes and naming themes. Specifically, data were manually coded by the first author to generate initial thematic codes that recurred across the data. Coding occurred inductively (i.e., no a-priori coding scheme), though codes were generated with the study objective in mind: to understand the relationship between youth gang membership and health, including individual and environmental influences. Initial codes were reviewed with the second author and discrepancies in code definitions and the application of codes were resolved. Next, codes were condensed into broader themes in an iterative process. Disagreements were discussed and negotiated amongst coauthors until consensus was reached. Theme titles were then developed to describe the focus of each set of codes.

## **Results**

### **Descriptive Summary of Studies**

Sixty-five articles were identified for inclusion. Table 1 presents study characteristics. Of the studies reviewed, 47 were quantitative, 11 were qualitative, and the remaining seven employed multiple or mixed methods. Quantitative studies examined a range of health behaviors

and outcomes, with the majority focusing on substance use (n = 30), followed by mental health (n = 19), sexual health (n = 17), and physical health (n = 4). Qualitative studies examined participant experiences of sexual victimization, risky sexual behaviors, and sexuality discourses (n = 8); substance use (n = 2); trauma, depression, and suicidality (n = 2); and food consumption practices (n = 1). Studies employing multiple or mixed methods described patterns of substance use (n = 4), sexual risk behaviors (n = 1), or the co-occurrence of substance use and mental health issues (n = 2). While all studies operationalized gang membership as individual self-report (per the inclusion criteria), 20 studies included additional gang-related measures (quantitative) or descriptions (qualitative). These included length of tenure or embeddedness (n = 5), gang type or structure (n = 6), and gang norms and values (n = 12).

\*\*\*\*\*Table 1 here\*\*\*\*\*

### **Summary of Methodology and Methods of Reviewed Studies**

There was a degree of overlap in the data sources used across studies. For example, five of the 65 studies used data from the National Longitudinal Study of Adolescent to Adult Health, two used the National Longitudinal Survey of Youth, five used data from a study on Milwaukee gangs, and five used data from an ethnographic study on ethnic gangs in San Francisco; three studies used behavioral surveillance data from various state-wide surveys, and other studies were specific data collection projects of given counties/cities. Sample sizes across studies ranged from 1 to 14,322 participants. Twenty-four studies analyzed data from gender homogenous samples (14 = female-only, 10 = male-only); 17 from ethnoracially homogenous samples (11 = African American/Black, 6 = Mexican American/Latinx). Of the 65 studies, 34 conducted comparative analyses to examine differences between gang and non-gang youth, 30 examined variation in health behaviors within gangs using gang-only samples, and one conducted both comparative

and intra-gang analyses. All qualitative studies articulated thematic findings aligning with participant experiences of health decision-making or outcomes within the gang context.

### **Thematic Analysis**

Four themes emerged from our review and illustrate the varied approaches taken in the research literature to understanding the relationship between youth gang membership and health.

#### ***Theme 1: Authors conceptualized the gang as a social-cultural context with group norms and values influencing individual health***

The majority of studies (n = 52) conceptualized the gang as a social-cultural context within which youth engage in health decision-making and health risk behaviors (Table 2). This was a common theme despite all studies operationally defining gang membership at the individual level. Across studies, conceptualizing gang as a social context was most common (n = 42), followed by a cultural context (n = 27). In the remaining studies, authors used a variety of concepts that implied some form of a social-cultural system (e.g., microsystem, lifestyle, organization or institution: n = 16).

\*\*\*\*\*Table 2 here\*\*\*\*\*

Authors conceptualized the gang as a social context by either describing the role of gang peers and friends for influencing health risk behaviors (n = 23) or making general references to the gang as a social network or group in which youth are embedded (n = 20). The majority of these studies described the gang as a delinquent or antisocial peer group that exerts influence on individual behavior. Yet, despite frequent discussion of the gang's social context as increasing youths' exposure to risky behaviors or encouraging participation in these behaviors, authors simultaneously highlighted the supportive functions of gang peers, including the broader social network or community gangs afford youth, particularly for those living in marginal environments

(e.g., resource poor neighborhoods) and/or experiencing multiple forms of adversity (e.g., homelessness, racism). For example, Harper et al. (2008) noted:

Delinquent social networks, such as gangs, may present a reasonable source of social support where the many negative features of these groups are countered by the heightened importance of social networks for homeless youth [...] Gangs may equip homeless adolescents with certain skills that help them better survive on the street [...] homeless youth have less opportunities for health-promoting social relationships [...] the benefits of peer networks may persist regardless of whether the social network is delinquent or non-delinquent. African American homeless male youth, because of the relative lack of financial, institutional, and social support, as well as their greater exposure to violence, may actually receive some health-related benefits from gang involvement (pp. 231-232).

The remaining three studies either described the gang as “a family” where youth can experience a form of familial inclusion or discussed how having family members who were also gang-involved may increase youth engagement in health risk behaviors (i.e., substance use).

Authors also conceptualized the gang as a cultural context by referring to the gang as a cultural system or milieu (n = 8) where group norms and values facilitate and encourage certain health risk behaviors (n = 25). The majority of these studies described the gang culture as gendered, where traditional gender norms and expectations (i.e., patriarchy, masculinity) about male and female roles govern what behavior is considered acceptable and unacceptable and for whom. As Hunt et al. (2002) describes:

These young women are embedded in the social life of street gangs whereby the rules of masculinity govern their social space [...] they participate in its [the gang] culture and involve themselves in many of its characteristics, including the use of drugs. However, while homegirls may wish to experiment with different drugs, they may find themselves confronting a series of structural constraints. Some of these constraints arise from the male culture of the street environment, while others stem from community notions of “traditional femininity” [...] Within these structural constraints, then, drug use becomes a constantly changing process, where females’ ability to assert their right to use is negotiated within boundaries that determine acceptable and unacceptable drug use (p. 379).

Authors also described how gang norms and values are upheld and reinforced in ways that maintain group cohesion while simultaneously increasing (or in certain situations, decreasing) health risks for individual members. Other authors described how cultural attributes of the gang, such as shared music preferences and partying as a common group activity, simultaneously serve to facilitate or encourage risk behavior (e.g., group sex) or reduce health-related risks/harms (e.g., normalizing marijuana and alcohol while critiquing or abstaining from harder drug use).

Authors of 17 studies used other concepts, referring to the gang as an environment, microsystem, organization, institution, or structure; or a lifestyle or collective and situational context in which youth are embedded. Despite variation in the concepts used, there was a general consensus among authors that the influence of the gang on youth health may not be fully attributable to membership at the individual level; rather, the gang may serve as a broader context or system in which health decision-making occurs. Yet, authors varied in their thinking about exactly what the gang is (e.g., social network, subculture) and the type of influence it has on individual members' health. For instance, several authors noted that the gang influence may vary according to differing degrees of individual embeddedness (e.g., length of tenure) or connectedness to the gang identity. There was an emerging consensus that research is needed to clarify the gang-level factors that may influence individual health, including group norms and values, and how these vary according to gang type and structure.

***Theme 2: A variety of ecological and developmental theories were used to explain the gang-health link***

Thirty-nine of the reviewed studies used theory to explain or describe the gang-health link. The remaining studies were either atheoretical with respect to this link (n = 16) or used theory to speculate about the role of gender for health risks (the latter are detailed in theme 4).

Across the 39 studies, authors primarily drew from two broad categories: ecological and developmental. Different levels of theory were used, ranging from broad frameworks to middle range theories, and authors' applications of theory varied, including informing research questions or formal hypotheses, variable selection and analysis, and interpreting study findings. While differences in the level of theory and method of application made summarizing empirical support for any one theory difficult, the utility of ecological and developmental approaches for helping to link gang membership and health were generally supported across studies.

Ecological theories were most commonly used to understand the gang-health link (n = 34). Most prevalent were theories of social influence (22 of 34), including social learning, differential association, social network, informal social control, social facilitation, selection and enhancement, and social capital theories. Nearly half the studies taking a social influence approach (10 of the 22) theorized about social learning processes, positing that gangs provide a milieu for learning and practicing health risk behaviors, and that variations in exposure to the gang as a "teaching group" may influence how behaviors manifest differently within the shared learning context of the gang. Others posited that gangs act as social networks which encourage individuals to behave in ways that align with group norms and values. These authors were mixed in their thinking, arguing that gangs: predispose youth to health risk behaviors (negative or antisocial networks); provide social support for youth without social networks (e.g., homeless youth); or are only negative *if* comprised of members who endorse risky norms or engage in high-risk behaviors. Other authors theorized that gangs promote risky norms and behaviors by exerting informal social control over youth who have weak attachments to prosocial institutions (e.g., family, school). Several authors applied social facilitation, selection, and enhancement models to test for differences in substance use before, during, and after gang involvement. One

study used social capital theory to guide variable selection, with authors operationalizing gang membership as a peer risk factor.

Authors of 12 studies either applied broader ecological frameworks (n = 7) or focused on the gang as a context for trauma exposure (n = 4). Broader ecological frameworks included the risky environments framework, Bronfenbrenner's ecological model, the risk and resilience framework, the multiple marginality framework, a protective factors framework, and the normalization thesis. These frameworks were primarily applied in one of two ways: studies either conceptualized and tested gang membership as a peer context risk factor for adverse health, or examined how family, peer, school, and/or neighborhood factors serve as proximal influences on health among those already gang involved. The exception was the application of the normalization thesis, which was used by one author to frame study findings and conclude that marijuana was likely normalized within the broader youth gang culture. The remaining authors theorized that gangs serve to increase youths' exposure to violence (as victim and perpetrator) which results in experiences of trauma and poorer mental health.

While less common, authors also applied developmental theory to describe the gang-health link (n = 8). Studies taking a developmental approach theorized about the role of gang membership with regards to developmental tasks, transitions, and turning points. Authors of several studies described gang membership as triggering precocious transitions or suggested that gang-involved youth are at a heightened risk of experiencing precocious transitions because they live in adverse environments. Other authors described how gangs may fill a social void during adolescence for some youth, either helping youth confront developmental tasks or interfering with such efforts. For example, Harper and Robinson (1999) noted that gang membership affords peer affiliation that may help Black youth confront the developmental tasks of adolescence

within the context of hazardous and stressful living environments, while also introducing potential threats to healthy development (e.g., early sex, substance use). Authors of one study theorized about turning points, suggesting traumatic loss may be a turning point which pushes some youth to become more deeply embedded in gangs as a way to avenge or cope with loss, which in turn, increases their exposure to further violence and risks to mental health.

Across studies, a variety of ecological and developmental theories were used to explain the gang-health link. Despite variation in the level and application of theory, there was a general consensus that gangs and gang membership may serve as an important social context for youth. Specifically, gangs may exert direct social influence on health via teaching and reinforcing certain norms and behaviors, or mediate external environmental challenges. Authors varied in their assertions of gangs as positive or negative influences, with the direction of influence potentially shaped by youth or environmental characteristics (e.g., homelessness). While ecology- and development-oriented theories proved useful, a common theme of authors' conclusions was the need for more research to clarify theoretical links. Authors of comparative studies called for clarity regarding causal mechanisms and the contribution of the gang itself for influencing health. For example, Gordon et al. (2004) concluded:

We cannot rule out the fact that some third variable predicts both gang participation and increased [substance use] in a particular time period, rather than there being a causal effect of gangs [...] future research on gangs should focus on measuring potential time-varying confounds and causal mechanisms (p. 79).

Meanwhile, authors of gang-only studies highlighted the need for further intra-gang research to understand patterning or variation in health among those already gang involved. As Quinn, Walsh et al. (2019) suggest:

As our findings reveal, not all adolescent gang members engage in equivalent levels of substance use. Researchers should continue to explore social and structural factors that may influence the variability in substance use among gang members, moving beyond the

dichotomy of gang member/non-gang member (p. 624).

***Theme 3: Neighborhood and family characteristics were cited as important contextual influences for youth gang members' health***

Authors of 43 studies described neighborhood and family characteristics as important contextual influences for health. Approaches used to convey the importance of these contexts included theorizing about the role of contextual factors; incorporating family and neighborhood variables in analyses; and forming ecology-oriented recommendations for research and practice. In quantitative analyses, measured family and neighborhood characteristics consisted of primarily adverse features that were modeled in different ways (e.g., direct or mediating effects). In qualitative analyses, themes included explicit descriptions of neighborhood and family influences on youth health. Across studies, neighborhood and community influences were most commonly discussed (n = 35), followed by family influences (n = 26).

Authors of 27 of the 35 studies conveying the importance of neighborhood and community influences did so via theory (n = 21) and/or analysis (n = 11). Studies using theory described three potential ways neighborhood and community environments influence health. First, and most prevalent (17 of 21 studies), gang membership may be one way for youth to cope with, or navigate, neighborhoods characterized by socioeconomic disadvantage and violence. As Voisin et al. (2008) hypothesizes, gang membership may mediate the neighborhood-health link: “[...] gang involvement may provide a mechanism through which community violence exposure is associated with youth risk outcomes” (p. 148). Second, because gang-involved youth are operating within disadvantaged neighborhoods, health risks may be shaped, in part, by neighborhood conditions (i.e., direct effect of neighborhoods on health). Third, adverse community environments may mediate the link between youth gang membership and health.

The 11 studies examining neighborhood/community characteristics in analyses were balanced in their use of community violence exposure and neighborhood functioning measures. Measures of violence exposure included witnessing or experiencing violence; measures of neighborhood functioning included neighborhood disorder, collective monitoring, availability of drugs, acceptance of substance use by neighbors, adult support in the community, and youth connectedness to community. Three approaches were commonly used in analyses. First, mediation analyses were conducted to test whether neighborhood/community factors mediated the gang-health link, or whether gang membership mediated the neighborhood-health link. Second, analyses of direct effects of adverse neighborhood characteristics on variation in health patterning among gang-involved youth were examined. Third, qualitative accounts of the role of neighborhood violence on trauma experiences were detailed. Regardless of approach, studies found support for neighborhood and community influences on youth gang members' health.

Authors of 20 of the 26 studies conveying the importance of family influences did so via theory (n = 9) and/or analysis (n = 17). Studies theorizing about the role of family influences predominantly described the family as a proximal context that exerts influence – both positive and negative – on youth behavior via informal social control and modeling (7 of 9 studies). For example, authors described how parental norms and behaviors that favor substance use combined with limited social controls (e.g., family rules, monitoring, cohesion) will increase the likelihood of substance use (or more problematic use) among gang-involved youth; others theorized that early nest leaving by youth as well as their own family formation (child rearing, cohabitation) will shape youth's health risk trajectories. Importantly, several authors also highlighted structural factors (e.g., poverty, racism) in their theorizing, describing how these factors indirectly affect youth behavior by undermining family structures (e.g., Quinn, Walsh et al., 2019).

Measured family characteristics used in analyses fell within four broad categories: parenting and family functioning, family type and structure, family transitions, and family substance use. A majority of these studies (11 of 17) focused on the role of parenting and family functioning, including family monitoring, discipline, cohesion, communication, support, stability, violence, parental attitudes, and parent gang involvement. Three approaches were used in analyses. First, direct effects of family characteristics on variation in health patterning among gang-involved youth were examined. Second, qualitative accounts regarding the role of family member behavior on youth health (e.g., exposing youth to sexual violence, substance use) were detailed. Third, though only in one study, gang membership was tested as a mediator of the link between parental monitoring and youth substance use. Empirical support was found for family influences across studies, though mixed findings were also present and varied by outcome.

Theory and analysis were commonly used approaches to articulate the importance of neighborhood and family influences for health, though attention to these contexts was also a common theme in authors' conclusions. For instance, authors articulated policy and practice recommendations aimed at neighborhood and family contexts, such as strengthening families and attending to community violence in order to reduce trauma and support healthy development. For example, Salazar et al. (2007) conclude that "prevention programs designed to reduce STDs [...] must incorporate activities to affect the underlying direct contextual influences stemming from peer interactions as well as the indirect influences of neighborhoods and family on gang involvement as they are collectively contributing to STDs" (p. 765). Authors also called for explicit attention to broader structural factors that indirectly influence youth by shaping neighborhood and family structures. For example, Dickson-Gomez et al. (2019) proposed that:

Interventions to address the structural conditions of poverty, unemployment, community violence, and limited educational opportunities could help [...] alleviate sexual risk

behaviors and coercive sex among this population [adolescent gang members]. Structural interventions [...] may be the best hope for interrupting the cycle of risky sex, substance use and violence for youth gang members and their children (p. 175).

In addition to practice recommendations, authors called for further research to clarify the family and neighborhood features most salient to the gang-health link and how structural and proximal contexts (in)directly influence youth gang members' health. As Quinn, Walsh et al. (2019) suggest, "youth gang members are impacted by their marginal social statuses and neighborhood environment, and future research should continue to examine such effects" (p. 624).

***Theme 4: Gender was cited as an important multidimensional element in the relationship between gang membership and health***

Gender was the most frequently discussed social identity in the reviewed literature. Twenty-eight studies, which largely focused on substance use and sexual health, cited gender as an important multidimensional element. Approaches used to convey the importance of gender fell into three categories: using theory to conceptualize the importance of gender; including gender in analyses; and forming conclusions and recommendations for future research. Notably, all studies used binary definitions of gender (male/female). Authors of two papers using the same data reported the existence of transgender participants in their sample yet used participants' current self-identified binary gender in analyses (Petering, 2016; Petering et al., 2017).

Thirteen of the 28 studies used feminist or gender theory to describe how gangs and their members uphold traditional, hierarchical (i.e., patriarchal) gender structures. While theories were not always explicitly named, authors' descriptions of the influence of gender structures centered on how a) gang norms and practices reflect patriarchal structures and reproduce gendered hierarchies (n = 12); and b) individual members respond to the gendered hierarchies that serve as organizing features of their gangs (n = 9).

Authors of all 12 studies theorizing about gang norms and practices described how gang culture and gang structures are governed by the rules of masculinity and male dominance, where unequal gender norms are normative and result in the subjugation and exploitation of female members. However, as explained by Hunt et al. (2002), this gendered power structure can function in both capacities to increase or decrease female risks: “the patriarchal nature of gang culture usually assumed to be a risk factor in problematic drug use may actually moderate female gang members’ using drugs in a recreational manner and protect some from developing severe use” (p. 378). Several authors noted that group norms and behavioral expectations often supersede individual beliefs about gender (which may vary), which serves to maintain group cohesion and further solidify gender norms and power dynamics. At the same time, authors also commented on how gender norms vary according to gang gender composition, suggesting that more gender-balanced groups may be amenable to adopting more equitable gender norms.

Authors of studies theorizing about individual member responses to gendered hierarchies focused on efforts to attain masculinity (n = 4) and strategies to negotiate or reinforce gendered behavior boundaries (n = 6). Studies theorizing about masculinity either posited that male members’ use of sexual violence against females may be explained, in part, by an inability to attain hegemonic masculinity (i.e., sexual violence as a means of obtaining power and status when normative ways of doing so are out of reach); or suggested that females who adopt masculine attributes (aggression) may have different expectations placed upon them resulting in different health risks (i.e., no sexual favors but expected to join gang fights). Studies theorizing about gendered behavior boundaries described differences in how male and female members attempt to negotiate or reinforce boundaries. For instance, females attempt to negotiate their drug use and sexuality by either aligning their behavior with gendered expectations of what is

considered acceptable, or by creating alternative spaces where they can operate more freely (e.g., female-only settings for partying); while males attempt to reinforce inequitable gender norms through gendered responses and violence (e.g., labeling sexual assault victims as promiscuous which increases risk of repeat victimization; perpetrating or justifying sexual assault).

Twenty-three of the 28 studies examined gender empirically, either testing group differences (n = 13) or qualitatively describing gendered experiences with respect to health (n = 10). Across studies, gender-related measures included participant self-report gender, gang gender composition (male-to-female ratio), and individual- and gang-level gender norms and expectations. The majority of studies (12 of 13) testing for group differences found significant differences: female members experienced higher risks to sexual and mental health and male members experienced greater or more serious substance use. One study examined both individual- and gang-level effects, finding empirical support for effects of gang-level gender composition and beliefs on sexual health risk (Wesche & Dickson-Gomez, 2019). Two studies found no gender differences for at least one outcome (Gover et al., 2009; Voisin et al., 2008).

Themes from qualitative studies highlighted individual experiences and gang-level influences on health which were gendered in nature. At the individual level, for example, female behavior was described as restricted and often informed by male preferences of what constitutes (un)acceptable behavior, which commonly resulted in female experiences of sexual victimization and scrutiny in their substance use. Studies also documented how both male and female members uphold and reinforce inequitable gender norms. For example, participants across studies detailed males' use force or coercion to maintain control over females' sexual experiences; while female participants described attempts to become sexually autonomous from males by placing their own "unfeminine" behavior (e.g., casual sex) in direct opposition to other females whose behaviors

are perceived as even less acceptable. Descriptions of female members' role in developing negative (gossip) and positive (safe partying) strategies to regulate and control other females' behavior were also present (e.g., Hunt et al., 2000). At the gang level, gender or sex composition was commonly described as contributing to constructions of gender and gendered experiences. For instance, authors detailed how gangs with a higher proportion of males hold stronger beliefs of females as sex objects, resulting in higher victimization risk for female members.

By using theory and empirical examination, authors highlighted gender as an important element for health, particularly for understanding substance use and sexual health risks among gang-involved youth. Gender was also a common theme in authors' conclusions (15 studies). Specifically, authors called for more research on group differences and heterogeneity within groups (e.g., how females construct and enact femininity; how males navigate multiple masculinities); the role of intersecting identities and life experiences (e.g., sexual orientation and gender); and the features of gangs (e.g., gender or sex composition, norms, collective behaviors) that shape gender relations and influence variation in health and for whom. For example, in concluding, Quinn et al. (2019) theorized about the complex interactions between gender identity and expression, sexual orientation, gang norms, and sexual health risk:

Participants noted that girls who were gay or adopted a more masculine demeanor were theoretically freed from the sexual expectations placed upon other girls. Unlike boys, girls could engage in same-sex intimacy and be in openly gay relationships without facing threats of violence or exclusion [...] Although numerous gang members explained that the hierarchy of respect and power within the gang was directly related to how girls were initiated, the "tough girls" were not always protected from sexual expectations or forced sexual encounters. It may be that gender norms and their associated sexual expectations are more entrenched than some of the girls would like to believe. It is also possible that sexual expectations of all women in the gang are associated with men's desire to demonstrate their masculinity and dominance (p. 163).

## **Discussion**

The purpose of this study was to examine the theoretical and methodological approaches

of a research literature examining the relationship between youth gang membership and health. In doing so, we aimed to assess the current state of this literature in order to identify key gaps in our understanding of health for gang-involved youth to inform future research regarding what is needed to address health needs and broader disparities. From our review of 65 studies, four themes emerged and illustrate the varied approaches used in this body of research. These included diversity in how the gang is conceptualized in relation to health; theoretical differences regarding *why* and *how* youth gang membership might be linked to health; and that gender and ecological influences from the neighborhood and family contexts are important elements for understanding this relationship.

### **Gaps in the Current Literature and Directions for Research**

Several gaps have emerged from our review and should be addressed to ensure this area of research holds utility for practice. First, the majority of studies conceptualized the gang as a social-cultural context with norms and values that influence individual members' health, yet few studies included gang-level contextual factors in analyses. Relatedly, there was a lack of clarity regarding whether the gang serves as a positive or negative (or both) context for health decision-making, and the specific features of the gang that may promote or inhibit health and for whom. Second, nearly half of the reviewed studies did not use theory to articulate *why* or *how* gang membership might be linked to health, or the reasons for health variation within gangs. Of studies using theory, a majority took an ecological approach and over half cited neighborhood and family influences as important. Yet, studies largely neglected the potential mediating role of gang membership, and few studies examined the ecological factors that may help explain health variation within gangs. Finally, gender was commonly cited as important for substance use and

sexual health, yet studies were limited in their definitions and measurement of gender and little attention was paid to related social identities such as sexual orientation.

These gaps point to key areas for future research. Specifically, theory specification and expanded definitions and measurement approaches are needed to clarify the relationship between youth gang membership and health. Adolescence is a key developmental period for health, and gang membership likely plays a role in shaping health decision-making and outcomes during this period for some youth. Because gang-involved youth disproportionately come from marginalized communities and are likely experiencing health challenges as a result, a focus on health decision-making and ecological risks associated with adverse health merits a more prominent position in youth gang research. Moving forward, it will be important to clarify *why* and *how* youth gang membership is linked to health, and the relative influence of the gang when other aspects of a youth's environment are accounted for. Further, youth gangs and individual membership is dynamic and varied, and findings from our review suggest this is the case with respect to health. Approaches to measurement that account for multiple levels of influence, which clarify the adverse and health promoting features of gangs, and the complex role of social identity (e.g., gender, sexuality) within the gang context or as it intersects with gang membership are needed.

Empirical examination of the links between youth gang membership and health necessitates the use of longitudinal designs with data collected at multiple levels and across multiple contexts of a youth's ecology. Efforts to understand heterogeneity and the structural and ecological factors associated with health variation within gangs may benefit from multilevel and person-centered approaches (e.g., multilevel latent class analysis, MLCA) using geographically and demographically diverse data. Meanwhile, efforts to gain a deeper understanding of how

identity and diverse lived experiences shape health decision-making within the gang context may benefit from qualitative inquiry, and in particular, grounded theory work.

***Specify how gang membership is linked to, or influences variation in, health decision-making***

Studies using theory to help explain the relationship between gang membership and health drew primarily from ecology-oriented theories. Despite theorizing about the potential role of gang membership and ecological contexts (neighborhood, family) for health, only three studies examined gang membership as a mediator, and only seven studies examined the ecological factors associated with health variation within gangs. There was substantial variation in theory use and application across studies making it difficult to identify a common set of supported mechanisms. While an ecological approach was broadly supported, clarity is needed regarding the specific linkages between gang membership and health as well as *why* or *how* health decision-making might vary within gangs.

Ecological theory is a meta-theory that views youth development, behavior, and health as the result of interactions between individuals and their environments. The level of abstraction and theoretical complexity inherent when multiple levels of influence are considered make specifying exact theoretical linkages using an ecological approach difficult. In the reviewed literature, this challenge was present and likely exacerbated by uncertainty regarding what the gang is and what membership represents for youth. Yet, our review demonstrates there is promise in this line of research and suggests theory development efforts are needed to explicate how gangs and gang membership are linked to health during adolescence.

The lack of theoretical specificity in the reviewed literature point to the need for a clear and cohesive set of mechanisms. Issues of temporal ordering in the relationship between gang membership and various health behaviors and outcomes should be clarified moving forward

(e.g., Frisby-Osman & Wood, 2020). Additionally, clarity in the role of environmental factors beyond the gang context for understanding the gang-health link is also needed. One possibility is that gang membership serves as a mediator linking other proximal contexts such as the neighborhood and family to health. Another possibility is that gang membership, or certain features of the gang, exacerbates or mitigates (i.e., moderates) direct influences of a youth's living environment on health. Additionally, gang-level factors (e.g., group norms) should be considered to ensure gang-health frameworks capture multilevel influences of the gang beyond individual membership.

The reviewed literature also points to the presence of heterogeneity in health decision-making and health risks among gang-involved youth, posing questions about *why* variation exists. Yet, few studies theorized about potential heterogeneity and only seven studies examined the ecological factors associated with variation in analyses (six of the seven were substance use focused). Clarifying the ecological factors that contribute to differences in health within the shared context of the gang will be another important direction for research. This should include attention to broader structural factors (e.g., access to health care) as well as influences across more proximal contexts (i.e., family, neighborhood, school), and extend to health behaviors and outcomes beyond substance use.

***Expand gang definitions and measurement approaches to capture multiple dimensions and levels of influence***

Authors of the reviewed studies commonly conceptualized the gang as a social-cultural context, yet concepts used across studies varied and there was diversity in authors' thinking about exactly what the gang is or the type of influence it may have on health. Despite a common focus on the broader gang context, only two studies operationalized and tested gang-level

influences in analyses. Gang research, including the reviewed studies, commonly defines and operationalizes gang membership as a one-dimensional dichotomous measure (yes/no) at the individual level. This approach has yielded a robust literature on behavioral differences between gang and non-gang youth. However, it does not provide a more nuanced understanding of the multiple dimensions and levels of influence gangs have, or what membership in a gang actually signifies for youth and their health decision-making.

Developing clarity in the role of gang membership for health will require attention to how gangs are understood and measured. The lack of clarity in concepts and definitions in the reviewed literature is not unique; rather, it reflects a larger issue faced by researchers attempting to understand youth gangs and the significance of individual membership for youth behavior (Decker et al., 2014; Esbensen et al., 2001). Our review points to the need to clarify the multiple levels and types of influence gangs have on youth in order to effectively address health needs. Specifically, expanded measures which capture multiple dimensions (e.g., adverse or health promoting features) and levels (individual, contextual) of influence are needed.

Our review suggests that gangs may constitute a unique context for health, but exactly what this context *is* remains unclear. Authors suggested that the gang may be a micro-system or subculture; a peer group or social network; it may also operate across contexts (i.e., peer, family, neighborhood). Conceptual clarity at the gang-level is needed before we can identify and operationalize measures that capture the most relevant type and level of influence gangs have on health decision-making and outcomes. This work should include attention to the specific features of gangs that may have negative or health promoting effects as well as the role of group norms, values, and collective behaviors. For example, the gang may serve as a context where youth can access needed supports and resources, and it may also increase their likelihood of exposure to

physical and emotional harm – both functions have implications for health and warrant attention.

Gang membership may also constitute a social identity in addition to a broader context. This identity may carry significant meaning for youth, particularly for those facing experiences of marginalization and exclusion at a time when identity, belonging, and connectedness are critical for healthy development, and subsequently health. Clarifying the extent to which gang membership serves as an identity, and the meaningfulness of this identity for health, is an important direction for research. Qualitative methods may be especially useful for obtaining narrative accounts of how youth think about their gang membership, their perceptions of the benefits they receive from such membership, and the level of connectedness they feel to the gang and their identity as a gang member.

***Clarify the role of gender and related social identities for youth gang members' health***

In the reviewed literature, gender was an important multidimensional element for understanding differential associations between gang membership and health for males and females, and sex differences in health decision-making within gangs. Approaches demonstrating this varied from theorizing about the role of gender and the enactment of masculinity and femininity, to describing gendered experiences within gangs and testing for group differences. All studies used binary definitions of gender (male/female) and the majority focused on substance use and sexual health.

As with gang research generally (Panfil & Peterson, 2015), discussions of gender in the reviewed literature were largely male-centered. Yet, several qualitative studies illuminated the complexity of female experiences, including how gender norms and the sex composition of gangs may have different impacts on females' health decision-making and outcomes. Further research is needed to clarify the specific role of gender for the gang-health link, including

attention to female-specific experiences and for outcomes beyond substance use and sexual health. This should also include clarifying the role of gender norms, the factors that contribute to gender dynamics, and the gendered processes that shape health decision-making and outcomes.

Youth gang research is also largely heteronormative (Panfil & Peterson, 2015), and the reviewed literature reflected this trend. Specifically, theory and analysis related to gender emphasized the gender binary, and the health-related experiences of queer and transgender gang-involved youth were only mentioned in one study (Quinn, Dickson-Gomez et al., 2019). Yet, the experiences of these youth within the gang context may vary from heterosexual (cis)male gang members on any number of dimensions that hold implications for health (e.g., initiation rituals, group activities, relationship experiences; Panfil, 2017). One promising direction for research is to include gender expansive measures (i.e., trans, non-binary, genderqueer) and measures of sexual identity and orientation at the individual and gang levels in order to assess differences. Because the health of youth gang members may be shaped by the complex interplay of personal (identity) and group (e.g., gender and sexual orientation compositions, hypermasculine norms) factors, measures across multiple levels of influence will also be needed.

While gender was most commonly discussed in the reviewed literature, future research may also consider the role of other social identities and how these intersect with gang membership to influence health. Gang-involved youth are disproportionately youth of color who experience a myriad of health challenges as a function of structural oppressions (e.g., poverty, racism). While there was some attention to identities such as race/ethnicity and social class in the literature (Table 1), these did not constitute common or explicitly discussed features in relation to health. Yet, because of the nature of gang membership, these identities may be fundamental to understanding health and warrant consideration. Taking an intersectional approach to explore

how multiple identities shape health decision-making for gang-involved youth is an important direction, but careful consideration will be needed to avoid pathologizing youth or their health experiences on the basis of identity.

### **Limitations**

There are several limitations of this review. First, studies were excluded if gang membership was not self-reported by study participants. Studies using external reports (i.e., from peers, parents, teachers, law enforcement) or combined self- and external reports were excluded. Further reviews might clarify whether gang membership impacts health differently based on alternative measures. Second, our review was not meant to be exhaustive, but an assessment of the general scope of the current youth gang literature as it pertains to health. Despite the use of a systematic process, it is possible that we missed relevant studies. Third, we only included papers focused on four health categories; papers focused on violence beyond sexual victimization were excluded. Future reviews could examine other forms of violence that are commonly associated with youth gangs (e.g., physical disputes) as these may indirectly influence health (e.g., physical disability, perpetration trauma). Finally, scoping reviews do not assess the quality of evidence. While we provided a synthesis of the theories, methods, and concepts used, we attempted to avoid conceptual and methodological criticism and did not evaluate the empirical evidence. Currently, a review of effects would be a difficult task given the relatively small number of studies per health category (e.g., only five studies examined physical health indicators) and which utilize quantitative methods. As this literature grows, an analysis of effects will be a natural task to ensure this research holds utility for practice.

### **Conclusion**

This scoping review demonstrated the varied approaches of a body of research examining the relationship between youth gang membership and health. Themes also highlighted limitations of the current literature, implicating promising directions for research. Future work should aim to build a theoretical foundation that meaningfully links gangs and gang membership to health during adolescence. This will benefit from 1) sensitivity to environmental factors beyond the gang context, 2) expanding gang definitions and measurement approaches, and 3) clarifying the role of gender and related social identities. To understand whether and how gang membership is truly unique for health, specific mechanisms and testable hypotheses should be developed.

Addressing health disparities for gang-involved youth will require reframing how we think about youth gangs and expanding on traditional approaches to research and practice with this population. *Why* and *how* gangs and gang membership influence health decision-making and outcomes beyond other environmental contexts will need to be clarified so that service approaches are relevant and responsive to youths' lived experiences.

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Figure 1.

*Study Selection Process*

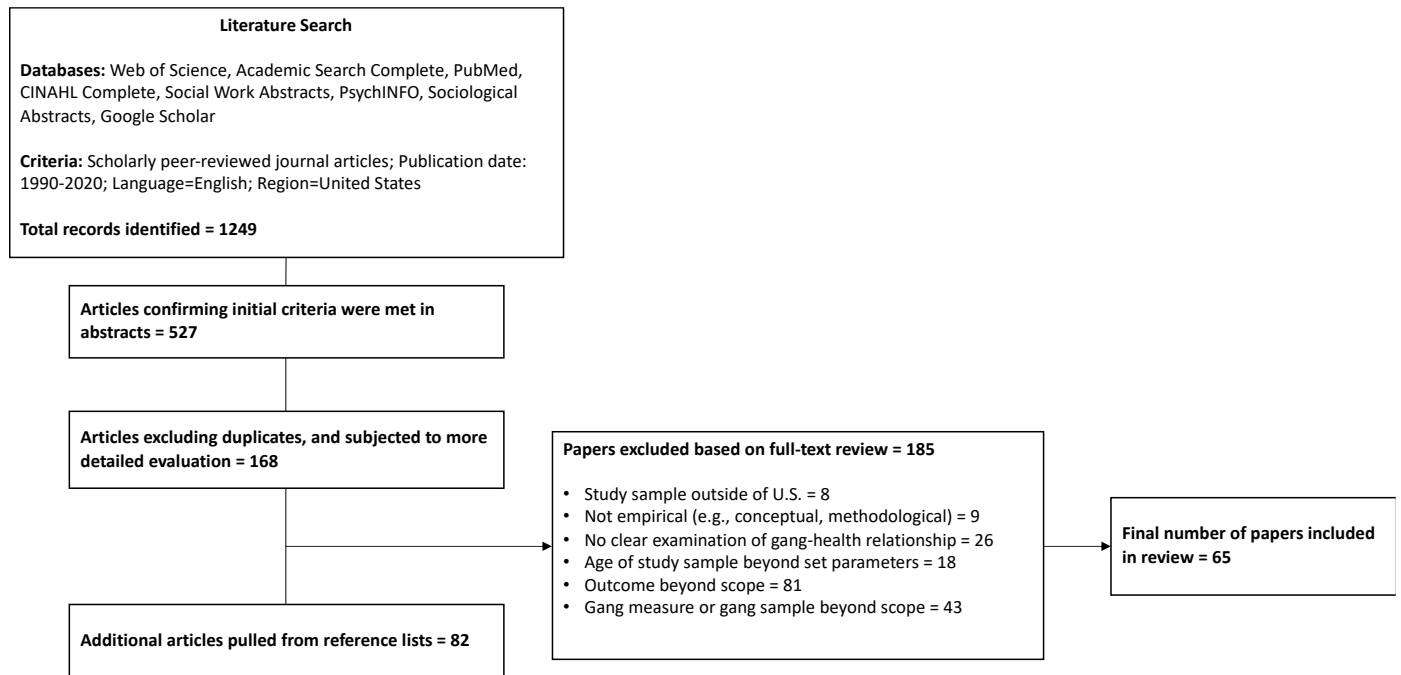


Table 1.

*Description of Reviewed Studies and Key Findings*

| <b>Citation</b>                                                                                                                                                                                                                   | <b>Measures</b>                                                                                                                                                                                                                                         | <b>Analysis</b>                                                                                                                                                                                  | <b>Key findings</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Study and sample                                                                                                                                                                                                                  | <ul style="list-style-type: none"> <li>• Health outcome(s)<sup>a</sup></li> <li>• Social identity variables</li> <li>• Ecological context variables</li> </ul>                                                                                          | <ul style="list-style-type: none"> <li>• Study type</li> <li>• Within or compare gang</li> <li>• Analysis strategy</li> </ul>                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| Bailey et al. (2014)<br>Data from n = 1 participant in an employment-based delinquency intervention program for gang-affiliated youth, Latino male aged 18.                                                                       | <ul style="list-style-type: none"> <li>• SU: alcohol, marijuana</li> <li>• MH: PTSD diagnosis, symptoms</li> <li>• NA</li> <li>• Violence exposure in family, peer, neighborhood contexts</li> </ul>                                                    | <ul style="list-style-type: none"> <li>• Multimethod; Case study</li> <li>• Within</li> <li>• Pretest-posttest; Summary of counseling session excerpts</li> </ul>                                | Gang-related trauma (experience and witness violence) contributed to PTSD development and related symptoms (e.g., sleep impairment). Periodic substance use was secondary to PTSD (use to cope with trauma symptoms). Exposure to violence in the family, peer, neighborhood and incarceration settings contributed further to PTSD diagnosis and symptoms.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| Bishop et al. (2020)<br>Data from the 2016 Washington State Healthy Youth Survey (HYS). n = 2,770 gang youth, 60% male, majority White (43%) and Latinx (24%), aged 14-19.                                                        | <ul style="list-style-type: none"> <li>• SU: alcohol, marijuana, tobacco, other illicit drugs, access to substances</li> <li>• Gender; Race; SES</li> <li>• Substance use behaviors and norms in family, peer, school, neighborhood contexts</li> </ul> | <ul style="list-style-type: none"> <li>• Quantitative; Cross-sectional</li> <li>• Within</li> <li>• Latent class analysis; Mean and proportional difference tests (Wald's chi-square)</li> </ul> | Four substance use classes identified according to type, frequency of use, and access source: Non-Users, Past Users, Casual Users, and Frequent Multi-Users. Demographic and substance use norms and behaviors across the family, peer, school, and neighborhood contexts were found to significantly differentiate these classes (e.g., acceptance of use by parents, friends, neighbors, and a lack of family rules and high accessibility in the neighborhood differentiated use patterns).                                                                                                                                                                                                                                                                                                                                                                         |
| Bjerregaard (2010)<br>Data from 3 waves of the National Longitudinal Survey of Youth 1997 (NLSY97). n = 8,984, 51% male, majority White (58%), 3% gang, aged 12-17.                                                               | <ul style="list-style-type: none"> <li>• SU: marijuana, hard drugs</li> <li>• NA</li> <li>• NA</li> </ul>                                                                                                                                               | <ul style="list-style-type: none"> <li>• Quantitative; Longitudinal</li> <li>• Compare</li> <li>• Linear regression</li> </ul>                                                                   | Gang weakly associated with marijuana and hard drug use (B). In multivariate models, gang at T1 (age 14) was associated with T2 (age 15) marijuana use and T3 (age 16) hard drug use.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| <b>Brotherton (1996)</b><br>Data from life history interviews with n = 46 female gang members from three single-ethnic gangs (African American, El Salvadoran, Mexican) in impoverished inner-city San Francisco, CA, aged 14-32. | <ul style="list-style-type: none"> <li>• SU: marijuana, alcohol, PCP, LSD, cocaine</li> <li>• SH: pregnancy, multiple partners, sexual assault</li> <li>• NA</li> <li>• Gang type (gender and racial/ethnic composition); Gang drug policy</li> </ul>   | <ul style="list-style-type: none"> <li>• Qualitative; Cross-sectional</li> <li>• Within</li> <li>• Descriptive analysis of life history interviews</li> </ul>                                    | Health behaviors influenced by intersection of class, race, and gender. Patterns of substance use differed by gang type: African American (all female) reported alcohol (beer) and restricted crack; El Salvadoran (mostly male with small female contingent) reported alcohol (beer, fortified wine) and frequent marijuana; Mexican (female group within male gang) reported broader use, including alcohol (beer, Mexican brandy), PCP, LSD, marijuana, and cocaine. African American gang had policy of abstinence while selling. El Salvadorans discussed frequent childbearing from gang males but raised kids with women because men were in multiple sexual relationships. El Salvadorans reported potential or actual rape by male members; Mexicans more likely to experience assault from parents. El Salvadoran females more likely to accept males having |

multiple sex partners because they also did; Mexicans almost universally opposed this behavior.

Gang associated with increased odds of lab confirmed and self-report STI diagnoses (*B*). In multivariate models, gang remained associated with increased odds of past year STI diagnosis and a greater number of partners; gang associated with a lower age at sexual debut and reduced odds of condom use. Controlling for sexual risk behaviors, gang remained associated with STI diagnoses.

Half of sample reported heroin use during the 15-year follow-up period, with average use of 4 yrs. Being unemployed was not associated with long-term heroin use. Early nest leaving and teen parenthood were associated with reduced use, while dropping out and cohabitating increased use.

Nearly all participants reported lifetime use of alcohol, marijuana, and cocaine. Majority reported heroin, psychedelics, benzos, and speedball use. Current alcohol, marijuana, cocaine, and heroin were common, while marijuana and alcohol were most frequently used. Increased time in gang was associated with increased frequency and lifetime cocaine and heroin use (*B*), and reduced marijuana use frequency (*B*). Lower parental supervision associated with increased lifetime inhalant use and lower frequency of speedball use (*B*); harsher discipline associated with current alcohol use (*B*).

In multivariate models, gang was associated with increased odds of anxious/depressive symptomology and alcohol abuse during young adulthood (20-24 yrs.); this association reduced to non-significance in the sibling-comparison model (i.e., unmeasured familial factors taken into account) while being male remained associated. SES, but not gang, was associated with illicit hard drug use in these models. Gang was associated with increased odds of poor general health and not being treated when injured/ill; both associations reduced to non-significance in the sibling-comparison models and there were no identity or context variables that remained significant.

Gang had more total mental health symptoms, thought and attention problems on average. When examining symptom endorsement, gang significantly more likely to report suicide attempts, hallucinations or delusions, loss of reality/incoherence not due to substance use, sexual acting out, repetitive thoughts, to be

**Buffardi et al. (2008)**

Data from Wave 3 of National Longitudinal Study of Adolescent to Adult Health (Add Health). n = 14,322 young adults, 15% gang, aged 18-27.

- SH: age at first sex, number of partners, condom use, self-report and lab confirmed STIs
- NA
- NA

- Quantitative; Cross-sectional
- Compare
- Weighted logistic regression stratified by U.S. region

Cepeda, Nowotny et al. (2016)  
Data from a longitudinal study on gang substance use in a disadvantaged urban area of San Antonio, TX. n = 119 Mexican American male gang members, aged 14-20 (aged 31 at follow-up).

- SU: heroin use
- SES
- Family transitions

- Quantitative; Longitudinal
- Within
- Zero inflated Poisson

Cepeda, Saint Onge et al. (2016)  
Data from a longitudinal study on gang substance use in a disadvantaged urban area of San Antonio, TX. n = 160 Mexican American male gang members from 26 gangs, aged 16-20.

- SU: any use of 11 substances
- Years in gang
- Family supervision, harsh discipline, attachment, activities

- Quantitative; Longitudinal
- Within
- Correlation; Bivariate logistic regression

**Connolly & Jackson (2019)**

Data from NLSY97. n = 426 full siblings from 107 families, 51% female, majority Non-Black, Non-Hispanic (59%), Black (22%), and Hispanic (18%), 50% gang, aged 10-24.

- SU: alcohol abuse, illicit drug use
- MH: anxious/depressive symptoms
- PH: poor general health, not treated when injured or ill
- NA
- NA

- Quantitative; Longitudinal
- Compare
- Logistic regression

**Corcoran et al. (2005)**

Data from n = 73 incarcerated males in Oregon, 33% gang, aged 13-19. *Note: race/ethnicity not reported.*

- MH: total symptoms, total internal problems, subscales of withdrawal, somatic complaints, thought problems, attention problems, anxiety/depression
- NA

- Quantitative; Cross-sectional
- Compare
- T-tests; Test of proportions; Correlations

|                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                      |                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                                                                                                                                                                                                                                           | <ul style="list-style-type: none"> <li>• NA</li> </ul>                                                                                                                                               |                                                                                                                                                                  | <p>withdrawn, and more anxiety. Gang positively associated with somatic complaints, thought problems, and attention problems (<i>B</i>).</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| <p><b>Dickson-Gomez et al. (2017)</b><br/>Semi-structured interviews with n = 58 active gang members from six Milwaukee (WI) gangs. Participants were 55% male, majority African American (64%) or Latino (22%), aged 14-19.</p>                                          | <ul style="list-style-type: none"> <li>• SH: sexual experiences</li> <li>• SU: role of substance use in sex</li> <li>• Gender</li> <li>• Gang gender norms</li> </ul>                                | <ul style="list-style-type: none"> <li>• Qualitative; Cross-sectional</li> <li>• Within</li> <li>• Constant comparative method, summarizing themes</li> </ul>    | <p>High risk sexual behaviors included sex with multiple partners and group sex. Gang norms included belief that males were sexually insatiable with multiple partners while females should be sexually available to males. Sex was common during parties where substance use occurred. Alcohol and drugs were seen to have an influence on lowering inhibitions, increasing sexual desire, and the inability to use condoms. Alcohol use often involved in “grey areas” of coercive vs. consensual sex. Alcohol used to cope with coerced sex for one female participant. Much sexual behavior within gangs (i.e., group sex) was viewed with ambivalence and seen as somewhat coercive. Gendered expectations (boys as insatiable, girls as available) made forming long-term romantic relationships challenging.</p> |
| <p><b>Dierkhising et al. (2019)</b><br/>Sample from community-based organization serving formerly incarcerated youth in Southern California. n = 62 justice-involved youth, 75% male, majority Latinx (83%) and African American (11%), 57% gang, aged 18 on average.</p> | <ul style="list-style-type: none"> <li>• MH: PTSS, traumatic grief symptoms, depression symptoms</li> <li>• SU: Drug and alcohol use</li> <li>• NA</li> <li>• Community violence exposure</li> </ul> | <ul style="list-style-type: none"> <li>• Multimethod; Cross-sectional</li> <li>• Compare</li> <li>• Chi-square; ANOVA; Correlation; Thematic analysis</li> </ul> | <p>Gang associated with increased traumatic loss experiences, PTSD symptoms and substance use (<i>B</i>). No association was found for depression symptoms. Gang involvement increased a youth’s exposure to community violence (<i>B</i>), and this exposure was associated with traumatic loss, PTSS, and substance use (<i>B</i>). Turning point theme indicated majority of youth reported death or loss of friends and family were gang-involved.</p>                                                                                                                                                                                                                                                                                                                                                              |
| <p><b>Evans et al. (1996)</b><br/>Data from a self-report survey of incarcerated youth in Nevada. n = 395 youth, 85% male, majority White (42%), Black (28%), and Latinx (17%), 56% gang, aged 12-18.</p>                                                                 | <ul style="list-style-type: none"> <li>• MH: suicide ideation, attempts</li> <li>• Gender; Years in gang</li> <li>• NA</li> </ul>                                                                    | <ul style="list-style-type: none"> <li>• Quantitative; Cross-sectional</li> <li>• Compare and Within</li> <li>• Chi-square; ANOVA; Correlation</li> </ul>        | <p>Within gang, suicide ideation and attempts were moderately correlated (<i>B</i>). Among males only, non-gang more likely to report higher suicide ideation and attempts; no gang differences among females (<i>B</i>). Within gang, females more likely to report suicide attempts compared to males (<i>B</i>). Gang members reporting sexual abuse more likely to have higher suicide ideation and attempts; no differences for males when examining abuse histories; female members reporting sexual abuse more likely to have attempted suicide (<i>B</i>). Length of time not associated with suicide ideation or attempts for males or females (<i>B</i>).</p>                                                                                                                                                 |
| <p><b>Ferguson &amp; Xie (2012)</b><br/>Data from the California Healthy Kids Survey. n = 2,146 homeless youth attending high school, majority Latino/Hispanic (37%), White (31%), Black (26%), 70% male, 40% gang, aged 14-17.</p>                                       | <ul style="list-style-type: none"> <li>• SU: any use of alcohol, marijuana, inhalants, cocaine, meth, ecstasy</li> <li>• NA</li> <li>• Adult support in community</li> </ul>                         | <ul style="list-style-type: none"> <li>• Quantitative; Cross-sectional</li> <li>• Compare</li> <li>• Structural equation modeling</li> </ul>                     | <p>Gang associated with alcohol, marijuana, inhalants, cocaine, meth, ecstasy use (<i>B</i>). Accounting for adult support, partner abuse, and truancy, greater substance use (latent variable) was reported by gang members. Adult support mediated (not moderated) the gang-substance use relationship. Specifically, gang resulted in lower levels of adult support, which in turn led to higher substance use.</p>                                                                                                                                                                                                                                                                                                                                                                                                  |

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| <p><b>Gordon et al. (2004)</b><br/>Data from 15 Waves of the Pittsburgh Youth Study. n = 858 males, majority African American (57%) and White (41%), 19% gang, aged 16-24.</p>                                                                                       | <ul style="list-style-type: none"> <li>• SU: drug use</li> <li>• NA</li> <li>• Peer drug use</li> </ul>                                                                                                                              | <ul style="list-style-type: none"> <li>• Quantitative; Longitudinal</li> <li>• Compare</li> <li>• Unconditional fixed effects negative binomial regression</li> </ul>                       | <p>No differences in drug use between "never gang" and "before gang"; among those gang-involved, "current gang" had higher drug use compared to the "before gang," and "after gang" level of use was higher than "before gang" (<i>B</i>). In multivariate models, drug use was higher during vs. before, and during vs. after gang. There remained no significant difference in drug use level after versus before gang membership in the multivariate context. No differences found in drug use between gang status categories with or without peer use when using parent and teacher measures of youth drug use.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| <p><b>Gover et al. (2009)</b><br/>Data from South Carolina Youth Risk Behavior Survey (YRBS). n = 4,597 high school students, 53% female, majority White (49%) and Black (42%), 11% gang, aged 12-18.</p>                                                            | <ul style="list-style-type: none"> <li>• SH: sexual assault</li> <li>• Gender</li> <li>• NA</li> </ul>                                                                                                                               | <ul style="list-style-type: none"> <li>• Quantitative; Cross-sectional</li> <li>• Compare</li> <li>• Logistic regression with variance function estimation to address clustering</li> </ul> | <p>Prevalence of sexual assault nearly equal for male and female gang (<i>B</i>). In multivariate models, gang was associated with increased odds of sexual assault for both males and females. In gender-specific models, effects remained suggesting gang does not have a gender-specific effect on sexual victimization.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| <p><b>Hagedorn et al. (1998)</b><br/>Data from a 5-year study on gang drug use and dealing in Milwaukee, WI. n = 163 gang members from poor neighborhoods, majority Latino/a (49%) and African American (46%), 55% male, aged teens to late 20s (median age 27).</p> | <ul style="list-style-type: none"> <li>• SU: cocaine, tobacco, alcohol, marijuana</li> <li>• Gender; Race; Religion</li> <li>• Gang peer partying; Family type; Severe family distress; Family gang; Family substance use</li> </ul> | <ul style="list-style-type: none"> <li>• Multimethod; Cross-sectional</li> <li>• Within</li> <li>• Chi-square; T-test;</li> <li>• Qualitative description of participant reports</li> </ul> | <p>Substance use varied irrespective of family factors. Nearly all used, with alcohol and marijuana beginning in early to mid-teens for both males and females. Use was a constant in the life of partying. While use often coincided with gang onset, cocaine use for Latino/a members occurred mostly after onset. Duration of use varied by ethnicity: Latino/a used cocaine longer than African American members; African American females did not use cocaine while in the gang; Latinas reported social use with two participants reporting exchange sex for cocaine. Cocaine use varied and not all used; males engaged in more serious use. Males raised in families with gang history and drug use were more likely to use cocaine and to use it seriously (<i>B</i>). For males and females, family distress was not related to onset, duration, or seriousness of cocaine use (<i>B</i>). Female gang members who reported being sexually active or experienced sexual abuse were more likely to use cocaine; males who reported regular church attendance were less likely to use cocaine.</p> |
| <p><b>Harper &amp; Robinson (1999)</b><br/>Data from cohort study of high school students across seven inner-city public schools in one Midwestern region. n = 1,143 African American females, 21% gang, aged 14-18.</p>                                             | <ul style="list-style-type: none"> <li>• SH: age at sexual debut, sexual partners, condom use</li> <li>• SU: cigarette, alcohol, marijuana</li> <li>• NA</li> <li>• NA</li> </ul>                                                    | <ul style="list-style-type: none"> <li>• Quantitative; Cross-sectional</li> <li>• Compare</li> <li>• MANOVA; Stepwise linear regression</li> </ul>                                          | <p>Gang reported earlier age of sexual debut, greater number of sexual partners, lower condom use frequency (<i>B</i>). Gang reported more frequent cigarette, alcohol, marijuana use (<i>B</i>). In multivariate models, gang remained positively associated with composite measures of sexual activity and substance use.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |

|                                                                                                                                                                                                                                                                            |                                                                                                                                                                                               |                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
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| <p><b>Harper et al. (2008)</b><br/>Sample recruited from community-based agencies serving homeless youth in a large Midwestern city. n = 69 African American male youth, 45% gang, aged 16-21.</p>                                                                         | <ul style="list-style-type: none"> <li>• SU: alcohol, marijuana</li> <li>• MH: anxiety, depressive symptoms</li> <li>• Level of gang involvement</li> <li>• NA</li> </ul>                     | <ul style="list-style-type: none"> <li>• Quantitative; Cross-sectional</li> <li>• Compare</li> <li>• MANOVA; Linear regression</li> </ul>                                        | <p>Gang reported higher anxiety and depressive symptomology, and higher alcohol and marijuana use (<i>B</i>). Higher levels of gang involvement (increased participation) was associated with increased alcohol and marijuana use (<i>B</i>) but not anxiety or depression.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| <p><b>Harris et al. (2013)</b><br/>Data come from retrospective records obtained by one juvenile probation department. n = 7,615 youth, majority Black (43%), Latino/a (29%) and White (26%), 11% gang, 82% male, aged 13-17.</p>                                          | <ul style="list-style-type: none"> <li>• MH: PTSD, adjustment disorder</li> <li>• SU: Substance abuse diagnosis</li> <li>• NA</li> <li>• NA</li> </ul>                                        | <ul style="list-style-type: none"> <li>• Quantitative; Cross-sectional</li> <li>• Compare</li> <li>• Logistic regression with interaction effects</li> </ul>                     | <p>Gang associated with greater odds of PTSD and current substance abuse diagnosis (<i>B</i>).</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| <p><b>Hoffman et al. (2014)</b><br/>Sample recruited from community-based agencies in Los Angeles, CA. n = 60 gang youth either court-ordered or voluntarily accessing services, 90% male, majority Latino (67%) or African American (30%), aged 16-25.</p>                | <ul style="list-style-type: none"> <li>• SU: cigarette, alcohol, marijuana</li> <li>• Gang length (5+ or &lt; 5 years)</li> <li>• Friend substance use; Family substance use</li> </ul>       | <ul style="list-style-type: none"> <li>• Quantitative; Cross-sectional</li> <li>• Within</li> <li>• Frequencies; Chi-square</li> </ul>                                           | <p>Marijuana and alcohol use were most frequent for participants, their friends, and their family members (53-88%). Cigarette use was also common across groups (45-55%). Participant cigarette use was associated with friend cigarette use generally, but also if the youth was in the gang for 5+ years (<i>B</i>). Participant marijuana use was associated with family marijuana use if the participant was court-ordered to participate in services (<i>B</i>).</p>                                                                                                                                                                                                                                                                                                                                                                                                                       |
| <p><b>Howard &amp; Jenson (1999)</b><br/>Sample recruited from three urban districts in five of eight judicial districts in Utah. n = 475 youth on probation, 87% male, majority Caucasian (75%) and Hispanic (15%), 20% gang, aged 11-20.</p>                             | <ul style="list-style-type: none"> <li>• SU: inhalant use</li> <li>• NA</li> <li>• NA</li> </ul>                                                                                              | <ul style="list-style-type: none"> <li>• Quantitative; Cross-sectional</li> <li>• Compare</li> <li>• MANOVA; Linear regression</li> </ul>                                        | <p>Gang did not distinguish inhalant users from non-users (<i>B</i>), but the level of gang activity in the neighborhood did (<i>B</i>). Among those lifetime inhalant users, however, gang was associated with a reduced frequency of lifetime inhalant use.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| <p><b>Hunt &amp; Joe-Laidler (2001)</b><br/>Data come from a comparative ethnographic study of ethnic gangs in the San Francisco Bay Area, CA. n = 141 females from 44 gangs, majority 70% Latina (70%), Asian American (18%), and African American (12%), aged 14-32.</p> | <ul style="list-style-type: none"> <li>• SH: sexual violence</li> <li>• Gender</li> <li>• Gang type (gender composition); Family violence; Partner violence; Neighborhood violence</li> </ul> | <ul style="list-style-type: none"> <li>• Qualitative; Cross-sectional</li> <li>• Within</li> <li>• Unnamed: to describe different situations and contexts of violence</li> </ul> | <p>Sexual violence experienced by females varies depending on gang type. Women in auxiliary gang groups (compared to independent gangs) reported sexual victimization from male members of their gang while simultaneously being protected by them. Those in independent gangs reported lower risk of sexual victimization with precautions taken (e.g., avoiding streets late at night). Family violence is common, between parents or directed at the youth. Women reported rape and sexual molestation from stepfathers and other adult men in the home, some criticized their mothers for not protecting them from this harm. Traditional gender expectations are common in intimate relationships. Women expected to manage the household, contribute financially, act “womanly,” maintain sexual chastity; women are at risk of victimization if they do not meet these expectations.</p> |

**Hunt et al. (2011)**

Data from a qualitative study of high-risk behaviors of gang-involved adolescent and young adult females in San Francisco Bay Area, CA. n = 30 females, majority African American (40%), Latina (20%) and mixed ethnicity (23%), aged 15-26.

- PH: food consumption practices
- NA
- Household types

- Qualitative; Cross-sectional
- Within
- Unnamed: iterative coding process where codes were refined and linked to larger domains

Themes described eating practices among gang females related to type of household and eating patterns (alone at home vs. together). In general, there were fragmented eating patterns and variation in these patterns by household type. The “traditional family meal” was not characteristic of their mealtime experience; however, there were still communal meals, prepared at home. For many, breakfasts, lunches, and between-meal snacks were consumed outside the home with friends/gang members; a large portion consumed evening meals at home though not often with family members (alone). Females were involved in providing financial assistance, procuring, and making food for themselves and families. Roles varied by household type (extended-family, single-parent, blended or reconstituted).

**Hunt et al. (2002)**

Data come from a comparative ethnographic study of ethnic gangs in the San Francisco Bay Area, CA. n = 168 females from 60 gangs, majority Latina (71%) and African American (16%), aged 14-29.

- SU: any illicit drug use, marijuana, cocaine, LSD, PCP, meth, ecstasy, heroin, inhalants, Quaaludes
- Gender; Race
- Gang gender norms; Friend use; Family use

- Multimethod; Cross-sectional
- Within
- Frequencies; Unspecified qualitative analysis

Nearly all reported illicit drug use. Marijuana most common and frequently used drug, with some variation in use frequency by race/ethnicity. Polydrug use was also common and varied by race/ethnicity. Initial drug exposure came from family members, but the gang peer setting was where many initiated drug use or began using regularly. Within the gang, women learned that drug use was allowable only under certain circumstances, with certain drugs, and necessitated certain behaviors – acceptable and unacceptably use was highly gendered. Controls enforced by male gang members included violence and sexual assault. Women developed definitions and codes about (in)appropriate use, including types, quantities, methods, and settings. They sought occasions to use within female-only settings where they could enjoy themselves without being monitored.

**Hunt et al. (2000)**

Data come from a comparative ethnographic study of ethnic gangs in the San Francisco Bay Area, CA. n = 97 females from 53 gangs, majority Latina (64%) and African American (16%), aged 14-29.

- SU: alcohol
- Gender
- Gang gender norms; Family use; Peer partying; Neighborhood as drinking context

- Multimethod; Cross-sectional
- Within
- Frequencies; Unspecified qualitative analysis

Themes focused on drinking at the individual and gang levels. Most had first alcohol at home; acquainted through family use and many witnessed excessive drinking. Majority were with friends/gang when got drunk for the first time. Drinking normative and alluring despite awareness of consequences. Used for different reasons: increasing sense of prowess, improving self-esteem, numbing emotional pain (e.g., funerals). Drinking endemic to gang life, not a solitary activity but key component of group life; often co-occurs with marijuana use. It simultaneously enhances cohesion and is divisive: social interaction, integral part of partying; increases internal/external violence, conflict within the gang, risk of sexual victimization for females. Both males and females attempted to control behavioral effects of alcohol for females (parallel system of control). Respect as an ideological expectation and critical for gang relationships; part of earning/keeping respect for females was learning what types of alcohol use were (un)acceptable. Females

responsible for ensuring others maintained respect; developed negative (gossip) and positive (safe partying) strategies to regulate and control behavior; created contexts where they could enjoy themselves more freely (female-only parties). Females had awareness of adverse personal and family experiences with alcohol and tried to avoid losing control.

**Katz et al. (2005)**

Data from two Arizona Arrestee Drug Abuse Monitoring (ADAM) program sites (Maricopa and Pima Counties). n = 939 juvenile arrestees, 81% male; majority Hispanic (44%), White (42%), African American (10%), 15% current and 8% former gang, aged 14-17.

- SU: marijuana, cocaine, opiates, PCP
- NA
- NA

- Quantitative; Cross-sectional
- Compare
- Logistic regression

Current gang associated with greater marijuana, crack, and powdered cocaine use compared to other gang groups; past gang and associates associated had similar trend compared to non-gang (B). Gang not associated with opiates or PCP (B). In multivariate models, current gang compared to non-gang associated with increased self-report and urinalysis confirmed marijuana, powdered cocaine, and crack cocaine use. Some variation existed for other groups.

**Kerig et al. (2016)**

Sample recruited from a short-term juvenile detention center in the West. n = 660, 73% male, majority White (57%) and Latino/a (23%), 36% gang, aged 11-18.

- MH: PTSS, dissociation, emotional numbing
- Gender
- NA

- Quantitative; Cross-sectional
- Compare
- MANOVA; Hierarchical linear regression; Weighted least-squares

Gang more likely to report witnessing community violence, living in a “war zone” and seeing a dead body (B). Gang females more likely to endorse an unwanted sexual experience and meet criteria for PTSD diagnosis (B). Controlling for demographics, gang associated with higher rates of disassociation and emotional numbing but not total PTSS. Controlling for demographics, trauma exposure and perpetration trauma (PT), gang associated with higher rates of total PTSS, dissociation, and numbing. Pathways linking gang and PT, and PT and PTSS were significant indicating mediation; no direct path from gang to PTSS. Pathways not moderated by gender.

**King et al. (2013)**

Sample recruited from 8 regional detention centers in Atlanta, GA area. n = 136 newly admitted gang youth, 57% male, aged 14-18. *Note: race/ethnicity not reported.*

- SH: sex while high, sex while partner high, broken condom, group sex
- Gender; SES
- Gang norms (high- vs. low-risk)

- Quantitative; Cross-sectional
- Within
- Logistic regression

Majority reported high-risk gang norms and sex while high or while partner was high. Risky gang norms associated with higher sexual risk across outcomes, while male and lower SES reported more group sex (B). Controlling for gender, SES, and family structure, high-risk gang norms associated with increased odds of sexual risk across outcomes.

**Knox & Tromanhauser (1999)**

Sample recruited from 44 correctional facilities in 5 states. n = 1,801 juveniles, 88% male, majority Black (46%), White (27%), and Hispanic (19%), 46% gang, aged 15-16.

- SU: binge drinking, marijuana, cocaine, injected drugs, age of onset
- SH: condom use, STD, age of debut, sex while high, pregnancy
- MH: suicide plan, attempts
- PH: medical care for health problems
- NA
- NA

- Quantitative; Cross-sectional
- Compare
- Chi-square

Gang associated with heavy drinking, marijuana use, ever used cocaine, ever injected illegal drugs, and earlier age of onset for substance use (B). Gang associated with earlier sexual debut, ever having an STD, less likely to use contraception, more likely to report pregnancy or getting someone pregnant (B). Gang associated with going to the nurse or doctor for health problems (B). Gang associated with greater suicide plans, attempts, and needing medical care following a suicide attempt (B).

**Kopak (2014)**

Data from Waves 1-3 of Add Health. n = 1,762 gang youth, 51% male, from 4 racial/ethnic groups: White (55%), African American (26%), Mexican American (12%), Asian (8%), aged 12-17.

- SU: alcohol, marijuana
- Gender; Race
- Family cohesion; School attachment; Peer attachment; Peer substance use

- Quantitative; Longitudinal
- Within
- Linear and logistic regression accounting for complex sampling design

Differences across groups in the number of friends who used alcohol with Mexican American having the highest, followed by White and Asian (*B*). No group differences for peer marijuana use. *African American model*: Family cohesion was associated with decreased alcohol and marijuana use; peer attachment and substance use were associated with increased alcohol and marijuana use; being female was associated only with reduced frequency of marijuana use. *Mexican American model*: School attachment and two-parent household associated with reduced frequency of alcohol use; peer attachment associated with increased alcohol use frequency, while peer substance use associated with increased marijuana use. *White model*: being older associated with increased alcohol use; female with reduced frequency of alcohol and marijuana use; family cohesion associated with reduced alcohol and marijuana use; attachment to peers associated with increased alcohol use; peer use associated with increased alcohol and marijuana use. *Asian model*: being female associated with reduced alcohol use; two-parent household associated with increased frequency of marijuana use; school attachment associated with reduced alcohol and marijuana use; peer use associated with increased alcohol and marijuana use.

**Lanier et al. (2010)**

Sample recruited from a youth detention center in a large southeastern city. n = 283 African American male youth, 34% current and 11% former gang, aged 16 on average.

- SU: alcohol, tobacco, marijuana, cocaine
- NA
- NA

- Quantitative; Cross-sectional
- Compare
- Chi-square; ANOVA

Gang more likely to have ever used alcohol or cocaine; used alcohol, marijuana, and cocaine in past year; and used alcohol and marijuana three days prior to detention (*B*). Recent marijuana use was higher among current vs. former gang, while cocaine was higher among former (*B*). Current and former gang more likely to self-report any substance use compared to non-gang, with current reporting highest use (*B*). Among gang, former reported more past-year cocaine use, but current reported more current marijuana use (*B*).

**Li et al. (2002)**

Data from Neighborhoods in Action, a randomized controlled violence prevention study in an Eastern metropolitan area. n = 349 African American youth from 10 public housing communities, 57% male, 7% current and 9% former gang, aged 9-15.

- SU: drug use
- MH: intrusive thoughts, distraction, vigilant/avoidant, despair, emotional numbing, lack of belongingness
- PH: health satisfaction, physical activity
- NA
- NA

- Quantitative; Cross-sectional
- Compare
- Chi-square; ANOVA; MANCOVA

Current and former gang associated with increased drug use, intrusive thoughts, despair, and lack of belongingness; and decreased satisfaction with health compared to non-gang (*B*). Controlling for age and gender, gang effects remained except for satisfaction with health which reduced to non-significance (neither age nor gender were sig). When adding additional control for total risk (which includes drug use), gang effect remained for higher distress symptoms.

**Madan et al. (2011)**

Data from Wave 2 of Birmingham Youth Violence Study. n = 589, 52% male, majority African American (78%) and White (21%), 5% gang, aged 12-14.

- MH: anxiety, depression, suicide
- NA
- Witnessing community violence

- Quantitative; Cross-sectional
- Compare
- Hierarchical linear regression

Gang associated with suicidal behavior, but not anxiety or depression (*B*). After controlling for demographics, gang more likely to report suicidal behavior; witnessing community violence mediated this association (effect reduced to non-significance with inclusion).

**Mata et al. (2002)**

Data from study on drug-related violence among Mexican American males in gangs in Laredo, TX. n = 117 Mexican American male gang members, aged 14-25.

- SU: list of 12 different drugs and polydrug use
- Gang status (leader, original gangster/OG, core, periphery/other)
- NA

- Quantitative; Cross-sectional
- Within
- Frequencies

All participants reported some substance use with variation in average age of onset across substances by gang status. Alcohol and marijuana had youngest average onset (13 yrs.) followed by cocaine, crack, acid, downers, inhalants (14-15 yrs.), and amphetamines/opiates (16-17 yrs.). Participants reported wide range of substances that fell into three levels of use: high, moderate, and low. Use levels characterized by three modes: alcohol, marijuana, cocaine (highest); benzos and crack/cocaine (moderate); remaining substances (lowest). Leaders had highest cocaine use, with no opiates; core members had highest cocaine use; OGs and other members had highest opiate use. Majority reported family member substance use, which varied by gang status.

**Miller (1998)**

Sample of at-risk youth recruited from community and legal system agencies in Columbus, OH. n = 20 female gang members from mixed-gender gangs, majority African American or multiracial (75%) and White (25%), aged 12-17.

- SH: sexual victimization
- Gender
- Gang type and structure (gender composition, inequality)

- Qualitative; Cross-sectional
- Within
- Unspecified qualitative analysis

Themes focused on experiences of victimization risk, including the role of gender composition and inequality within the gang structure. Participants articulated a gendered sense of protection as members of all-male or mixed-gender (with male leaders) gangs, despite increased exposure to, and experiences of, sexual victimization. Sexual assault occurred at hands of rival gangs and also from members of their own gang via initiation processes. Gang victimization is governed by rules and expectations and is seen as preferable for females to the random vulnerability of the streets. Women may have greater flexibility in involvement in gang activities because they lack masculine traits (e.g., toughness) that earn respect. Gender inequality and devaluation of females decreased exposure to victimization risk, could avoid or were excluded from activities that put them in danger. Yet, their devaluation led to victimization when they did not have a male protector (brother, boyfriend). Devaluation was sexual in nature; heightened victimization for those seen as sexually available or promiscuous. Women who were sexed in were seen as promiscuous, weak and not “true” members; were subject to revictimization and mistreatment and viewed as deserving of abuse by other members, both male and female. Sometimes being sexed in was optional.

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| <p><b>Miller &amp; Brunson (2000)</b><br/>Sample of at-risk youth recruited from community agencies and detention centers in St. Louis, MO. n = 58 gang members, African American (93%) or multiracial (7%), 53% male, aged 12-20.</p>     | <ul style="list-style-type: none"> <li>• SH: sexual victimization</li> <li>• Gender</li> <li>• Gang type and structure (gender composition); Gang gender norms</li> </ul> | <ul style="list-style-type: none"> <li>• Qualitative; Cross-sectional</li> <li>• Within</li> <li>• Unspecified qualitative analysis; Gender comparisons</li> </ul>                                         | <p>Themes focused on male accounts of gender dynamics and normative features of youth gangs. Men in all-male gangs were most likely to describe girls primarily as sex objects or individuals to be exploited, i.e., girls have no place in their gangs except to provide sex. Men in mixed-gender gangs thought of women as more active participants; they spent more time with women, partying and drinking together, having sex; very few described gang girls exclusively in terms of sex. Both males and females in mixed-gender gangs noted that members sometimes had casual sexual relationships or dated one another. Men in all-male and mixed-gender gangs argued that women are sexually vulnerable because they are weaker and at risk of sexual assault by rival gangs. Men and women face gender-specific victimization risks, shaped by variation in gang type. Women face risks tied to their perceived sexual vulnerability; men are at risk for lethal violence.</p> |
| <p><b>Miller et al. (2008)</b><br/>Data come from a study on risk factors for substance use among school-based Mexican American youth in South TX. n = 3,186 Mexican American youth, 51% male, 14% gang, aged 12-15.</p>                   | <ul style="list-style-type: none"> <li>• SU: marijuana, cocaine</li> <li>• NA</li> <li>• NA</li> </ul>                                                                    | <ul style="list-style-type: none"> <li>• Quantitative; Longitudinal</li> <li>• Compare</li> <li>• Logistic regression</li> </ul>                                                                           | <p>Controlling for demographics and social acculturation, gang associated with an increased likelihood of marijuana and cocaine use. In the cocaine model, the inclusion of gang reduced the social acculturation effect to non-significant while shifting SES to significant (was not the case prior to inclusion of gang in the model).</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| <p><b>Minnis et al. (2008)</b><br/>Data from the Mission Teen Health Project in the Mission neighborhood in San Francisco, CA. n = 237 sexually active females, majority Latina (77%) and African American (13%), 6% gang, aged 14-19.</p> | <ul style="list-style-type: none"> <li>• SH: pregnancy</li> <li>• Nativity; SES</li> <li>• Partner in gang</li> </ul>                                                     | <ul style="list-style-type: none"> <li>• Quantitative; Longitudinal</li> <li>• Compare</li> <li>• Discrete-time survival analysis; Mediation analysis</li> </ul>                                           | <p>Gang membership not directly associated with pregnancy incidence, while having a partner in a gang was associated with becoming pregnant during the follow-up period. <i>Gang membership not included in mediation analyses because of the non-significant direct association.</i></p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| <p><b>Molidor (1996)</b><br/>Sample recruited from a secure residential facility in Texas. n = 15 female gang members, majority White (40%), Hispanic (33%), and African American (20%), aged 13-17.</p>                                   | <ul style="list-style-type: none"> <li>• SH: sexual assault</li> <li>• Gender</li> <li>• Gang gender norms</li> </ul>                                                     | <ul style="list-style-type: none"> <li>• Qualitative; Cross-sectional</li> <li>• Within</li> <li>• Unnamed: explores ecological factors of female gang life, contextual factors of sexual abuse</li> </ul> | <p>Themes focused on the sexual abuses experienced by female gang youth. One theme focused on initiation into the gang which included “pull a train,” which includes sex with multiple gang members that is often coerced or forced. Another theme describes expectations of sexual acts by females on command from male members. Participants reported that resisting would involve violence or threat of violence.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| <p><b>Morris &amp; Fry-McComish (2012)</b><br/>Data from an urban charter school in a Midwestern city. n = 13 African American gang members, majority living in housing projects, 85% male, aged 10-15.</p>                                | <ul style="list-style-type: none"> <li>• MH: depression, suicide ideation</li> <li>• SES</li> <li>• Family instability</li> </ul>                                         | <ul style="list-style-type: none"> <li>• Qualitative; Cross-sectional</li> <li>• Within</li> <li>• Leininger’s Data Analysis Enabler for the ethnosing method</li> </ul>                                   | <p>One theme focused on hopelessness and despair for gang members at ages 13-15. Participants saw hopelessness in their future, believing that their life was as good as it was going to be; youths’ life goals diminished greatly after seeing the reality of their situation (poverty, limited opportunities). This downward spiral to despair sometimes culminated in suicidal ideation. Participants matured physically and emotionally during adolescence: somber</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |

expressions, slower speech, downcast eyes, slower movements, crying... a dark side to emotional maturity. With maturity, came loss of hope.

**Morris et al. (1995)**

Data from adapted Youth Risk Behavior Surveillance System survey administered to youth detained in 39 short- and long-term facilities in rural and urban areas across five states. n = 1,801, majority Black (46%), White (27%) and Hispanic (18%), 88% male, 46% gang, aged 15 on average.

- SU: alcohol, marijuana, cocaine, injected drugs
- MH: suicide ideation, attempts
- SH: age onset, number sex partners, contraception use, sex while high, STD history, pregnancy
- NA
- NA

- Quantitative; Cross-sectional
- Compare
- Chi-square; Logistic regression

Gang associated with alcohol and drug use, earlier onset of sex, greater number of sex partners, substance use during last sex, lower likelihood of contraception use, more likely to report pregnancy and an STD diagnosis, and making more suicide plans and attempts (B). Controlling for demographic and health risk behaviors, gang was associated with an increased likelihood of suicide attempts (but not ideation) and at least one pregnancy (*note: these were only models with gang as predictor despite bivariate relationships*).

**Nydegger et al. (2017)**

Sample recruited from community settings in Milwaukee, WI. n = 276 gang members reporting recent sexual activity from 71 street gangs, 61% male, majority African American (64%) and Latina/o (24%), aged 14-19.

- SH: forced sex, gang rape victimization (females only), group sex, pregnancy, condomless sex
- Gender
- Gang gender norms; Age-disparate relationships

- Quantitative; Cross-sectional
- Within
- Generalized linear mixed models by gender

For both male and female members, agreement with unequal gender norms towards women was associated with increased group sex (B). For females, being in an age-disparate relationship (5+ years younger than partner) was associated with increased odds of gang rape victimization, group sex, and pregnancy (B). For males, being in an age-disparate relationship (5+ years older than partner) was associated with group sex (B).

**Nydegger et al. (2019)**

Sample recruited from community settings in Milwaukee, WI. n = 441 gang members from 71 street gangs, 58% male, majority African American (60%) and Latino/a (27%), aged 14-19.

- MH: depression, PTSD symptoms
- Gender; Race; SES
- Neighborhood risk

- Quantitative; Cross-sectional
- Within
- Path analysis

Males had lower depression and PTSD symptoms compared to females controlling for other demographics and neighborhood risk. With addition of polytraumatization, gender effects remained and higher polytraumatization was associated with greater depression and PTSD. Neighborhood risk not associated with mental health.

**Patton et al. (2017)**

Data from one deceased Twitter user and her Twitter network from the Southside of Chicago, IL. n = 408 posts made by an African American female gang member, aged 17 at time of death.

- MH: trauma experiences
- Gang identity
- Community/neighborhood connectedness

- Qualitative; Case study
- Within
- Textual analysis using inductive coding

Themes provided insight into youths' accounts of trauma, including physical, psychological, cognitive, emotional, and behavioral responses to trauma. *Grief* described loss (death or incarceration) of friends, family, or loved ones; *Sadness* described anxiety, sorrow, and helplessness about oneself, another person, or group. *Physical and emotional responses* included "body shaking" and "tears running." Pride and connectedness to community/neighborhood (i.e., gang identity) played a role in experiencing and processing trauma. Gakirah was aware of her surroundings and expressed mistrust of others, loss of neighborhood identity after the death of her best friend but felt pride at the prospect of dying for those she was connected to.

**Petering (2016)**

Sample from two panels of the Youth Net Study in Los Angeles, CA. n = 505 homeless youth accessing drop-in day services. 73% male, 25% LGBQ, majority White (39%), Black (23%), and Other (26%), 17% gang, aged 16-26. *Note: six transgender participants recoded based on current identified gender.*

- SU: binge drinking, meth, chronic marijuana, injection drugs, heroin, prescription drugs, cocaine, ecstasy
- SH: sex while high, condomless sex, concurrent partners, exchange sex
- MH: depression, suicide ideation and attempts, PTSD
- NA
- NA

- Quantitative; Cross-sectional
- Compare
- Logistic regression

Gang associated with higher rates of chronic marijuana use, sex while high, depression, suicide attempts, and PTSD compared to affiliates or non-gang (*B*). Gang associated with second highest (after affiliates) meth and cocaine use (*B*). Controlling for demographics, gang associated with increased odds of marijuana use, sex while high, depression, suicide attempts, and PTSD; affiliates, being Black, and LGBQ identifying associated with meth and cocaine use. In addition to gang, race effects found for marijuana and sex under the influence; LGBQ effects found for PTSD.

**Petering et al. (2017)**

Data from the Youth Net Study in Los Angeles, CA. n = 495 homeless youth accessing two day-service centers, 70% male, 25% LGBQ, majority White (41%), Black (23%), and Other (25%), 15% Juggalo identifying, aged 17-28. *Note: five transgender participants recoded based on current identified gender.*

- SU: binge drinking, marijuana, heroin, prescription misuse, meth, cocaine, ecstasy
- SH: sex while high, condomless sex, concurrent partners, exchange sex, sexual assault
- MH: depression, PTSD, suicidal ideation and attempts
- NA
- NA

- Quantitative; Cross-sectional
- Compare
- Logistic regression

Juggalo associated with higher rates of meth, ecstasy, chronic marijuana, prescription misuse, injection drug use, unprotected sex, sexual assault, depression symptoms, suicide ideation and attempts, and PTSD symptoms (*B*). Controlling for demographics and community violence, Juggalo associated with increased odds of suicide ideation and attempts, meth, chronic marijuana, prescription drug use, ecstasy, and unprotected sex. Gang not associated with PTSD, injection drug use, depression, or sexual assault. However, community violence was associated with increased odds of depression and PTSD; LGBQ status associated with sexual assault; and male was associated with lower odds of sexual assault compared to female. In addition to Juggalo effects, community violence effects were present for PTSD, chronic marijuana, and unprotected sex outcomes; gender for meth, ecstasy, and unprotected sex; race for chronic marijuana; and LGBQ status for meth and unprotected sex.

**Quinn, Walsh et al. (2019)**

Sample recruited via outreach methods in neighborhoods with known gang activity in Milwaukee, WI. n = 449 gang youth, 58% male, majority Black (60%) and Latino/a (28%), aged 14-19.

- SU: binge drinking, marijuana, any hard drugs
- Gender; Race; SES; Years in gang
- Family communication, monitoring, investment, gang, parent drug use, parent incarceration; Neighborhood disorder, collective monitoring, negative police interaction; School safety

- Quantitative; Cross-sectional
- Within
- Logistic and Poisson regression

Longer gang tenure, parent use and acceptance of youth use, family gang, parent incarceration, police interaction and neighborhood disorder were associated with increased binge drinking, while family communication was associated with reduced drinking (*B*). Being male, having financial stress, longer gang tenure, parent use and acceptance of youth use, family gang, parent incarceration, police interaction and neighborhood disorder were associated with increased marijuana use, while family and neighborhood monitoring were associated with reduced marijuana (*B*). Being male, having financial stress, longer gang tenure, parent use and acceptance of youth use, family gang, parent incarceration, police interaction and neighborhood disorder were associated with increased any hard drug use (*B*). Accounting for demographics and contextual factors simultaneously: family communication and police interaction effects remained for binge drinking; family monitoring, parental investment, parent acceptance of youth use, police interaction and neighborhood disorder effects remained for

marijuana use; male, parent use, and police interaction effects remained for any hard drug use.

**Quinn, Dickson-Gomez et al. (2019)**  
Sample recruited via outreach methods in neighborhoods with known gang activity in Milwaukee, WI. n = 58 active members from six gangs. Participants were 55% male, majority African American (64%) or Latino (22%), aged 14-19.

- SH: sexual risk behaviors
- Gender; Sexual orientation
- Gang gender norms

- Qualitative; Cross-sectional
- Within
- Thematic content analysis

Themes focused on sexual initiation experiences, gender roles, power dynamics, and sexual regrets. Sexual risk behaviors (inconsistent condom use, coercive sex, group or train sex) within gangs are upheld and reinforced through unspoken norms and expectations, many of which are gendered. High-risk sexual practices increase group cohesion and reinforce gender norms and power differences. Despite prevalence of such practices, many felt regret and remorse over participating but noted it was just part of “the life.” Substance use often cited as a mechanism facilitating risky sex, and used to explain compliance with risky gang norms, social situations (e.g., group sex), and regrets. Participants noted that girls who were gay or adopted a masculine demeanor appeared to have a choice in initiation (e.g., choice of beaten in vs. sexed-in) but were not always protected from sexual expectations or victimization; males who were openly gay faced severe physical victimization.

**Ramaswamy et al. (2013)**  
Data from Returning Educated African-American and Latino Men to Enriched Neighborhoods (REAL MEN) study. n = 552 prior to incarceration, n = 397 one-year post-release, Black (56%) and Latino (38%) males, 46% gang, aged 16-18.

- SU: cigarette
- NA
- NA

- Quantitative; Longitudinal
- Compare
- Logistic and linear regression

More gang were smokers prior to incarceration but not after release (B). Controlling for age and Latino ethnicity, gang was associated with higher likelihood of being a smoker prior to incarceration.

**Rima et al. (2019)**  
Data from Waves 2-4 of Add Health.  
*Note: sample description not provided.*

- PH: cancer, high cholesterol, high blood pressure, diabetes, heart disease, asthma, migraines, epilepsy
- MH: depression, anxiety, PTSD, ADHD
- NA
- NA

- Quantitative; Longitudinal
- Compare
- Negative binomial and logistic regression

Controlling for psychopathic traits and demographics, gang membership associated with increased likelihood of cancer, blood pressure, and cumulative measure of physical health problems.

**Salazar et al. (2007)**  
Baseline data from a randomized trial of an HIV prevention program in urban publicly funded clinics in a high-risk area in the South. n = 715 African American, sexually active females, 5% gang, aged 15-21.

- SH: lab confirmed STD (trichomonas, chlamydia, gonorrhea)
- NA
- NA

- Quantitative; Cross-sectional
- Compare
- Hierarchal logistic regression using a forward stepwise method

Gang associated with testing positive for an STD (B). Controlling for age and personal, peer, and relational risks, gang remained associated with higher likelihood to test positive for at least one STD.

**Sanders (2012)**

- SU: any use of 13 substances, polydrug use, age at initiation, access

- Multimethod; Cross-sectional
- Within

Marijuana most commonly used, including first (12.5 yrs.) and earliest use (6 yrs.) on average. A third reported meth, ecstasy,

Sample recruited from community-based agencies in Los Angeles, CA. n = 60 youth either court-ordered or voluntarily seeking services, 90% male, majority Latino (67%) and African American (30%), aged 16-25.

- NA
- Gang culture around use; Family and friend attitudes about use

- Frequencies; Unspecified qualitative analysis

prescription opiates, and cocaine; a quarter reported PCP, psilocybin, and inhalants; LSD, prescription stimulants, heroin, and benzos were least reported. A majority reported polydrug use of up to 21 different combinations. Most common was alcohol and marijuana, followed by marijuana/alcohol/meth and marijuana/cocaine. Nearly all reported positive attitudes towards marijuana and acceptance of use among friends and family (who also used); cultural aspects also supported use (i.e., rap music preferences, marijuana-related tattoos, nicknames). Patterns suggest two groups of users based on use frequency and substantiated via qualitative narratives: marijuana users and use of everything else. Marijuana appeared normalized due to wide accessibility, intent to use, high frequency of use, critical attitudes of “hard” drugs, and positive marijuana attitudes and cultural references.

**Sanders et al. (2009)**

Sample recruited from community-based agencies in Los Angeles, CA. n = 60 youth either court-ordered or voluntarily seeking services, 90% male, 3% bisexual, majority Latino (67%) and African American (30%), aged 16-25.

- SH: sex onset and frequency, sexual partners, condom use, pregnancy, group sex, STIs, sex with drug users
- NA
- NA

- Multimethod; Cross-sectional
- Within
- Frequencies; Unspecified qualitative analysis

Most youth were sexually active and heterosexual; those identifying as bisexual were female. Mean debut was 13 yrs. (range 9-21 yrs.). A quarter knew their sexual partner for less than a month, were intoxicated at first sex and at most recent sex. Beer, marijuana, and meth were most common drugs used at first and recent sex. Participants reported 0-9 sexual partners in past month, 0-15 in past year, and up to 100 in lifetime. Over a third did not use condoms, reporting cost, access, and lack of comfort as barriers. Other reasons included being caught up in the moment or believing partner was clean. The majority talked with their friends about the importance of condom use, though some never talked about safe sex practices. A third reported pregnancies, incl. live births and terminations. A quarter reported group sex (higher male-to-female ratio), often without condoms and while high. Some reported beliefs of current or previous STIs, with the majority having tested for HIV and hepatitis C. A majority of those mentioning STIs did not report their infection to friends, family, or sexual partners. Half reported sex with drug users; a majority of these reported no condom use with such partners.

**Schalet et al. (2003)**

Data come from two comparative ethnographic studies of gang issues in the San Francisco Bay Area, CA. n = 100 female members from 27 gangs, 74% Latina and 26% African American, aged 14-32.

- SH: how female gang members think and talk about sex and their sexuality
- Gender; Race (cultural heritage); SES
- Gang type (gender composition); Gang gender norms; Family ties (emotional, economic)

- Qualitative; Cross-sectional
- Within
- Discourse analysis with case study comparisons; Unnamed thematic analysis

Sexual respectability and sexual autonomy are two discourses of sexuality for female gang members. The *sexual respectability* discourse demonstrates a female member’s sexual purity in the eyes of others, particularly those in the neighborhood, gang, and family. The lack of pleasure and experience from sex results in respect and allows women to distinguish themselves from others. Gang maintains and enforces female sexual respectability (constraining sexuality); yet some are ‘sexed in,’ resulting in no respect and are distinguished from other respectable females by all members. These females are considered sexually ‘loose’ and to have ‘loose’ social

*Note: Themes drawn from full sample, with specific focus on 2 participants as case studies. Felicia Gonzalez is a 16 yr. old*

*Latina from a mixed-gender auxiliary gang; Denise Marks is a 28 yr. old African American who leads an all-women gang.*

affiliation, so they are considered untrustworthy. The *sexual autonomy* discourse stresses the females' own sexual needs, choices, and actions. They do not fear appearing sexually promiscuous; rather, they fear being seen as not in control of the use of their bodies. They work to maintain sexual freedom and control. The two discourses constitute different ways to resolve the tension between demonstrating independence from male members while negotiating and accommodating constraining notions of femininity. How they resolve this tension depends on social factors. Gang structure and type, ethnic identity or cultural heritage, family networks, and economic survival strategies shape females' discursive construction of sexuality. Gang structure was a distinguishing feature, with those articulating the sexual respectability discourse being members of auxiliary groups with close affiliation to male gangs. Their everyday lives are intimately intertwined with/dependent on, males. Most of the sexual autonomy discourse, by contrast, were members of small, all women groups that operated independently from males.

**Suh et al. (2016)**

Data from Waves 1-3 of Add Health. n = 6,970 youth attending schools with at least one gang and club member, 53% female, majority White (71%) and Black (17%), 5% gang, aged 10-19.

- SU: alcohol (use frequency, bingeing)
- NA
- School club membership
- Quantitative; Cross-sectional
- Compare
- Ordered logistic regression

In multivariate models, gang associated with increased odds of more frequent and binge drinking compared to youth not affiliated with any organizations. Significant interaction effect between gang and club membership indicates that being a joint member of both a gang and school club has a stronger, positive effect on drinking than exclusive gang membership (i.e., for gang youth, increasing club membership resulted in increased odds of more frequent and binge drinking). Gang and interaction effects remained with addition of peer factors.

**Valdez et al. (2005)**

Data from study on gang violence among Mexican American gangs in the South and Westside communities of San Antonio, TX. n = 160 Mexican American male gang members from 26 gangs, aged 14-25.

- SU: alcohol, marijuana, cocaine, heroin, speedball, psychedelics, benzos
- SES
- Family transitions
- Quantitative; Cross-sectional
- Within
- Correlation; Confirmatory factor analysis

Alcohol, marijuana, cocaine, heroin, and benzos were commonly used. Marijuana was the most frequently used substance, followed by alcohol. Reported current use was generally higher than lifetime use for all substances except marijuana which had consistently high frequency of use. Age of onset was lowest for alcohol and marijuana (12 yrs.) and ranged from 15-16 yrs. for the other drugs. Being a teen parent was correlated with increased psychedelic use; and being unemployed with increased heroin, speedball and alcohol use (B). Two groups of users identified: "hard drug users" characterized by sole use of heroin or heroin/cocaine mix; and "party drug users" characterized by high alcohol, moderate marijuana, some cocaine and benzo use. Family and SES factors not associated with either group.

|                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                         |                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p><b>Voisin et al. (2004)</b><br/>Data from 8 detention facilities in Georgia. n = 270 males, majority White (41%), African American (40%) and Hispanic (13%), 34% gang, aged 14-18.</p>                                                                        | <ul style="list-style-type: none"> <li>• SH: any sex, condomless sex, partner pregnancy, multiple concurrent partners, sex while high, sex with high partner</li> <li>• NA</li> <li>• NA</li> </ul>                                     | <ul style="list-style-type: none"> <li>• Quantitative; Cross-sectional</li> <li>• Compare</li> <li>• Logistic regression</li> </ul>                                                                                   | <p>Controlling for demographic and family factors, gang associated with a higher likelihood of having had sex, to have got a girl pregnant, to have been high during sex, having sex with a high partner, and having sex with multiple partners concurrently.</p>                                                                                                                                                                                                                                                                                                                                                                         |
| <p><b>Voisin et al. (2008)</b><br/>Data from 8 detention facilities in Georgia. n = 559 heterosexual adolescents, 50% female, majority White (53%) and African American (46%), 27% gang, aged 14-18.</p>                                                         | <ul style="list-style-type: none"> <li>• SH: HIV risk</li> <li>• SU: drug use</li> <li>• Gender; Ethnicity; SES; Religion</li> <li>• Community violence; Family support, violence, parental monitoring; Risky peer norms</li> </ul>     | <ul style="list-style-type: none"> <li>• Quantitative; Cross-sectional</li> <li>• Compare</li> <li>• Path analysis</li> </ul>                                                                                         | <p>Gang positively correlated with both sexual risk and substance use (B). In multivariate models, direct positive effect of gang on substance use but not sexual risk. Community violence exposure and nonwhite ethnicity were indirectly associated with increased substance use through gang (mediator), while parental monitoring was associated with lower substance use through reduced gang. Community violence exposure and nonwhite ethnicity indirectly associated with increased sexual risk through the gang to peer risk norms path. No indirect effect for gang on sexual risk, or for risk norms as a single mediator.</p> |
| <p><b>Voisin &amp; Neilands (2010)</b><br/>Data from one high school in an urban Midwestern city. n = 563 African American students, approximately 60% reported receiving free school lunch, 61% female, 16% gang, aged 13-19.</p>                               | <ul style="list-style-type: none"> <li>• SH: sexual debut, risky sex</li> <li>• Gender</li> <li>• Peer norms favoring risky sex and drug use; School engagement</li> </ul>                                                              | <ul style="list-style-type: none"> <li>• Quantitative; Cross-sectional</li> <li>• Compare</li> <li>• Within-gender structural equation models</li> </ul>                                                              | <p>Gang not correlated with sexual debut or high-risk sex (B). Gang not directly linked to sexual debut for either gender. Gang was direct associated with increased risky sex for boys. School engagement was indirectly associated with lower risky sex through reduced gang for boys. No direct or indirect effects of gang on sexual risk for girls.</p>                                                                                                                                                                                                                                                                              |
| <p><b>Voisin et al. (2014)</b><br/>Data from the IMARA Project, a randomized trial of a behavioral intervention for African American females in juvenile detention in Atlanta, GA. n = 188 females with history of sexual intercourse, 27% gang, aged 13-17.</p> | <ul style="list-style-type: none"> <li>• MH: emotional regulation</li> <li>• SU: problems with drugs or alcohol</li> <li>• SH: condom misuse, HIV tested; STD prevention information; casual sex</li> <li>• NA</li> <li>• NA</li> </ul> | <ul style="list-style-type: none"> <li>• Quantitative; Cross-sectional</li> <li>• Compare</li> <li>• Linear and logistic regression</li> </ul>                                                                        | <p>Controlling for demographics and correlates of gang involvement in the sample, gang associated with having one or more casual sex partners, higher rates of condom misuse, lower likelihood of ever having been tested for HIV, and lower STD Prevention knowledge. Gang also associated with higher levels of drug/alcohol use, and emotional dysfunction.</p>                                                                                                                                                                                                                                                                        |
| <p><b>Watkins &amp; Melde (2016)</b><br/>Data from Waves 1-2 of Add Health. n = 13,032 youth, 51% female, majority White (53%), Black (20%), and Hispanic/Latino (17%), 5% gang, aged 11-21.</p>                                                                 | <ul style="list-style-type: none"> <li>• MH: depression, suicidal thoughts, suicide attempts</li> <li>• NA</li> <li>• NA</li> </ul>                                                                                                     | <ul style="list-style-type: none"> <li>• Quantitative; Longitudinal</li> <li>• Compare</li> <li>• Propensity score analysis via generalized boosted regression; Standardized % bias and t/chi-square tests</li> </ul> | <p>Prior to balance, gang associated with greater levels of depressive symptoms, and increased likelihood of reporting suicidal thoughts and attempts. Unweighted comparisons show gang youth at elevated risk of problem health behaviors across all ecological domains. Weighted comparisons show gang membership exacerbates preexisting differences in depression, suicidal thoughts and suicide attempts (systematically higher after balance).</p>                                                                                                                                                                                  |
| <p><b>Wesche &amp; Dickson-Gomez (2019)</b><br/>Data from adolescent gang membership study in a mid-sized Midwestern city. n = 281 gang members from 32 street gangs,</p>                                                                                        | <ul style="list-style-type: none"> <li>• SH: STI diagnosis, HIV test, number sex partners, group sex, condomless sex, rape/coercive sex</li> <li>• Gender</li> </ul>                                                                    | <ul style="list-style-type: none"> <li>• Quantitative; Cross-sectional</li> <li>• Within</li> <li>• Multilevel, mixed models with 2 levels (effects for</li> </ul>                                                    | <p>At individual level, more equitable beliefs about romantic relationships and respect for girls in gang roles associated with more equitable beliefs about female members' sexual agency (B). Females had more STI diagnoses (B) and forced sex victimization</p>                                                                                                                                                                                                                                                                                                                                                                       |

54% male, majority African American (73%) and Hispanic (25%), aged 14-19.

- Gang type (gender composition); Gang gender norms

gender beliefs at individual and gang levels)

(*B*). Multilevel models found individual level effects for females having increased STI diagnoses, condomless sex, coercive sex, gang rape victimization, and decreased number of sexual partners; respect for females in gang roles increased risk for coercive sex/rape. At gang-level, higher proportions of females reduced the number of sexual partners; equitable beliefs reduced proportion of sex without condoms for gangs with higher proportion of females (interaction effect).

**Wingood et al. (2002)**

Sample recruited from school health classes, county health and adolescent clinics (majority full-time students) for participation in a HIV prevention trial. n = 522 sexually active African American females, 15% gang, aged 14-18.

- SU: marijuana, alcohol, drug use
- SH: STD test for gonorrhoeae, vaginalis, trachomatis; non-monogamous partner
- MH: depression
- NA
- NA

- Quantitative; Cross-sectional
- Compare
- Logistic regression

Gang was associated with greater prevalence of STDs (gonorrhoeae, vaginalis), non-monogamous sexual partners, positive marijuana toxicology tests, and self-reported drug use and binge drinking (*B*). Gang not associated with depression. Adjusting for parental monitoring, gang increased odds of positive gonorrhoeae and vaginalis tests, non-monogamous sexual partners, positive marijuana tests, and self-reported drug use and binge drinking.

**Yacobian et al. (2001)**

Data from Maryland's Offender Population Urinalysis Screening (OPUS). n = 297 detained juvenile offenders, 75% male, majority White (49%) and African American (45%), 4% gang, aged 14-16.

- SU: amphetamines, marijuana, cocaine, opiates, PCP
- NA
- NA

- Quantitative; Cross-sectional
- Compare
- Logistic regression

No associations for gang vs. "other group" (e.g., crew or posse) for any drug-positive screens (*B*). No multivariate associations for gang or "other group" (vs. non-gang) for positive marijuana screen. Male was the only significant predictor in the final model (increased odds of marijuana use controlling for gang and demographics).

**Yoder et al. (2003)**

Data from the Midwest Homeless and Runaway Adolescent Project (MHRAP). n = 602 homeless/runaway youth from four midwestern states, 60% female, majority White (60%) and African American (24%), 15% gang, aged 12-22.

- SU: substance use
- MH: depression, suicide ideation and attempts
- NA
- NA

- Quantitative; Cross-sectional
- Compare
- Chi-square; ANOVA; t-tests

Gang had higher substance use compared to gang-involved and non-gang involved (*B*). Gang member and gang-involved were more likely to make suicide attempt compared to non-involved, though members and those involved were equivalent in their likelihood of attempts (*B*). No group differences in depression.

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*Notes:* <sup>a</sup>SU = substance use, MH = mental health, SH = sexual health, PH = physical health. NA = not applicable. Race = race, ethnicity, or national origin. *B* = bivariate association. STI = sexually transmitted infection. STD = sexually transmitted disease. HIV = human immunodeficiency virus. PTSD = posttraumatic stress disorder. ADHD = attention deficit hyperactivity disorder. SES = socioeconomic status (incl., income level, receipt of public assistance such as TANF, free school lunch eligibility, employment status, single-parent family). PCP = phencyclidine. LGBTQ = lesbian, gay, bisexual, questioning or unsure (defined by Petering, 2016, 2017).

Table 2.

*Thematic Analysis of 65 Studies*

| <b>Theme</b>                                                                                                                       | <b>Sub-theme<sup>a</sup></b> | <b>Codes</b>                         | <b>Frequency of Codes</b> | <b>Citations</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|------------------------------------------------------------------------------------------------------------------------------------|------------------------------|--------------------------------------|---------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Theme 1: Authors conceptualized the gang as a social-cultural context with norms and values influencing individual health (n = 52) | Social context (n = 42)      | Peers or friends                     | 23                        | Bjerregaard, 2010; Cepeda, Nowotny et al., 2016; Cepeda, Saint Onge et al., 2016; Dickson-Gomez et al., 2017; Ferguson et al., 2012; Gordon et al., 2004; Harper & Robinson, 1999; Hagedorn et al., 1998; Harper et al., 2008; Hoffman et al., 2014; Hunt et al., 2002; Katz et al., 2005; Kopak et al., 2014; Li et al., 2002; Miller, 1998; Miller & Brunson, 2000; Molidor, 1996; Petering, 2016; Salazar et al., 2007; Voisin et al., 2004; Voisin et al., 2008; Voisin et al., 2010; Wesche & Dickson-Gomez, 2019                                          |
|                                                                                                                                    |                              | Family                               | 4                         | Hoffman et al., 2014; Hunt et al., 2011; Molidor, 1996; Petering et al., 2017                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|                                                                                                                                    |                              | Social network or group, community   | 21                        | Bishop et al., 2020; Brotherton, 1996; Buffardi et al., 2008; Gover et al., 2009; Hagedorn et al., 1998; Harper et al., 2008; Hunt et al., 2002; Hunt et al., 2000; King et al., 2013; Lanier et al., 2010; Miller, 1998; Molidor, 1996; Morris & Fry-McComish, 2012; Nydegger et al., 2019; Patton et al., 2017; Quinn, Dickson-Gomez et al., 2019; Salazar et al., 2007; Suh et al., 2016; Voisin et al., 2014; Wingood et al., 2002; Yoder et al., 2003                                                                                                      |
|                                                                                                                                    | Cultural context (n = 27)    | Culture, cultural system or milieu   | 8                         | Brotherton, 1996; Hoffman et al., 2014; Hunt et al., 2002; Katz et al., 2005; Lanier et al., 2010; Miller & Brunson, 2000; Petering et al., 2017; Sanders, 2012                                                                                                                                                                                                                                                                                                                                                                                                 |
|                                                                                                                                    |                              | Norms and values                     | 25                        | Bishop et al., 2020; Bjerregaard, 2010; Cepeda, Saint Onge et al., 2016; Dickson-Gomez et al., 2017; Gover et al., 2009; Harper & Robinson, 1999; Hoffman et al., 2014; Hunt et al., 2002; Hunt et al., 2000; Katz et al., 2005; Kerig et al., 2016; King et al., 2013; Lanier et al., 2010; Li et al., 2002; Miller, 1998; Miller & Brunson, 2000; Nydegger et al., 2017; Quinn, Dickson-Gomez et al., 2019; Sanders, 2012; Schalet et al., 2003; Su et al., 2016; Valdez et al., 2005; Voisin et al., 2010; Voisin et al., 2014; Wesche & Dickson-Gomez, 2019 |
|                                                                                                                                    | Other (n = 17)               | Environment (general)                | 6                         | Bjerregaard, 2010; Connolly & Jackson, 2019; Gover et al., 2009; Hunt et al., 2000; Katz et al., 2005; Li et al., 2002                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|                                                                                                                                    |                              | Organization, institution, structure | 7                         | Miller & Brunson, 2000; Miller et al., 2008; Minnis et al., 2008; Ramaswamy et al., 2013; Schalet et al., 2003; Suh et al., 2016; Yacoubian et al., 2001                                                                                                                                                                                                                                                                                                                                                                                                        |
|                                                                                                                                    |                              | Microsystem                          | 2                         | Gover et al., 2009; Harper & Robinson, 1999                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|                                                                                                                                    |                              | Gang life or lifestyle               | 2                         | Kerig et al., 2016; Rima et al., 2020                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |

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|----------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------|--------------------------------------------------------------------------|---------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Theme 2: A variety of ecological and developmental theories were used to explain the gang-health link (n = 39)                         | Ecological:<br>Social influence<br>(n = 22)   | Situational context                                                      | 1                                                             | Lanier et al., 2010                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|                                                                                                                                        |                                               | Social learning, socialization, differential association                 | 9                                                             | Hagedorn et al., 1998; Hoffman et al., 2014; Lanier et al., 2010; Miller et al., 2008; Petering, 2016; Suh et al., 2016; Voisin et al., 2014; Voisin et al., 2010; Voisin et al., 2004                                                                                                                                                                                                                                                                                                            |
|                                                                                                                                        |                                               | Social networks                                                          | 7                                                             | Gordon et al., 2004; Harper et al., 2008; Hoffman et al., 2014; King et al., 2013; Salazar et al., 2007; Wingood et al., 2002; Nydegger et al., 2019                                                                                                                                                                                                                                                                                                                                              |
|                                                                                                                                        |                                               | Informal social control                                                  | 6                                                             | Cepeda, Saint Onge et al., 2016; Hagedorn et al., 1998; Suh et al., 2016; Voisin et al., 2010; Voisin et al., 2008; Voisin et al., 2004                                                                                                                                                                                                                                                                                                                                                           |
|                                                                                                                                        |                                               | Facilitation, selection, enhancement                                     | 5                                                             | Bjerregaard, 2010; Gordon et al., 2004; Katz et al., 2005; Li et al., 2002; Yoder et al., 2003                                                                                                                                                                                                                                                                                                                                                                                                    |
|                                                                                                                                        | Ecological:<br>Broad frameworks               | Social capital                                                           | 1                                                             | Ferguson & Xie, 2012                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|                                                                                                                                        |                                               | Ecosocial, risky environments, risk and resilience, multiple marginality | 7                                                             | Bishop et al., 2020; Buffardi et al., 2008; Ferguson & Xie, 2012; Harper & Robinson, 1999; Kopak, 2014; Quinn, Walsh et al., 2019; Salazar et al., 2007                                                                                                                                                                                                                                                                                                                                           |
|                                                                                                                                        |                                               | Trauma exposure                                                          | 4                                                             | Kerig et al., 2016; Madan et al., 2011; Patton et al., 2017; Watkins & Melde, 2016                                                                                                                                                                                                                                                                                                                                                                                                                |
|                                                                                                                                        | Developmental<br>(n = 8)                      | Normalization thesis                                                     | 1                                                             | Sanders, 2012                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|                                                                                                                                        |                                               | Precocious or other transitions                                          | 3                                                             | Cepeda, Nowotny et al., 2016; Connolly & Jackson, 2019; Hagedorn et al., 1998; Valdez et al., 2005                                                                                                                                                                                                                                                                                                                                                                                                |
| Developmental tasks                                                                                                                    |                                               | 3                                                                        | Gover et al., 2009; Harper & Robinson, 1999                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Other                                                                                                                                  | Turning points                                | 1                                                                        | Dierkhising et al., 2019                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|                                                                                                                                        | Delinquent behavior, lifestyles               | 3                                                                        | Gover et al., 2009; Ramaswamy et al., 2013; Rima et al., 2019 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Theme 3: Neighborhood and family characteristics were cited as important contextual influences for youth gang members' health (n = 43) | Neighborhood or community context<br>(n = 35) | Theory about neighborhood or community influence                         | 21                                                            | Bishop et al., 2020; Brotherton, 1996; Cepeda, Nowotny, et al., 2016; Connolly & Jackson, 2019; Dickson-Gomez et al., 2017; Ferguson & Xie, 2012; Hagedorn et al., 1998; Harper et al., 2008; Harper & Robinson, 1999; Kerig et al., 2016; Madan et al., 2011; Mata et al., 2002; Miller & Brunson, 2000; Patton et al., 2017; Petering, 2016; Quinn, Dickson-Gomez et al., 2019; Quinn, Walsh et al., 2019; Salazar et al., 2007; Voisin et al., 2008; Watkins & Melde, 2016; Yoder et al., 2003 |

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|------------------------------------------------------------------------------------------------|-----------------------------------------------|-------------------------------------------------|----|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                                                                |                                               | Analysis: Violence exposure                     | 6  | Bailey et al., 2014; Dierkhising et al., 2019; Hunt & Joe-Laidler, 2001; Madan et al., 2011; Nydegger et al., 2019; Voisin et al., 2008                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|                                                                                                |                                               | Analysis: Neighbor functioning                  | 5  | Bishop et al., 2020; Ferguson & Xie, 2012; Hunt et al., 2000; Patton et al., 2017; Quinn, Walsh et al., 2019                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|                                                                                                |                                               | Research or practice implications               | 25 | Bishop et al., 2020; Bjerregaard, 2010; Brotherton, 1996; Cepeda, Nowotny et al., 2016; Cepeda, Saint Onge et al., 2016; Connolly & Jackson, 2019; Ferguson & Xie, 2012; Gover et al., 2009; Harper & Robinson, 1999; Harper et al., 2008; Harris et al., 2013; Hoffman et al., 2014; Li et al., 2002; Madan et al., 2011; Mata et al., 2002; Morris & Fry-McComish, 2012; Nydegger et al., 2019; Patton et al., 2017; Petering, 2016; Petering et al., 2017; Quinn, Dickson-Gomez et al., 2019; Quinn, Walsh et al., 2019; Salazar et al., 2007; Valdez et al., 2005; Voisin et al., 2008 |
|                                                                                                | Family context (n = 26)                       | Theory about family influence                   | 9  | Bishop et al., 2020; Cepeda, Nowotny et al., 2016; Connolly & Jackson, 2019; Hagedorn et al., 1998; Hoffman et al., 2014; Kopak, 2014; Quinn, Walsh et al., 2019; Valdez et al., 2005; Voisin et al., 2004                                                                                                                                                                                                                                                                                                                                                                                 |
|                                                                                                |                                               | Analysis: Parenting and family functioning      | 11 | Bailey et al., 2014; Bishop et al., 2020; Cepeda, Saint Onge et al., 2016; Hagedorn et al., 1998; Hunt & Joe-Laidler, 2001; Kopak, 2014; Morris & Fry-McComish, 2012; Quinn, Walsh et al., 2019; Sanders, 2012; Schalet et al., 2003; Voisin et al., 2008                                                                                                                                                                                                                                                                                                                                  |
|                                                                                                |                                               | Analysis: Family type and structure             | 4  | Bishop et al., 2020; Hagedorn et al., 1998; Hunt et al., 2011; Quinn, Walsh et al., 2019                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|                                                                                                |                                               | Analysis: Family transitions                    | 2  | Cepeda, Nowotny et al., 2016; Valdez et al., 2005                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|                                                                                                |                                               | Analysis: Family substance use                  | 6  | Bishop et al., 2020; Hagedorn et al., 1998; Hoffman et al., 2014; Hunt et al., 2002; Hunt et al., 2000; Quinn, Walsh et al., 2019                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|                                                                                                |                                               | Research or practice implications               | 17 | Bishop et al., 2020; Bjerregaard, 2010; Cepeda, Nowotny et al., 2016; Cepeda, Saint Onge et al., 2016; Connolly & Jackson, 2019; Evans et al., 1996; Harper & Robinson, 1999; Hoffman et al., 2014; Kopak, 2014; Li et al., 2002; Molidor, 1996; Petering, 2016; Quinn, Walsh et al., 2019; Salazar et al., 2007; Schalet et al., 2003; Valdez et al., 2005; Voisin et al., 2008                                                                                                                                                                                                           |
| Theme 4: Gender was cited as an important multidimensional element in the relationship between | Describe or apply theories of gender (n = 13) | Gang norms, practices reflect gender structures | 12 | Dickson-Gomez et al., 2017; Hunt et al., 2000; Hunt et al., 2011; Hunt et al., 2002; Miller, 1998; Miller & Brunson, 2000; Nydegger et al., 2017; Quinn, Dickson-Gomez et al., 2019; Salazar et al., 2007; Schalet et al., 2003; Voisin et al., 2014; Wesche & Dickson-Gomez, 2019                                                                                                                                                                                                                                                                                                         |

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|-------------------------------------|------------------------------------------|----------------------------------------------------------|----|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| gang membership and health (n = 26) |                                          | Individual responses to gender structures                | 9  | Gover et al., 2009; Dickson-Gomez et al., 2017; Hunt et al., 2002; Hunt et al., 2000; Miller & Brunson, 2000; Nydegger et al., 2017; Quinn, Dickson-Gomez et al., 2019; Schalet et al., 2003; Wesche & Dickson-Gomez, 2019                                                                                                                                                                                                |
|                                     | Gender as a feature of analysis (n = 23) | Group comparisons (quantitative)                         | 13 | Bishop et al., 2020; Evans et al., 1996; Gover et al., 2009; Hagedorn et al., 1998; Kerig et al., 2016; King et al., 2013; Kopak, 2014; Nydegger et al., 2017; Nydegger et al., 2019; Quinn, Walsh et al., 2019; Voisin et al., 2008; Voisin & Neilands, 2010; Wesche & Dickson-Gomez, 2019                                                                                                                               |
|                                     |                                          | Gendered experiences (qualitative)                       | 10 | Brotherton, 1996; Dickson-Gomez et al., 2017; Hunt & Joe-Laidler, 2001; Hunt et al., 2002; Hunt et al., 2000; Miller, 1998; Miller & Brunson, 2000; Molidor, 1996; Quinn, Dickson-Gomez et al., 2019; Schalet et al., 2003                                                                                                                                                                                                |
|                                     | Gender as a point of discussion          | Conclusions or calls for more research related to gender | 15 | Bishop et al., 2020; Dickson-Gomez et al., 2017; Evans et al., 1996; Hagedorn et al., 1998; Hunt & Joe-Laidler, 2001; Hunt et al., 2002; Hunt et al., 2000; Kerig et al., 2016; King et al., 2013; Miller, 1998; Miller & Brunson, 2000; Nydegger et al., 2017; Patton et al., 2017; Quinn, Dickson-Gomez et al., 2019; Schalet et al., 2003; Voisin & Neilands, 2010; Wesche & Dickson-Gomez, 2019; Wingood et al., 2002 |

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*Notes.* <sup>a</sup> Citations may be duplicated within theme (across sub-themes) as coding was not mutually exclusive.

PAPER 2:  
SOCIAL IDENTITY AND ECOLOGY INFLUENCES OF PATTERNED SEXUAL  
DECISION-MAKING AMONG GANG-INVOLVED YOUTH

**Abstract**

Sexual risk behaviors such as inconsistent condom use and intercourse with multiple partners are frequently cited as contributors to adverse sexual health in the youth gang literature. Yet, little is known about how and why sexual decision-making varies among gang-involved youth.

Developing relevant and effective service approaches will require an understanding of this variation and the environmental factors that influence particular patterns of sexual health risk. Using latent class analysis, we identified four sexual decision-making classes within a school-based sample of gang-involved youth (n = 2,060): Non-Sexually Active (54%), Single Partner with Condom Use (14%), Multiple Partners with Sexting (19%), and Multiple Partners with Early Debut (13%). These classes were distinguished by age at sexual debut, number of sexual partners, condom use, and sexting. Interpersonal and macrosocial factors were found to differentiate the classes, including multiform violence exposures, limited social support, and socioeconomic instability. We also found differences according to sexual identity and substance use. Findings highlight the need for service approaches that are responsive to both the unique needs of individual gang-involved youth and their environments. Implications for research and practice are discussed, including the potential utility of a harm reduction framework to promote healthy sexual decision-making within the youth gang context.

*Key words:* Youth gang, sexual decision-making, social ecology, latent class analysis, harm reduction

## **Introduction**

National estimates indicate there are 1.06 million youth gang members in the United States, with approximately 401,000 youth joining gangs annually (Pyrooz & Sweeten, 2015). Many gang-involved youth experience social and economic marginalization, fueling greater health risks conditions and behaviors (Sanders, Schneiderman et al., 2009; Sanders et al., 2013). One theme within the youth gang literature is that gang-involved youth are at an elevated risk for adverse sexual health (Bishop et al., 2021). Yet, comprehensive gang programs do not typically include a sexual and reproductive health component (Gebo et al., 2015; Simon et al., 2013). Efforts to tailor programs and services to address sexual health risks in youth gangs – within or outside of comprehensive initiatives – may be a promising approach to reduce vulnerability and promote sexual health within this population (e.g., Harper et al., 2006; Kassab et al., 2014).

As youth gang involvement continues to grow, so do the health disparities faced by this population. Developing strategies to address the sexual health needs of gang-involved youth requires an understanding of how sexual decision-making varies among these youth as well as the environmental factors that influence patterns of vulnerability and risk. We aim to fill current gaps regarding potential heterogeneity in sexual decision-making among gang-involved youth, generating evidence to inform the development of relevant and responsive service approaches.

### **Youth Gang Membership and Sexual Health**

Research suggests gang-involved youth may be at greater risk of adverse sexual health compared to non-gang youth. For instance, gang-involved youth are more likely to be sexually active (Voisin et al., 2004), report earlier sexual debut (Buffardi et al., 2008), have more sexual partners (Buffardi et al., 2008; Voisin et al., 2004; Wingood et al., 2002), report inconsistent or

no condom use (Buffardi et al., 2008; Petering et al., 2017), and engage in sexual health compromising behaviors such as group sex and having sex while high or while partner was high (Petering 2016; Sanders, Lankenau et al., 2009). Further, gang-involved youth are at an increased risk of STI acquisition and unintended pregnancy (Buffardi et al., 2008; Salazar et al., 2007; Voisin et al., 2004; Minnis et al., 2008) and sexual victimization (Gover et al., 2009). Yet, comparisons with highly vulnerable non-gang youth (e.g., homeless, maltreated) have found near equivalent risk for certain behaviors (e.g., unprotected sex, multiple partners, exchange sex: Petering, 2016), suggesting that gangs, or some feature of the environment in which they are embedded, may serve as unique social contexts for elevated sexual health risk.

Several studies examining sexual risk behaviors using gang-only samples point to potential heterogeneity, particularly regarding age of sexual debut, condom use, and number of sexual partners (e.g., Sanders, Lankenau et al., 2009; King et al., 2013; Nydegger et al., 2017; Wesche & Dickson-Gomez, 2019). For example, age of sexual debut ranged from 9-21 years with an average of 13.5 years (Sanders, Lankenau et al., 2009; Dickson-Gomez et al., 2017), and 21-80% reported having sex without a condom or other contraceptive at first or most recent sex (Sanders, Lankenau et al., 2009; King et al., 2013; Nydegger et al., 2017; Wesche & Dickson-Gomez, 2019). Reported number of sexual partners in one study ranged from 0-9 in the past 30 days and 0-15 in the past year (Sanders, Lankenau et al., 2009), while participants in another study reported an average of 1.73 ( $SD = 2.90$ ) partners in the past 30 days (Wesche & Dickson-Gomez, 2019). Studies also documented varied reports of group sex (15-35%: King et al., 2013; Nydegger et al., 2017), which is defined as sex with more than one partner concurrently and may influence the number of reported partners. Research with non-gang samples suggests an association between sexting – or the exchange of sexual messages, photos or videos via a

technological device – and high-risk sexual behaviors (Mori et al., 2019), though this relationship has not yet been studied specifically for gang-involved youth.

Variation in sexual decision-making may be attributable, in part, to a youth's social status. Health lifestyles theory suggests that choices about health behavior, such as sexual decision-making, are constrained by socialization experiences and the availability of resources as determined by a youth's social status or identity (Cockerham, 2017). From this perspective, patterns of sexual decision-making among gang-involved youth may vary according to different social identities. Several qualitative studies using gang-only samples point to potential differences in sexual experiences and expectations by gender (e.g., Dickson-Gomez et al., 2017; Quinn et al., 2019), and to a lesser extent, ethnicity or cultural background (Brotherton, 1996; Schalet et al., 2003). Whether these or other social identities align with specific patterns of sexual decision-making is underexplored for gang-involved youth, particularly with respect to sexual orientation (Panfil & Peterson, 2015; Quinn et al., 2019).

Researchers are increasingly moving beyond the dichotomy of gang and non-gang in order to gain a more nuanced understanding of health within this population. Yet, specific profiles or patterns of sexual decision-making among gang-involved youth have yet to be elucidated. Although common perceptions and assumptions about gangs and delinquency imply that all gang-involved youth are engaging in risky sexual behaviors, research does not align with this perspective. Rather, evidence points to potential variation, prompting questions about *whether* and *how* patterned decision-making occurs for these youth. Considering gang involved youths' social ecology may help clarify the factors contributing to sexual health vulnerability.

### **Social Ecological Influences of Youth Gang Members' Sexual Decision-Making**

The social ecological model provides an organizing framework for understanding the

multiple levels of social influence on adolescent sexual health. All youth, including those who are gang-involved, are embedded in social systems or environments that exert influence on health (Bronfenbrenner & Morris, 2006; Shonkoff & Garner, 2012). These influences can operate directly via interpersonal relationships across the family, peer, neighborhood and school contexts, or indirectly via trickle down effects of broader community and societal factors (i.e., macro-level social or structural) that shape more proximal contexts (e.g., economic inequality shapes family and neighborhood structures, which in turn, impacts youths' access to resources). The social ecological framework has been used to identify and organize the contextual factors (or social determinants) that influence sexual and reproductive health during adolescence (Challa et al., 2018; Garrido et al., 2018; Maness et al., 2016). It also provides a useful framework for conceptualizing the interpersonal and macrosocial factors that may influence variation in sexual decision-making among gang-involved youth (Kassab et al., 2014; Miller et al., 2011).

Relationships with peers, partners, parents, and community members may be particularly salient for understanding sexual decision-making among gang-involved youth. Sexuality is a normative feature of adolescent development. During this time, youth experience shifts in their interpersonal relationships including increased involvement in peer and romantic relationships and engagement/experimentation in sexual activity. Interpersonal influences, particularly relationships with peers and intimate partners, are therefore likely to impact sexual decision-making during this period. At the same time, relationships with parents and other adults at school or in the community maintain a level of influence given youth are not yet fully independent. From a social ecological perspective, interpersonal relationships across various social contexts are likely to exert the most direct influence on sexual behavior, with variation in the type of relationship (e.g., adverse or supportive) potentially influencing differences in sexual health risk.

Research suggests that interpersonal influences shape sexual experiences within youth gangs and may be particularly helpful for understanding variations in sexual decision-making for gang-involved youth. For instance, exposure to peer, family, and community violence is common among gang-involved youth (e.g., Hunt & Joe-Laidler, 2001; Kassab et al., 2014; Petering, 2016; Schalet et al., 2003) and has been identified as a risk factor for unintended pregnancy (Miller et al., 2011). Intimate partner and sexual violence may be particularly heightened within the youth gang context, especially for females (e.g., Ulloa et al., 2012), with research documenting the use of coercive sex as a way to reinforce gender norms and enhance group cohesion (Quinn et al., 2019; Wesche & Dickson-Gomez, 2019). While substance use is an individual-level behavior, it appears to be intimately tied to social relations within youth gangs and has been cited as a mechanism for facilitating risky sexual behavior such as coercive or group sex (Dickson-Gomez et al., 2017; Quinn et al., 2019, Sanders, Lanckenau et al., 2009).

Structural factors such as economic inequality and access to health-related education and resources have also been shown to influence adolescent sexual and reproductive health (Challa et al., 2018; MacPhail & McKay, 2018). From a social ecological and social determinants of health perspective, macro-level factors are not direct causes of health per se. Rather, the macrosocial environment shapes how more proximal contexts such as the family, neighborhood, and school are structured, thereby exerting influence on youth behavior and subsequent outcomes by determining the resources and opportunities that youth have access to within these contexts (Ng & Muntaner, 2014). Gang-involved youth are disproportionately embedded within marginal living environments where structural inequities (e.g., poverty, racism) contribute to limited social and economic resources and instabilities (e.g., family and housing), which have implications for sexual health. In one study, program staff working with gang-involved youth noted that those

with unstable family backgrounds were more likely to have sex, with staff perceiving male attempts to get their partner pregnant as a way to create a stable relationship in the face of other adversities (Kassab et al., 2014).

Associations have been documented between proxy measures of macrosocial influences (e.g., poverty and housing instability as proxy measures of socioeconomic instability) and varied health risk behaviors among gang-involved youth, such as substance use (Bishop et al., 2020; Quinn et al., 2019). Such proxy measures may also contribute to our understanding of sexual health risks within this population. Studies using gang-only samples, for instance, have found that poverty is associated with risky sexual behaviors such as group sex (King et al., 2013) and may serve as a barrier to accessing reproductive health care (Miller et al., 2011). Other research has documented obstacles to contraceptive use among gang-involved youth, including barriers to access, lack of information about contraceptive use, and negative or inaccurate beliefs about contraceptives (Brooks et al., 2009; Kassab et al., 2014).

### **Current Study**

The current study adds to a growing body of research on youth gangs and sexual health by first examining patterns of sexual decision-making within a large, school-based sample of gang-involved youth using latent class analysis (LCA). Next, we examine how individual and social ecological factors at the interpersonal and macrosocial levels influence this patterning. We expect that emergent profiles, combined with attention to multilevel social influences, hold implications for the tailoring of service approaches to promote healthy sexual decision-making among gang-involved youth.

## **Methods**

### **Survey Procedures and Sample Characteristics**

This cross-sectional study analyzes state-wide data collected from 8th, 10th, and 12th grade students via the 2016 Washington Healthy Youth Survey (HYS: Healthy Youth Survey, 2016). HYS uses a clustered sampling design to randomly select schools and invites all students in participating schools to complete the survey. The HYS is interleaved into two forms (A and B) and questions derive primarily from established national surveys which have been field-tested to ensure reliability and validity. Prior to participation, parents were informed that they could elect to not have their children participate, and students were notified that their survey responses would be anonymous. School participation rates were high across grade levels ranging from 81-90%. The use of HYS data for this analysis was considered exempt from human subjects review.

Data for the current analysis come from the Form B sample ( $n = 81,620$ ), as this form contained the most variables of interest (i.e., sexual behavior, sexual orientation). Given the study objective of assessing within-group heterogeneity in sexual decision-making, a subsample of gang-involved youth was pulled from the Form B sample. The use of self-report for determining gang membership has been widely supported in youth gang research (e.g., Boxer, Veysey, et al., 2015; Decker et al., 2014). Thus, gang-involved youth were identified as those who responded “yes” to the question: “A gang is a group of people with a leader who act together often for violent or illegal activities. During the past 12 months, have you been a member of a gang?” This yielded a sample of  $n = 4,164$  gang-involved youth.

In line with quality control procedures recommended by HYS (HYS, 2016), we undertook several data accuracy checks prior to analysis. This included removing cases due to reports of lack of honesty, use of a fake drug (Loziderb), and inconsistent responses across questions about sexual experiences (e.g., reported no history of sexual intercourse yet indicated one or more sexual partners). Cases were also removed if they had missing data for all of the

sexual health items. This process resulted in a final analysis sample of  $n = 2,060$  gang-involved youth. On average, the sample was 15.13 years old (range = 12-19;  $SD = 1.63$ ) and 61% male. The racial/ethnic composition was: 47% White, 20% Hispanic or Latinx/a/o, 7% Asian, 6% Black or African American, 4% American Indian or Alaskan Native, 3% Native Hawaiian or Pacific Islander, 7% bi- or multiracial, and 6% other. Approximately 79% of the sample identified as heterosexual, 11% as bisexual, 4% as gay or lesbian, and 6% as unsure.

## **Measures**

Our analysis included responses to individual items from the HYS survey as well as constructed scales and indices. Scales were created by taking the mean across items, and when necessary, items were first standardized to adjust for varying metrics. Indices were created by taking the sum across two or more dichotomized variables.

### ***LCA Model Indicators***

Sexual decision-making classes were established using four items which were scored toward increasing sexual health risk. *Age at sexual debut* was the reported age of first sexual intercourse ( $M = 13.63$ ,  $SD = 1.74$ , range = 11-17 years). *Number of partners* was the number of people with whom the youth reported ever having had sexual intercourse (range = 0-6, where 0 = never had sexual intercourse to 6 = 6 or more partners; sample probabilities reported in Table 2). *Condom use* was a dichotomous item reflecting whether the youth or their partner used a condom during the most recent sexual intercourse (0 = no, 1 = yes). Just over half of sexually active youth (53%) indicated using a condom at recent sexual intercourse. *Sexting* was a dichotomous item reflecting whether the youth received a text or email with a sexually explicit photo during the past 30 days (0 = no, 1 = yes). Approximately 38% of youth reported sexting.

### ***Social Ecological Factors***

Using social ecological theory as an organizing framework, the following interpersonal and macrosocial (structural) factors were tested for class differences.

**Interpersonal Influences.** Measures of peer victimization, dating violence, exposure to family and community violence, and sexual coercion were used to assess adverse interpersonal influences. *Peer victimization* was the sum of four dichotomized items, three of which reflected experiences of being bullied (because of their race, ethnicity, or national origin; sexual identity; cyber bullied), and one reflected feeling unsafe at school ( $M = 0.82$ ,  $SD = 1.02$ , range = 0-4). *Dating violence* was the sum of two dichotomized items reflecting whether the youth had been controlled, threatened, or made to feel unsafe, or physically harmed on purpose (hit, slammed into something, injured with object or weapon) by someone they were dating in the past 12 months ( $M = 0.27$ ,  $SD = 0.58$ , range = 0-2). *Family and community violence exposure* was the sum of four dichotomized items reflecting youth reports of witnessing adults physically harm each other, experiencing physical or verbal abuse from adults or parents, and feeling unsafe on the way to school ( $M = 1.46$ ,  $SD = 1.24$ , range = 0-4). *Sexual coercion* was a single dichotomous item reflecting whether the youth had ever been in a situation where someone made them engage in kissing, sexual touch or intercourse without consent (0 = no, 1 = yes). Approximately 27% of youth reported experiencing sexual coercion.

One measure was used to assess supportive interpersonal influences. *Social support* included two items reflecting whether the youth has adults they can turn to when feeling sad or hopeless, or know people in their school who will help them if they need it. These items were combined and transformed into a dichotomous indicator (0 = no, 1 = yes), with 78% reporting social support.

**Macrosocial Influences.** Proxy measures of macrosocial influences included

socioeconomic (in)stability, access to health resources, and urban/rural living environment.

Socioeconomic (in)stability was assessed using three measures: poverty, family structure, and housing instability. *Poverty* was assessed using three items reflecting whether the youth received free or reduced lunch, had to skip meals, or lost their home due to lack of money. These items were combined and transformed into a dichotomous indicator of any poverty (0 = *no*, 1 = *yes*). *Living with parents* was dichotomous, created from multiple items about who the youth lived in the past 30 days, with “parents” defined as either biological or stepparent(s) (0 = *no*, 1 = *yes*). Housing instability was dichotomous, created from multiple items about where the youth lived in the past 30 days, with “instability” defined as living in someone else’s house/apartment, in a group home, in a shelter, in a car or park, on the street, or moved from place to place (0 = *no*, 1 = *yes*). Approximately 53% of the sample experienced poverty, 84% lived with their parents, and 12% experienced housing instability.

Access to health resources was assessed using two measures: sex education and access to a school counselor. *Sex education* was assessed using three items reflecting whether the youth was taught about AIDS or HIV, abstinence to prevent STDs and pregnancy, or other prevention methods in the prior school year. These items were combined and transformed into a dichotomous indicator of received any sex education (0 = *no*, 1 = *yes*). *School counselor access* was assessed using two dichotomous items measuring whether the student’s school has a counselor, and whether the student had contact with the school counselor in the past 12 months (both items 0 = *no*, 1 = *yes*). Approximately 74% indicated receiving some form of sex education, 88% reported being aware that their school has a counselor, and 57% reported having had contact with the school counselor.

Whether youth live in an urban or rural area is one commonly used proxy measure for the

social, economic, and physical development of a living environment, and is often used to assess health disparities (e.g., Weinstein et al., 2017). Data on the urban and rural classification status of each HYS school was obtained from the Washington State Department of Health (DOH) and appended to the HYS data. Indicators come from DOH's urban-rural classification system, which combines population density, urbanization, and daily commuting data at the sub-county level using census data (Hailu & Wasserman, 2016). Schools in sub-county areas with population densities of 50,000 or greater ("urban core") or with primary high commuting flows to urban cores or secondary commuting flows of 30-49% to urban cores (i.e., sub-urban) were coded as urban. Approximately 77% of the sample attended school in an urban area.

### ***Individual and Social Identity Factors***

**Substance Use.** Four measures of substance use were examined given the documented associations between substance use and sexual risk behaviors in the youth gang literature. Items measuring past 30-day use for alcohol, marijuana, and tobacco were collapsed into dichotomous indicators (0 = *no*, 1 = *yes*) for each substance type. Youth in the sample reported alcohol (40%), marijuana (38%), and tobacco (40%) use. *Age of first use* was the mean self-reported age of first use for any use of alcohol, marijuana, and cigarettes ( $M = 12.62$ ,  $SD = 1.90$ , range 10-17 years).

**Age and Social Identity.** Youth provided demographic information on their age (in years), gender (female, male), sexual identity (heterosexual, gay or lesbian, bisexual, unsure), and race/ethnicity.

### **Analytic Approach**

Latent class analysis (LCA) was used to test for classes of gang-involved youth relative to their sexual-decision making patterns. LCA is a person-centered approach that can identify subgroups ("latent classes") within a sample that are similar with respect to theoretically

important variables (Lanza et al., 2003; Lubke & Muthén, 2005; Vermunt, 2004). LCA estimates a categorical latent variable and the sample probabilities of assignment to each class (Muthén, 2004), providing model-based statistics that allow for judgment regarding the overall quality of assignment and model fit. Models are tested iteratively, adding one class at a time until fit statistics indicate the best fitting model has been identified. Because LCA best practices do not recognize a single fit statistic as sufficient to determine best model fit (Nylund et al., 2007), multiple fit statistics were examined. The Akaike Information Criterion (AIC) and Bayesian Information Criterion (BIC) are relative goodness of fit statistics used to identify the model that provides adequate fit with the fewest parameters; the Lo-Mendell-Rubin adjusted likelihood ratio test (LMR), Vuong-Lo-Mendell-Rubin likelihood ratio test (VLMR), and parametric bootstrapped likelihood ratio test (PBLRT) provide significance tests for goodness of fit between neighboring models (Lo et al., 2001; Nylund et al., 2007). The LMR test tends to overestimate the number of classes (Nylund et al., 2007); thus, a non-significant p-value is suggestive that the number of classes should no longer be increased. In addition, model selection included identifying the most parsimonious and readily interpretable model (Collins & Lanza, 2010).

Mean and proportional differences of social ecological and individual factors were assessed across classes. Because the entropy was large for the best fitting model (see Table 1), we used the pseudo class (PC) method of the auxiliary option in Mplus to examine differences in distal outcomes across the latent classes (Asparouhov & Muthén, 2013). Statistical significance of overall and between-class differences was determined using the Wald chi-square test. Analyses were conducted in Mplus version 8 (Muthén & Muthén, 2012) using maximum likelihood with robust standard errors (MLR) to adjust for any potential clustering effects relative to the stratified sampling method used by HYS.

## Results

LCA models were estimated for one- through five-class solutions (Table 1). The AIC and BIC decreased consistently with each class until the fourth and fifth classes where the BIC (which prefers parsimony) increased identifying the three- or four-class solutions as the best fitting models by this metric. Typically, one best fitting model would be identified by the BIC; however, the BIC values for the third and fourth classes were nearly equivalent (differed by 0.71), with a higher increase seen between the fourth and fifth classes. The LMR tests indicated a significant improvement with each additional class until the five-class model. Entropy, which reflects classification certainty, was excellent at .91 for the four-class model and was larger than the three-class model (.89). Based on these fit indices, interpretation, and parsimony, the four-class solution was determined to be the best fitting model. The average classification probabilities for the most likely class membership were high, ranging from .84 to .99.

\*\*\*\*\*Table 1 here\*\*\*\*\*

The four classes were distinguished from each other by the distribution of probabilities on the indicator variables (Table 2). Based on our interpretation of these distributions, the classes were labeled Non-Sexually Active, Single Partner with Condom Use, Multiple Partners with Sexting, and Multiple Partners with Early Debut. Classes were named according to the most and least prevalent indicators as well as the degree of differentiation from the other classes. However, it is important to note that some indicators (e.g., number of partners) exhibited more differentiation than others.

The first class, Non-Sexually Active, consisted of the largest portion of the sample (n = 1117, 54%). Youth in this class were sexually inactive and had a low probability of sexting (0.23). The second class, Single Partner with Condom Use, consisted of 14% of the sample (n =

472) and was distinguished by having the highest probability of one sexual partner, the oldest sexual debut, and the highest probability of condom use of the sexually active classes. The third class, Multiple Partners with Sexting, consisted of 19% of the sample (n = 397). Youth in this class were likely to report a range of partners (e.g., highest probability of 4 partners, second highest of 6+) and had the highest probability of sexting across classes. Although differences in number of partners were present (particularly for the higher number of partners categories), youth in the Single Partner and Multiple Partners with Sexting classes were further distinguished by age at sexual debut and sexting. The fourth class, Multiple Partners with Early Debut, consisted of the smallest portion of the sample (n = 263, 13%) and was marked as highest risk across all indicators except sexting. Specifically, youth in this class were likely to have the youngest age at sexual debut, highest probability of six or more partners, lowest probability of condom use, and second highest probability of sexting.

\*\*\*\*\*Table 2 here\*\*\*\*\*

### ***Differences by Individual and Social Identity Factors***

After identifying the latent class structure, we examined whether the classes were further distinguished by social identity (gender, sexual identity, race/ethnicity), age, and substance use. Between-class and overall Wald chi-square tests identified significant differences among the four classes (Table 3). Findings reveal a pattern of significant overall differences across factors. Non-Sexually Active youth were more likely to be Asian, female, heterosexual, and younger, and less likely to use alcohol, tobacco, or marijuana than all other classes. Single Partner youth were more likely to be older and less likely to identify as bisexual compared to Multiple Partners-Sexting youth; and more likely to be older, White, and male compared to Multiple Partners-Early Debut youth. Single Partner youth were less likely to use alcohol, marijuana, and tobacco and

had an older age of first use compared to both Multiple Partners-Sexting youth and Multiple Partners-Early Debut youth. Multiple Partners-Sexting youth were more likely to identify as gay, lesbian, or bisexual compared to Non-Sexually Active youth. Multiple Partners-Early Debut youth were more likely to be younger, male, gay/lesbian or unsure of their sexual identity, and less likely to be heterosexual compared to Multiple Partners-Sexting youth. Multiple Partners-Sexting and Multiple Partners-Early Debut youth maintained a similar pattern of alcohol, marijuana, and tobacco use, but Early Debut youth were likely to be younger at first use.

\*\*\*\*\*Table 3 here\*\*\*\*\*

### ***Differences by Interpersonal and Macrosocial Factors***

We subsequently examined how interpersonal and macrosocial influences differentiated among the classes. Table 4 displays mean and proportion estimates for each class, overall chi-square tests, and identification of significant between-class differences. With the exception of urban/rural status, all interpersonal and macrosocial factors significantly differentiated classes based on results from the overall chi-square tests, though not all demonstrated consistent findings between classes (i.e., fewer significant between-class differences).

The Non-Sexually Active class had the lowest ecological adversity compared to the other classes. Notably, these youth had the lowest victimization, violence exposure, and economic instability, and the highest social support and access to health resources. Single Partner youth generally had higher ecological adversity compared to the Non-Sexually Active youth, and lower adversity than the Multiple Partners-Sexting and Multiple Partners-Early Debut youth. A pattern of between-class differences across interpersonal and macrosocial factors differentiated the Single Partner and Multiple Partners-Early Debut youth in particular. Compared to Multiple Partners-Early Debut youth, Single Partner youth had lower peer victimization, violence

exposures, and sexual coercion, and greater social support, economic stability, and greater access to, and contact with, a school counselor. Single Partner youth differed from Multiple Partners-Sexting youth in that they had lower peer victimization, violence exposure, and poverty, and higher social support and greater contact with a school counselor. Multiple Partners-Sexting and Multiple Partners-Early Debut youth maintained a similar pattern of ecological adversity except that Early Debut youth were at an elevated risk within the pattern structure. These youth experienced higher peer victimization, lower social support, were less likely to live with their parent(s), and more likely to experience poverty and housing instability compared to Multiple Partners-Sexting youth. Early Debut youth were more likely to live in a rural area compared to Non-Sexually Active youth, though overall class differences were not found for urban/rural living status.

\*\*\*\*\*Table 4 here\*\*\*\*\*

### **Discussion**

Research points to potential variation in sexual behavior among gang-involved youth, yet few studies have tested specifically for heterogeneity. This analysis is among the first to test for patterns of sexual decision-making and subsequent differences in social identity and ecological factors among a large sample of youth reporting gang involvement. A latent class analysis identified four youth profiles – Non-Sexually Active, Single Partner with Condom Use, Multiple Partner with Sexting, and Multiple Partners with Early Debut – that were significantly differentiated by individual, interpersonal, and macrosocial factors. Findings have implications for practice and further research to reduce environmental vulnerabilities and promote healthy sexual decision-making among gang-involved youth.

### **Tailoring Service Approaches**

The social ecological, social determinants of health, and health lifestyles frameworks suggest that variation in youths' sexual decision-making will be influenced by their interpersonal relationships as well as the macrosocial factors (or structural influences) that shape their living and learning environments. We found that gang-involved youth with increasingly risky sexual decision-making were embedded within social ecologies characterized by increasingly adverse interpersonal relationships and lower social support and resources. Service approaches to promote sexual health will be most effective when a youth's social environment is incorporated (CDC, 2020; Decker et al., 2015; Lys et al., 2019; Marcell et al., 2017; Svanemyr et al., 2015), and our findings suggest this is also true for gang-involved youth.

### ***Non-Sexually Active Gang-Involved Youth***

Non-sexually active youth (the largest group) were younger, more likely to be female, and generally experienced lower ecological adversity and greater resources compared to the sexually active youth. The existence of a sexually inactive or abstinent group challenges assumptions that risky sexual decision-making typifies gang-involved youth. This points to the need for less assumptive models for service identification and provision.

While these youth were not physically sexually active, there was a low probability of sexting among this group. Although not all youth who are sexting are having sex (Mori et al., 2021), sexting may increase the likelihood of sexual behavior (Mori et al., 2019) and adverse sexual health (Maas et al., 2019). Because sexting is becoming an increasingly common form of adolescent sexual communication (Madigan et al., 2018), and these youth are the youngest in the sample, educational initiatives may benefit from components focused on helping youth engage in safe sexting or balance the potential risks (e.g., legal consequences) and appeal (e.g., platform for sexual expression, experimentation) of sexting (Patchin & Hinduja, 2020).

### ***Monogamous Youth with Normative Timing***

A small group of youth (14% of sample) were characterized by having a limited number of sexual partners (one or two). These youth were the oldest, on average, and had the latest age of sexual debut of sexually active youth. These youths' more normative age of first sex, reports of few sexual partners, and moderate condom use is consistent with a sexual initiation pattern of monogamy documented in general adolescent samples (Beadnell et al., 2005; Connell et al., 2009; Goldberg & Halpern, 2017; Vasilenko et al., 2015). Engaging in romantic or intimate relationships is a key feature of adolescent development, and the ability to build and maintain healthy sexual relationships once sexually active is critical for long-term health and well-being.

Although their sexual decision-making profile suggests current low risk, these youth had elevated levels of dating violence, sexual coercion, and family instability – similar levels to the Multiple Partners youth. In a positive vein, these youth were more likely to be in contact with a school counselor compared to the other sexually active youth, suggesting they may be receiving some degree of support regarding their experiences of relationship violence and sexual assault. Although these youth do not currently have an indicated need for intensive services based on their sexual behavior, the resources and supports they do have may be insufficient in the face of their experiences of adversity. Thus, proactively facilitating resources (e.g., counseling) and educational efforts that are developmentally congruent and focused on building healthy relationships as well as skills to identify and avoid harmful or unsafe relationships (e.g., verbal or physical abuse) should help support healthy sexual development, and perhaps interrupt the likelihood of adverse relationships later on.

### ***Youth with Early Experimentation***

The largest group of sexually active youth (Multiple Partners with Sexting) were

characterized by an earlier age of sexual debut, a range of sexual partners, and the most sexting. These youth were also more likely to identify as bisexual and to use substances compared to abstinent and monogamous youth. While the average age of debut (13.78 years) for this group was younger than is typical for adolescents, their debut age was similar to other gang youth (e.g., Sanders, Lankenau et al., 2009) suggesting earlier debuts may be common among gang-involved youth. This group may be engaging in a form of early experimentation, where they are exploring their sexuality (via different partners, sexting) at earlier stages of adolescence in addition to experimenting with common and readily available substances. A similar group of experimenters has been documented in general adolescent samples, though the group that emerged here consisted of a slightly higher proportion of the analysis sample (19% vs. 13-14%: Connell et al., 2009; Vasilenko et al., 2015). This suggests that experimentation may be slightly elevated for gang-involved youth. Sexual exploration is a normative feature of adolescence, and experimentation does not necessarily imply increased risk. However, more sexual partners with limited condom use at an earlier age combined with elevated substance use may increase youths' vulnerability to adverse outcomes such as STIs (e.g., Epstein et al., 2014; Vasilenko et al., 2015).

These youth were situated within environments characterized by elevated ecological risks (i.e., poverty, peer victimization, violence exposure, limited social support), where the balance of supports and resources to environmental challenges may be more fragile than monogamous youth. Adolescence is a time of sexual risk-taking and experimenting, but it is also a time of considerable vulnerability, and findings suggest gang-involved youth are experiencing a level of trauma and adversity that may be facilitating earlier forms of experimentation. Comprehensive sexual education programs that include a focus on substance use, safe sexting, and consistent contraceptive use may benefit gang-involved youth, particularly if these topics are addressed

earlier than might be typical.

### ***Vulnerable Youth at Heightened Sexual Health Risk***

The smallest group of sexually active youth was characterized by the youngest sexual debut, having the most partners, and lowest condom use (Multiple Partners with Early Debut). These youth maintained similarly elevated rates of substance use compared to the early experimenters but had a younger age of onset which matched their age of sexual debut (both around 11 years). Research suggests that behaviors such as sex with multiple partners, group sex, inconsistent condom use, and coercive sex often co-occur with substance use for gang-involved youth and are common in gang social settings such as parties (e.g., Dickson-Gomez et al., 2017; Sanders et al., 2009). Yet, these youth are having sex and using substances much earlier than has been reported in prior gang studies (Bishop et al., 2020; Sanders, Lankenau et al., 2009) suggesting a small subset of youth who may be at heightened risk given their very early engagement in health compromising behaviors (i.e., low condom use, multiple partners, high substance use).

Similar to the early experimenters, these youth were situated within social contexts with elevated ecological adversity yet differed in important ways. Compared to early experimenters, they experienced significantly greater peer victimization (including being bullied because of their race or sexual identity), poverty, family and housing instability, family/community violence, and less social support or an awareness that their school has a counselor. They also experienced significantly more dating violence and sexual coercion compared to abstinent and monogamous youth. Further, this group had the highest proportion of males and youth identifying as gay or unsure of their sexual identity, and second highest proportion of bisexual youth. Research suggests that gangs tend to be male-centered and heteronormative (Panfil &

Peterson, 2015), and youth who identify otherwise may be at an increased risk of victimization and adverse health (Panfil, 2017; Quinn et al., 2019). The riskier pattern of sexual behavior may be a way of responding to stigma against being queer within the gang culture or their broader social environment. In addition, given the multiple forms of violence exposure, maltreatment, and socioeconomic instability these youth are facing, they may be using sex and substances as a way to cope with, or navigate, their living environments.

Gang-involved youth who fit this profile represent a more vulnerable group within an already marginalized population of youth. This underscores the importance of, and need for, more intensive services for a subset of gang-involved youth, particularly those who are having sex in early adolescence (13 and younger). Efforts should aim to address trauma and socioeconomic instability as well as reduce the harms associated with riskier decision-making to interrupt the likelihood of sustained engagement in health compromising behaviors over time. Service approaches are likely to be most effective if they are culturally- and developmentally relevant and tailored to the gang context (Harper et al., 2006, 2009; Kassab et al., 2014). Taking a harm reduction approach to promote healthy sexual decision-making may be particularly effective for gang-involved youth.

### **Harm Reduction as a Service Framework for Promoting Youth Gang Sexual Health**

Policy and program evaluations, combined with research on youth perspectives on sex and sex education, suggest that abstinence-only is not an effective message (Brickman & Willoughby, 2017; Gardner, 2015; Fletcher et al., 2015; Santelli et al., 2017). Harm reduction is one approach with demonstrated success in reducing risks to adolescent sexual health (e.g., Sansone et al., 2021) and should be a useful framework for promoting youth gang sexual health. Harm reduction is built on the philosophy of meeting youth where they are at in their sexual

development - across the spectrum of behavior ranging from abstinence to safe sex to risky sex - offering compassionate, pragmatic strategies to minimize harm and promote health (Andrasik & Lostutter, 2012).

Harm reduction provides developmentally congruent strategies that can be applied across social contexts. We found that interpersonal influences significantly differentiated sexual decision-making patterns, suggesting intimate partners, peers, parents, and community members play an important role in shaping gang youths' sexual decisions. Service approaches should address multiform violence and adversity exposures while strengthening social supports. Integrating healthy relationship building and skills development grounded in principles of harm reduction (e.g., empowerment-oriented; Harper et al., 2006, 2009) with environmental supports and services for families may offer a useful next step (Kassab et al., 2014).

We also found a pattern of lower condom use and more sexual partners for youth experiencing social and economic instability and limited access to health resources. Efforts to provide low-to-no cost resources such as free condoms, STI screenings, emergency contraceptives, and health counseling in community locations frequented by gang-involved youth (e.g., recreation centers, parks) may help promote safer sex practices and reduce potential harm. Receiving sex education at school did not consistently differentiate among the sexually active classes. Research suggests that comprehensive sexuality education delivered by someone who understands gang culture, who the youth know and respect (e.g., street outreach workers, peer facilitators), and who can deliver messaging in a non-judgmental manner, may resonate well with gang-involved youth (Kassab et al., 2014). Content and mode of delivery should hold specific relevancy to these youths' lived experiences, including diversity in sexual experiences and attitudinal and behavioral norms around sex. Efforts to bring youth voice and ownership into

the delivery model may promote feelings of empowerment, increase engagement and adoption of content, and reduce sexual health compromising behaviors (e.g., Harper et al., 2006, 2009).

### **Research Implications and Study Limitations**

Approximately 30% of cases from our gang sample were removed due to missingness on the sexual behavior items. On the HYS form, these items (including sexual orientation and coercion) are listed in an optional section on the last page of the survey which is perforated so districts or schools can remove the questions if they prefer students not answer them (HYS, 2016). This has important implications for our findings and future research. The removal of these cases, for example, may explain the lack of significant findings for rural-urban living status and ethnoracial identity. Geographically, Washington State is largely rural with smaller segments of high-density urban populations, yet the majority of our sample (77%) lived in urban areas. Further, counties with the largest Mexican American or Latinx populations tend to be predominantly rural, and many tribal territories are also located in rural areas. Rural areas in the state tend to be politically conservative, particularly regarding sex education (e.g., “Referendum measure no. 90-county results,” 2021), and as with our sample, rural area schools disproportionately opted out of having youth answer the sex-related questions. Yet, research suggests gangs are prevalent in rural areas (Watkins & Taylor, 2016) and it may be the case that these youth comprise a demographic that is underrepresented in our current sample. Future research should continue to explore rural and urban differences in youth gang sexual behavior as this may illuminate further variation with implications for policy and practice.

While there are strengths to using a large school-based sample, some characteristics of the sample may reduce generalizability. For example, demographics are likely to differ in varying degrees from those of other states. Additionally, because our sample is school-based, we

may not be capturing a subset of gang-involved youth who have dropped out or been expelled. Tapping school-engaged youth is advantageous in that students are relatively accessible for both data collection and service provision, and studies using school-based samples have expanded our knowledge of youth gang sexual health (e.g., Gover et al., 2009; Voisin & Neilands, 2010). Yet, those with limited or no school engagement may present with unique sexual health challenges. Replications of the current analysis among youth not currently in school may contribute useful information about whether services will need to attend to alternative contexts (e.g., systems involvement, the streets).

The use of publicly available behavioral health data offers a practical strategy for developing a broad understanding of sexual health patterning that is complementary to more targeted sampling approaches. However, as with any secondary data, we were limited by available measures. Additional measures of sexual behavior, while more sensitive in nature, may contribute further nuance with implications for practice. Items used in prior studies to identify patterns of adolescent sexual behavior include non-coital activities (e.g., oral or anal sex), timing and frequency, different contraceptive forms, partner characteristics, relationship status, and STI testing history (Connell et al., 2009; Goldberg & Halpern, 2017; Mori et al., 2021; Vasilenko et al., 2015). Measures of group sex, concurrent partners, use of substances before sex, pregnancy coercion or contraceptive sabotage, and cultural expectations regarding gender and sexuality may be especially relevant for gang-involved youth (Dickson-Gomez et al., 2017; Kassab et al., 2014; Miller et al., 2011; Minnis et al., 2008; Quinn et al., 2019). Future research should also examine the role of additional ecological factors that are specific to issues of sexual and reproductive health such as parent-adolescent communication, peer knowledge and beliefs, access to reproductive services, and barriers to health care access (e.g., Kassab et al., 2014).

Our analysis is among the first to quantitatively examine diversity in sexual orientation as it pertains to health for gang-involved youth. Our findings suggest that heterosexuality is not universal and those who identify otherwise may be at heightened vulnerability for adverse health. At the same time, our findings related to gender (i.e., males more likely to be in riskier classes) differed from prior gang studies suggesting females may be at greater sexual health risk (e.g., Dickson-Gomez et al., 2017; Quinn et al., 2019). Future research is needed to clarify the role of the gang context itself for shaping sexual experiences, including examining gang-specific ecological factors such as gender and sexual identity composition, or group norms regarding sex and intimate relationships. Research accounting for additional measures of the gang context can more fully assess the extent to which the culture of sex within gangs is gendered and heteronormative (Panfil & Peterson, 2015) and how sexual health is shaped by gang-level norms and expectations and behavioral responses (Bishop et al., 2021). This will be an important next step to ensure service approaches are responsive to diverse needs.

### **Conclusion**

Addressing health disparities for gang-involved youth will require expanding on traditional approaches to research and practice with this population. Few studies have examined within-group heterogeneity in health decision-making among those youth who are already gang involved. Our study indicates that these youth are a heterogeneous group with respect to sexual decision-making, pointing to the need for flexible service approaches that fit patterned needs while attending to multilevel contextual influences on youth's sexual decision-making. Harm reduction is one service framework worth exploring, and research will be needed to ensure harm reduction strategies are culturally relevant and effective for this population.

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**Table 1***Model Fit Statistics for One- Through Five-Class LCA Solutions*

| Class          | Log Likelihood | AIC      | BIC      | Entropy | VLMR       | LMR        | PBLRT      |
|----------------|----------------|----------|----------|---------|------------|------------|------------|
| 1              | -8196.31       | 16414.62 | 16476.56 | -       | -          | -          | -          |
| 2              | -6677.72       | 13399.44 | 13523.31 | 0.998   | 3037.19*** | 3001.23*** | 3037.19*** |
| 3              | -6603.56       | 13273.12 | 13458.93 | 0.890   | 148.32***  | 146.57***  | 148.32***  |
| 4 <sup>a</sup> | -6561.95       | 13211.90 | 13459.64 | 0.906   | 83.22**    | 82.24**    | 83.22***   |
| 5              | -6523.95       | 13157.90 | 13467.58 | 0.944   | 75.99      | 75.10      | 75.99***   |

*Notes.* AIC = Akaike information criterion; BIC = Bayesian information criterion; VLMR = Vuong-Lo-Mendell-Rubin likelihood ratio test; LMR = Lo-Mendell-Rubin adjusted likelihood ratio test; PBLRT = parametric bootstrapped likelihood ratio test.

<sup>a</sup>Indicates the chosen model based on outlined criteria and interpretability.

\*p < .05 \*\*p < .01 \*\*\*p < .001.

**Table 2***Means and Probabilities for Model Indicators by Class for the Final Four-Class Solution*

|                                  | Total sample | Non-sexually active | Single partner with condom use | Multiple partners with sexting | Multiple partners with early debut |
|----------------------------------|--------------|---------------------|--------------------------------|--------------------------------|------------------------------------|
| Model Indicators                 | n = 2060     | n = 1117            | n = 283                        | n = 397                        | n = 263                            |
| Age at sexual debut <sup>a</sup> | 13.63        | -                   | 15.65                          | 13.78                          | 11.50                              |
| Number of partners               |              |                     |                                |                                |                                    |
| Not sexually active              | 0.54         | 1.00                | 0.00                           | 0.00                           | 0.00                               |
| 1 partner                        | 0.15         | 0.00                | 0.49                           | 0.30                           | 0.22                               |
| 2 partners                       | 0.08         | 0.00                | 0.23                           | 0.17                           | 0.13                               |
| 3 partners                       | 0.05         | 0.00                | 0.09                           | 0.12                           | 0.12                               |
| 4 partners                       | 0.04         | 0.00                | 0.06                           | 0.14                           | 0.07                               |
| 5 partners                       | 0.02         | 0.00                | 0.05                           | 0.05                           | 0.06                               |
| 6+ partners                      | 0.11         | 0.00                | 0.08                           | 0.22                           | 0.40                               |
| Condom use                       |              |                     |                                |                                |                                    |
| Not sexually active              | 0.54         | 1.00                | 0.00                           | 0.00                           | 0.00                               |
| Yes                              | 0.24         | 0.00                | 0.59                           | 0.55                           | 0.45                               |
| No                               | 0.21         | 0.00                | 0.41                           | 0.45                           | 0.55                               |
| Sexting                          |              |                     |                                |                                |                                    |
| Yes                              | 0.38         | 0.23                | 0.42                           | 0.64                           | 0.56                               |
| No                               | 0.62         | 0.77                | 0.58                           | 0.36                           | 0.44                               |

*Notes.* <sup>a</sup>Mean age of sexual debut among those reporting sexual activity.

**Table 3***Means and Proportions by Class for Individual and Social Identity Factors*

| Variable                  | Non-sexually active<br>n = 1117 | Single partner with condom use<br>n = 283 | Multiple partners with sexting<br>n = 397 | Multiple partners with early debut<br>n = 263 | Overall Wald's $\chi^2$ | Between-class comparisons |
|---------------------------|---------------------------------|-------------------------------------------|-------------------------------------------|-----------------------------------------------|-------------------------|---------------------------|
| <b>Race/ethnicity</b>     |                                 |                                           |                                           |                                               |                         |                           |
| Asian                     | 0.10                            | 0.03                                      | 0.04                                      | 0.03                                          | 33.43***                | <i>a,b,c</i>              |
| White                     | 0.48                            | 0.54                                      | 0.47                                      | 0.38                                          | 12.97**                 | <i>c,e</i>                |
| Black                     | 0.05                            | 0.08                                      | 0.07                                      | 0.10                                          | 7.74                    | <i>c</i>                  |
| Latino/a/x                | 0.19                            | 0.20                                      | 0.24                                      | 0.23                                          |                         |                           |
| AIAN                      | 0.03                            | 0.04                                      | 0.05                                      | 0.04                                          |                         |                           |
| NHPI                      | 0.03                            | 0.02                                      | 0.03                                      | 0.05                                          |                         |                           |
| Bi- or multiracial        | 0.06                            | 0.06                                      | 0.07                                      | 0.09                                          |                         |                           |
| Other                     | 0.07                            | 0.04                                      | 0.04                                      | 0.08                                          |                         |                           |
| <b>Gender</b>             |                                 |                                           |                                           |                                               |                         |                           |
| Male                      | 0.55                            | 0.62                                      | 0.68                                      | 0.79                                          | 62.03***                | <i>b,c,e,f</i>            |
| Female                    | 0.45                            | 0.39                                      | 0.32                                      | 0.21                                          |                         |                           |
| <b>Sexual orientation</b> |                                 |                                           |                                           |                                               |                         |                           |
| Heterosexual              | 0.83                            | 0.83                                      | 0.77                                      | 0.68                                          | 22.30***                | <i>b,c,e,f</i>            |
| Gay or lesbian            | 0.02                            | 0.03                                      | 0.04                                      | 0.10                                          | 16.45**                 | <i>c,e,f</i>              |
| Bisexual                  | 0.09                            | 0.10                                      | 0.16                                      | 0.13                                          | 8.37*                   | <i>b,d</i>                |
| Unsure                    | 0.06                            | 0.05                                      | 0.03                                      | 0.09                                          | 9.00*                   | <i>b,f</i>                |
| Age                       | 14.65                           | 16.60                                     | 15.57                                     | 15.07                                         | 359.67***               | <i>a,b,c,d,e,f</i>        |
| Alcohol use               | 0.23                            | 0.52                                      | 0.64                                      | 0.64                                          | 187.53***               | <i>a,b,c,d,e</i>          |
| Marijuana use             | 0.19                            | 0.48                                      | 0.65                                      | 0.64                                          | 238.92***               | <i>a,b,c,d,e</i>          |
| Tobacco use               | 0.20                            | 0.56                                      | 0.68                                      | 0.68                                          | 250.60***               | <i>a,b,c,d,e</i>          |
| Age at first use          | 12.57                           | 13.82                                     | 12.60                                     | 11.66                                         | 189.02***               | <i>a,c,d,e,f</i>          |

Notes. \* $p < .05$  \*\* $p < .01$  \*\*\* $p < .001$ . AIAN = American Indian, Alaska Native. NHPI = Native Hawaiian, Pacific Islander. Between class comparisons indicate significance at  $p < .05$  or better, where *a* = Class 1 vs. Class 2; *b* = Class 1 vs. Class 3; *c* = Class 1 vs. Class 4; *d* = Class 2 vs. Class 3; *e* = Class 2 vs. Class 4; *f* = Class 3 vs. Class 4.

**Table 4***Means and Proportions by Class for Social Ecological Factors*

| Variable                                   | Non-sexually active<br>n = 1117 | Single partner with condom use<br>n = 283 | Multiple partners with sexting<br>n = 397 | Multiple partners with early debut<br>n = 263 | Overall Wald's $\chi^2$ | Between-class comparisons |
|--------------------------------------------|---------------------------------|-------------------------------------------|-------------------------------------------|-----------------------------------------------|-------------------------|---------------------------|
| <b>Interpersonal influences</b>            |                                 |                                           |                                           |                                               |                         |                           |
| Peer victimization                         | 0.68                            | 0.74                                      | 0.97                                      | 1.24                                          | 51.79***                | <i>b,c,d,e,f</i>          |
| Dating violence                            | 0.09                            | 0.42                                      | 0.47                                      | 0.56                                          | 113.23***               | <i>a,b,c,e</i>            |
| Family/community violence                  | 1.11                            | 1.46                                      | 1.96                                      | 2.13                                          | 152.36***               | <i>a,b,c,d,e</i>          |
| Sexual coercion                            | 0.18                            | 0.33                                      | 0.38                                      | 0.47                                          | 77.81***                | <i>a,b,c,e</i>            |
| Social support                             | 0.83                            | 0.81                                      | 0.72                                      | 0.64                                          | 41.21***                | <i>b,c,d,e,f</i>          |
| <b>Macrosocial influences</b>              |                                 |                                           |                                           |                                               |                         |                           |
| <b>Socioeconomic instability</b>           |                                 |                                           |                                           |                                               |                         |                           |
| Poverty                                    | 0.47                            | 0.51                                      | 0.60                                      | 0.74                                          | 72.21***                | <i>b,c,d,e,f</i>          |
| Living without parent(s) <sup>†</sup>      | 0.07                            | 0.19                                      | 0.21                                      | 0.40                                          | 106.42***               | <i>a,b,c,e,f</i>          |
| Living with parent(s) <sup>†</sup>         | 0.93                            | 0.81                                      | 0.79                                      | 0.60                                          |                         |                           |
| Housing instability <sup>†</sup>           | 0.06                            | 0.14                                      | 0.17                                      | 0.33                                          | 80.41***                | <i>a,b,c,e,f</i>          |
| Housing stability <sup>†</sup>             | 0.94                            | 0.86                                      | 0.83                                      | 0.67                                          |                         |                           |
| <b>Access to health resources</b>          |                                 |                                           |                                           |                                               |                         |                           |
| Sex education: Yes <sup>†</sup>            | 0.78                            | 0.66                                      | 0.72                                      | 0.70                                          | 14.22**                 | <i>a,b,c</i>              |
| Sex education: No <sup>†</sup>             | 0.22                            | 0.34                                      | 0.28                                      | 0.30                                          |                         |                           |
| School has counselor: Yes <sup>†</sup>     | 0.94                            | 0.89                                      | 0.84                                      | 0.77                                          | 40.63***                | <i>a,b,c,e</i>            |
| School has counselor: No <sup>†</sup>      | 0.06                            | 0.11                                      | 0.16                                      | 0.23                                          |                         |                           |
| School counselor contact: Yes <sup>†</sup> | 0.55                            | 0.71                                      | 0.55                                      | 0.59                                          | 21.05***                | <i>a,d,e</i>              |
| School counselor contact: No <sup>†</sup>  | 0.45                            | 0.29                                      | 0.45                                      | 0.41                                          |                         |                           |
| Living area: Urban <sup>†</sup>            | 0.83                            | 0.81                                      | 0.80                                      | 0.77                                          | 5.07                    | <i>c</i>                  |
| Living area: Rural <sup>†</sup>            | 0.17                            | 0.20                                      | 0.20                                      | 0.23                                          |                         |                           |

Notes. \* $p < .05$  \*\* $p < .01$  \*\*\* $p < .001$ . <sup>†</sup> proportion. Between class comparisons indicate significance at  $p < .05$  or better, where *a* = Class 1 vs. Class 2; *b* = Class 1 vs. Class 3; *c* = Class 1 vs. Class 4; *d* = Class 2 vs. Class 3; *e* = Class 2 vs. Class 4; *f* = Class 3 vs. Class 4.

### PAPER 3:

## HEALTH PATTERNING AMONG GANG-INVOLVED YOUTH: SOCIAL IDENTITY AND LIVING CONTEXT IMPLICATIONS FOR PHYSICAL HEALTH

### **Abstract**

Gang-involved youth disproportionately experience social and economic marginalization and are members of communities experiencing significant health disparities. Health promoting behaviors during adolescence, such as physical activity, a healthy diet, sleep, and limited screen time, are critical for short- and long-term health. Yet, research examining *how* and *why* these health behaviors cluster together for gang-involved youth is nonexistent. Understanding potential patterning can inform the development of service approaches to promote health and reduce disparities. Using latent class analysis, we identified four health behavior classes within a school-based sample of gang-involved youth (n = 3,849): Balanced Healthy (24%), Healthy with Heavier Exercise (37%), Inconsistent Towards Unhealthy (16%), and Unhealthy (22%). These classes were distinguished by indicators of physical activity, diet, sleep, and screen-based media use. We found that factors related to youths' social identity and living contexts differentiated the classes. Specifically, significant differences were found by gender, sexual identity, family factors, violence exposures, and socioeconomic instabilities. Implications for research and practice are discussed, including the need for multilevel strategies to support health promotion and reduce health disparities for gang-involved youth.

*Key words:* Youth gang membership, physical health, social identity, living contexts, latent class analysis

## Introduction

A well-established body of research has documented the associations between youth gang membership, delinquency, and violence (e.g., Krohn & Thornberry, 2008; O'Brien et al., 2013). Much less attention has been paid to health (Bishop et al., 2021), or when health is examined, it is frequently situated in relationship to features of delinquency and violence (e.g., substance use or trauma as cause and consequence of violence perpetration and victimization; Kerig et al., 2016; MacKenzie et al., 2006). Yet, gang-involved youth disproportionately experience social, cultural, and economic marginalization (Miller et al., 2011; Quinn, Walsh et al., 2019; Vigil, 2002), and are members of communities who, as a result of structural inequities, are experiencing significant health disparities (e.g., youth of color, poor). This suggests that a stronger, more intentional focus on understanding features of health among gang-involved youth is warranted.

In terms of health, the focus has been more on gang-involved youth being at heightened risk for substance use, poor mental health, and adverse sexual health (e.g., Buffardi et al., 2008; Kerig et al., 2016; Minnis et al., 2008; Petering, 2016; Sanders et al., 2013; Watkins & Melde, 2016). Although far fewer studies have examined physical health (e.g., see Bishop et al., 2021), initial findings suggest that gang membership during adolescence may be associated with decreased health satisfaction (Li et al., 2002), increased likelihood of cancer and high blood pressure (Rima et al., 2019), and poorer general health in early adulthood (Connolly & Jackson, 2019; Gilman et al., 2014). To date, studies examining common behavioral indicators of physical health – such as exercise, diet, sleep, and screen time – are virtually non-existent in the youth gang literature. Yet, research points to health behavior during adolescence as not only informing health during this period, but also for laying the foundation for health trajectories across later

stages of the life course (e.g., Due et al., 2011; Frech, 2012).

Given the importance of health promoting behaviors in adolescence for short- and long-term health (e.g., Burdette et al., 2017; Frech, 2012), research to understand health behaviors for gang-involved youth is warranted. We aim to address current gaps by examining patterns of health behavior among gang-involved youth, including how features of social identity and youths' living contexts influence potential heterogeneity. In doing so, we add to an emerging literature on youth gangs and health to support a more comprehensive portrait of the health challenges and subsequent service needs of this vulnerable youth population.

### **Behavioral Indicators of Adolescent Physical Health**

Physical activity, eating a healthy diet, sleep, and limiting screen time are critical for short- and long-term health, particularly during sensitive developmental periods such as adolescence. During this time, regular physical activity helps build cardiorespiratory fitness, strong bones, and muscles, contributes to weight management, and reduces symptoms of anxiety and depression (U.S. Department of Health and Human Services, 2018). Eating a healthy diet helps youth maintain a healthy body weight while obtaining nutrients critical for physical growth and development (U.S. Department of Health and Human Services and U.S. Department of Agriculture, 2020). Regular physical activity and healthy eating during adolescence have been shown to reduce the risk of developing chronic diseases like such as obesity, high blood pressure, heart disease, type 2 diabetes, cancer, and osteoporosis (e.g., Loprinzi et al., 2015; U.S. Department of Health and Human Services, 2018; U.S. Department of Health and Human Services and U.S. Department of Agriculture, 2020). Sleep is also critical for adolescent health. Shorter sleep durations compromise neurological functioning, which increases the likelihood of adverse health (e.g., obesity, depression and anxiety, suicidal ideation; Jansen et al., 2018;

Widome et al., 2019; Zhang et al., 2017) and serves as an early marker of cardiovascular and metabolic diseases (Martinez-Gomez et al., 2011). Screen-based media use has become an increasingly common feature of adolescent life with direct and indirect influences on health. While there may be some benefits (e.g., educational value, socializing opportunities), studies have found that higher screen times are also associated with adverse mental health (e.g., depressive symptoms, suicide; Twenge et al., 2018) and lower diet quality and obesity (Stiglic & Viner, 2019).

While important for health independently, health behaviors are also interrelated. For example, more frequent screen time may displace sleep or impede on time that could otherwise be spent sleeping or doing activities related to improved sleep such as physical activity (LeBourgeois et al., 2017). Additionally, consuming a healthy diet concurrent with physical activity is likely to have greater health promoting effects than physical activity alone (Loprinzi et al., 2015). Because of this dynamic interplay, health behaviors often co-occur, and findings from recent studies examining this co-occurrence suggest there are differences in health outcomes as a function of different health behavior patterns (e.g., Burdette et al., 2017; Xiao et al., 2019). This points to the utility of examining how multiple health behaviors cluster together to create patterns of health among youth populations.

Although researchers are increasingly moving beyond the dichotomy of gang and non-gang in order to gain a more nuanced understanding of health within this population (e.g., Bishop et al., 2020; Quinn, Walsh et al., 2019; Sanders, 2012), efforts to elucidate particular patterns of health behaviors among gang-involved youth remain limited. Several studies, for example, have documented variation in substance use experiences among gang-involved youth (Bishop et al., 2020; Quinn, Walsh et al., 2019; Sanders, 2012; Valdez et al., 2005), reflecting the existence of

heterogeneity within this population. Gang-involved youth, like other subpopulations, may also be heterogeneous with respect to other health behaviors such as exercise, diet, sleep, and media use. Research is needed to clarify *how* and *why* these health behaviors cluster together within this population. Understanding potential patterning could prove useful for informing the development of relevant and responsive service approaches to support youth engagement in healthy lifestyles.

### **Social Identity, Living Contexts, and Health Patterning**

Health behavior patterns may vary according to a youth's social identity and living context. Health lifestyles theory suggests that choices about health behavior are constrained by the health options available to youth in accordance with their life circumstances, socioeconomic status, and cultural backgrounds (Cockerham, 2005, 2013). For instance, health behavior patterns can be distinguished by gender, race/ethnicity, social class, and age (Cockerham, 2017). From a social determinants of health perspective, youths' health behaviors are also shaped by macrosocial (e.g., socioeconomic instability, access to health resources) and proximal (e.g., everyday life circumstances: family relations) factors (e.g., Viner et al., 2012; Wang et al., 2020). These factors exert direct and indirect influence on health by shaping the living contexts in which health decisions are made. From these perspectives, patterns of health behavior among gang-involved youth are likely to vary according to youths' social identity (or multiple intersecting identities) and features of their living contexts.

Studies routinely document disparities in adolescent health behaviors as a function of social identity and living context factors. For example, ethnoracial, socioeconomic, and gender/sex disparities are found in the likelihood of meeting recommended amounts of physical activity, sleep, diet quality, and screen time (e.g., Armstrong et al., 2018; Guglielmo et al., 2018; Guo & Tucker, 2017; Knell et al., 2019). Findings from studies examining patterns of co-

occurring health behaviors in adolescence (Burdette et al., 2017; Xiao et al., 2019) and adulthood (Saint Onge & Krueger, 2017) also document disparities in health behavior patterning.

Although few studies have focused on physical health among gang-involved youth, studies have documented variation in other health-relevant behaviors, such as substance use, as a function of social identities and living contexts (Bishop et al., 2020; Quinn, Walsh et al., 2019). For example, Bishop et al. (2020) found that youth gang members with increasingly serious patterns of substance use were disproportionately youth of color and were embedded within contexts characterized by greater poverty, housing instability, and social environments where substance use was normative and accepted. In a related vein, Hunt et al. (2011) find that eating practices (alone or with others) among gang-involved youth vary according to household type (extended-family, single-parent, blended or reconstituted). These findings point to the utility of examining the role of social identities and living contexts for health patterning among gang-involved youth, which subsequently hold important implications for policy and practice.

### **Current Study**

The current study adds to the dearth of research on youth gangs and physical health by first examining patterns of health behaviors within a large, school-based sample of gang-involved youth. Next, we examine how youth's social identities and features of their living contexts differentiate health patterns. In accordance with health lifestyle theory and social determinants of health, and previous adolescent research (e.g., Xiao et al., 2019), we expect that health behaviors will cluster together to form distinct health profiles, and that these profiles will vary according to gang-involved youths' social identities and life contexts. Understanding health patterning within the youth gang population holds utility for informing the development of relevant and responsive service approaches to support youth engagement in healthy lifestyles,

interrupt negative health trajectories, and reduce disparities.

## **Methods**

### **Survey Procedures and Sample Characteristics**

This cross-sectional study analyzes state-wide data collected from 8th, 10th, and 12th grade students via the 2016 Washington Healthy Youth Survey (HYS: Healthy Youth Survey, 2016). HYS uses a clustered sampling design to randomly select schools and invites all students in participating schools to complete the survey. The HYS is interleaved into two forms (A and B) and questions derive primarily from established national surveys which have been field-tested to ensure reliability and validity. Prior to participation, parents were informed that they could elect to not have their children participate, and students were notified that their survey responses would be anonymous. School participation rates were high across grade levels ranging from 81-90%. The use of HYS data for this analysis was considered exempt from human subjects review.

Data for the current analysis come from the Form B sample ( $n = 81,620$ ), as this form contained the most variables of interest (i.e., diet, physical activity, sleep). Given the study objective of assessing within-group heterogeneity in physical health practices, a subsample of gang-involved youth was pulled from the Form B sample. The use of self-report for determining gang membership has been widely supported in youth gang research (e.g., Boxer et al., 2015; Decker et al., 2014; Esbensen et al., 2001). Thus, gang-involved youth were identified as those who responded “yes” to the question: “A gang is a group of people with a leader who act together often for violent or illegal activities. During the past 12 months, have you been a member of a gang?” This yielded a sample of  $n = 4,164$  gang-involved youth.

In line with quality control procedures recommended by HYS (HYS, 2016), we undertook several data accuracy checks prior to analysis. This included removing cases due to

reported use of a fake drug (Loziderb) and those with missing data for all of the physical health items. This process resulted in a final analysis sample of  $n = 3,849$  gang-involved youth. On average, the sample was 15.03 years old (range = 12-19;  $SD = 1.65$ ) and 63% male. The racial/ethnic composition was: 44% White, 22% Hispanic or Latinx/a/o, 6% Asian, 7% Black or African American, 4% American Indian or Alaskan Native, 3% Native Hawaiian or Pacific Islander, 6% bi- or multiracial, and 7% other. Approximately 47% of the sample identified as heterosexual, 7% as bisexual, 3% as gay or lesbian, 4% as unsure, and 38% were missing.

## **Measures**

Our analysis included responses to individual items from the HYS survey as well as constructed scales and indices. Scales were created by taking the mean across items, and when necessary, items were first standardized to adjust for varying metrics. Indices were created by taking the sum across two or more dichotomized variables.

### ***LCA Model Indicators***

The health behavior classes were established using 11 items across four domains critical to adolescent health: diet, physical activity, sleep, and screen-based media use. When possible, cutoff scores were based on recommendations from federal guidelines and thresholds used in previous studies (e.g., Lowry et al., 2015; Xiao et al., 2019). Sample proportions for all indicators are reported in Table 2.

Four items were used to assess diet including consumption of breakfast, fruit, vegetables, and sugar-sweetened beverages. *Breakfast* consumption was a binary item reflecting whether the youth ate breakfast that day (0 = *no*, 1 = *yes*), which was consistent with national prevalence reports for breakfast consumption (Terry et al., 2020). For *fruit* consumption (fruit and 100% fruit juice), responses were categorized as does not eat fruit, eats some but not daily, eats once

per day, and eats 2 or more times per day. *Vegetable* consumption (green salad, potatoes, carrots, other vegetables) was categorized as does not eat vegetables, eats some but not daily, eats 1-2 times per day, and eats 3 or more times per day. Consumption of *sugar-sweetened beverages* was categorized as none, some but not daily, 1-2 times per day, and 3 or more times per day. These cutoffs were based on the 2015-2020 Dietary Guidelines for Americans and previous studies (Merlo et al., 2020; U.S. Department of Health and Human Services and U.S. Department of Agriculture, 2015; Xiao et al., 2019).

Four items were used to assess physical activity including moderate and vigorous physical activity (MVPA), strength training exercise, physical education (PE) attendance, and duration of exercise or sports participation during PE. *MVPA* was categorized as 0 days, 1-2 days, 3-4 days, and 5 or more days per week. *Strength training* and *PE attendance* were both categorized as 0 days, 1-2 days, and 3 or more days per week. *Exercise or sports participation during PE* was a binary item reflecting whether the youth engaged in more than 30 minutes of physical activity during an average PE class (0 = *no*, 1 = *yes*). These cutoffs were based on recommendations by the Physical Activity Guidelines for Americans and prior studies (Merlo et al., 2020; U.S. Department of Health and Human Services, 2018; Xiao et al., 2019).

*Sleep duration* assessed the number of reported sleep hours on an average school night which were categorized as 6 hours or less, 7 hours, and 8 or more hours based on the National Sleep Foundation's recommended sleep duration for adolescents (Hirshkowitz et al., 2015).

Media use was assessed using two dichotomous items reflecting high tv and computer or video game use, which was defined as 3 or more hours of use on an average school day. This categorization is in line with recommendations by the American Academy of Pediatrics (Strasburger et al., 2013).

### ***Living Contexts Germane to Health***

Guided by the social determinants of health framework, the following contextual factors were tested for class differences.

**Proximal Context Factors.** Measures of sharing family dinners, family rules about smoking in the house, and exposure to violence were used to explore differences in health patterning as a function of proximal living context. *Family dinners* was a single item scored on a 5-point scale (0 = *never* to 4 = *always*) reflecting how often youth reported eating dinner with their family ( $M = 2.31$ ,  $SD = 1.35$ ). *Family rules about smoking* was a single item scored on a 3-point scale (0 = *never*, 1 = *sometimes*, 2 = *always*) reflecting the degree to which smoking is allowed inside the house ( $M = 0.32$ ,  $SD = 0.62$ ). *Violence exposure* was the sum of four dichotomized items reflecting youth reports of witnessing adults physically harm each other, experiencing physical or verbal abuse from adults or parents, and feeling unsafe on the way to school ( $M = 1.43$ ,  $SD = 1.24$ , range = 0-4).

**Macrosocial Context Factors.** Proxy measures of macrosocial factors included socioeconomic instability, routine health care, and urban/rural living environment.

Socioeconomic (in)stability was assessed using three measures: poverty, family structure, and housing instability. *Poverty* was assessed using three items reflecting whether the youth received free or reduced lunch, had to skip meals, or lost their home due to lack of money. These items were combined and transformed into a dichotomous indicator of any poverty (0 = *no*, 1 = *yes*). *Living with parents* was dichotomous, created from multiple items about who the youth lived with in the past 30 days, with “parents” defined as either biological or stepparent(s) (0 = *no*, 1 = *yes*). *Housing instability* was dichotomous, created from multiple items about where the youth lived in the past 30 days, with “instability” defined as living in someone else’s house or

apartment, in a group home, in a shelter, in a car or park, on the street, or moving from place to place (0 = *no*, 1 = *yes*). Approximately 52% of the sample experienced poverty, 77% lived with their parents, and 15% experienced housing instability.

Whether youth received regular dental care was used as a proxy measure for routine health care. *Recent dental visit* was assessed using one item indicating whether the youth saw a dentist for a check-up, exam, teeth cleaning, or other dental work within the past 12 months (0 = *no*, 1 = *yes*). Approximately 67% indicated receiving dental care in the past 12 months.

Living in an urban or rural area is one commonly used proxy measure for the social, economic, and physical development of a living environment, and is often used to assess health disparities (e.g., Weinstein et al., 2017). Data on the urban and rural classification status of each HYS school was obtained from the Washington State Department of Health (DOH) and appended to the HYS data. Indicators come from DOH's urban-rural classification system, which combines population density, urbanization, and daily commuting data at the sub-county level using census data (Hailu & Wasserman, 2016). Schools in sub-county areas with population densities of 50,000 or greater ("urban core") or with primary high commuting flows to urban cores or secondary commuting flows of 30-49% to urban cores (i.e., sub-urban) were coded as urban. Approximately 32% of the sample attended school in a rural area.

### ***Individual Health Factors***

In addition to living context factors, we examined class differences according to youths' weight and their reported history of asthma and mental health given documented associations between physical health behaviors and these health indicators in the adolescent literature (e.g., Nagy et al., 2020; Wu et al., 2018; Xiao et al., 2019).

*Weight* was assessed using four dichotomized indicators (0 = *no*, 1 = *yes*) reflecting

whether the youth is underweight, normal weight, overweight, or obese based on body mass index (BMI) scores. BMI was calculated using youths' self-reported height and weight. Height was converted to centimeters and weight to kilograms, then BMI was computed using the standard formula:  $BMI = (\text{weight in kilograms}) / (\text{height in centimeters squared})$  (HYS, 2016). The cutpoints for the weight categories were based on age- and gender-specific growth charts developed by the CDC (cite). Youth in the top 5% for BMI were coded as obese, top 15% as overweight, above 5- and under 85% as normal weight, and bottom 5% as underweight. Approximately 3% of the sample fell into the underweight category, 57% normal weight, 14% overweight, and 13% obese.

*Asthma* was assessed using two items reflecting whether the youth has had an asthma diagnosis (current or historical). These items were combined and transformed into a dichotomous indicator (0 = *no*, 1 = *yes*). Approximately 28% of youth in our sample reported any history of asthma. Measures of depression, anxiety, and suicide were used to assess mental health.

*Depression* was a single binary item (0 = *no*, 1 = *yes*) reflecting whether the youth felt consistently sad or hopeless for two or more weeks in a row during the past 12 months. *Anxiety* was a single item reflecting how often the youth felt nervous, anxious, or on edge over the last 2 weeks. Responses were collapsed into a dichotomous indicator (0 = *no*, 1 = *yes*) reflecting any anxiety. *Suicide* was created from three items assessing youth reports of seriously considering, planning, and attempting suicide during the past 12 months. Items were combined into a single dichotomous indicator of any suicide (0 = *no*, 1 = *yes*). Approximately 40% reported depression, 53% anxiety, and 36% any suicide ideation, plans, or attempts.

### ***Social Identity and Age***

Youth provided demographic information on their age (in years), gender identity (female,

male), sexual identity (heterosexual, gay or lesbian, bisexual, unsure), and ethnoracial identity.

### **Analytic Approach**

Latent class analysis (LCA) was used to test for classes of gang-involved youth relative to their health decision-making patterns. LCA is a person-centered approach that can identify subgroups (“latent classes”) within a sample that are similar with respect to theoretically important variables (Lanza et al., 2003; Lubke & Muthén, 2005; Vermunt, 2004). LCA estimates a categorical latent variable and the sample probabilities of assignment to each class (Muthén, 2004), providing model-based statistics that allow for judgment regarding the overall quality of assignment and model fit. Models are tested iteratively, adding one class at a time until fit statistics indicate the best fitting model has been identified. Because LCA best practices do not recognize a single fit statistic as sufficient to determine best model fit (Nylund et al., 2007), multiple fit statistics were examined. The Akaike Information Criterion (AIC) and Bayesian Information Criterion (BIC) are relative goodness of fit statistics used to identify the model that provides adequate fit with the fewest parameters; the Lo-Mendell-Rubin adjusted likelihood ratio test (LMR), Vuong-Lo-Mendell-Rubin likelihood ratio test (VLMR), and parametric bootstrapped likelihood ratio test (PBLRT) provide significance tests for goodness of fit between neighboring models (Lo et al., 2001; Nylund et al., 2007). The LMR test tends to overestimate the number of classes (Nylund et al., 2007); thus, a non-significant p-value is suggestive that the number of classes should no longer be increased. In addition, model selection included identifying the most parsimonious and readily interpretable model (Collins & Lanza, 2010).

Mean and proportional differences of individual and macrosocial factors were assessed across classes using the pseudo class (PC) method of the auxiliary option in Mplus (Asparouhov & Muthén, 2013). Statistical significance of overall and between-class differences was

determined using the Wald chi-square test. Analyses were conducted in Mplus version 8 (Muthén & Muthén, 2012) using maximum likelihood with robust standard errors (MLR) to adjust for any potential clustering effects relative to the stratified sampling method used by HYS.

## **Results**

LCA models were estimated for one- through eight-class solutions (Table 1). The AIC and BIC decreased consistently with each class, and we see the BIC (which prefers parsimony) begin to plateau with the addition of the fourth class indicating the four-class solution as better fitting compared to the models with fewer classes. The LMR tests indicated a significant improvement with each additional class until the six-class model indicating the five-class solution as a viable model by this metric. We subsequently compared the distribution of probabilities across indicator variables for the four- and five-class models and found that the four-class solution was more clearly distinct and interpretable. Entropy, which reflects classification certainty, was larger for the four-class model (0.80) compared to the five-class model (0.77). Based on the fit indices, interpretation, and parsimony, the four-class solution was determined to be the best fitting model. The average classification probabilities for the most likely class membership were good, ranging from 0.86 to 0.89.

\*\*\*\*\*Table 1 here\*\*\*\*\*

The four classes were distinguished from each other by the distribution of probabilities on the indicator variables (Table 2). Based on our interpretation of these distributions, the classes were labeled Balanced Healthy, Healthy with Heavier Exercise, Inconsistent Health Behavior, and Unhealthy. Classes were named according to the most and least prevalent indicators as well as the degree of differentiation from the other classes. However, it is important to note that some indicators exhibited more differentiation than others.

The first class, Balanced Healthy (*healthy diet, moderate exercise, lowest media use*; 25%), consisted of youth who had the highest probability of eating breakfast, eating fruits and vegetables multiple times per day, and never consuming sugar-sweetened beverages. Youth in this class had the second highest probability of regular exercise and longer sleep, and the lowest probability of media use.

The second class, Healthy with Heavier Exercise (*moderate diet, frequent exercise, most sleep*), consisted of the largest portion of the sample (37%). Youth in this class had the highest probability of drinking sugar-sweetened beverages multiple times per day and the second highest probability of eating breakfast and consuming fruits and vegetables daily. These youth also had the highest probability of frequent exercise and strength training and slightly more sleep per night than Balanced Healthy youth (0.32 vs. 0.30 for the 8+ hours per night category).

The third class, Inconsistent Towards Unhealthy (*inconsistent diet, moderate exercise, highest TV use*), consisted of the smallest portion of the sample (16%). This class was distinguished by having the second highest probability of never eating fruits or vegetables and second lowest for breakfast consumption. These youth had the highest probability of TV use and PE attendance in the 1-2 days per week range with less time spent exercising during their PE classes.

The fourth class, Unhealthy (*poor diet, inconsistent exercise, least sleep, highest computer use*; 22%), was marked by the lowest probability of eating breakfast, the highest probability of little-to-no fruit or vegetable consumption, and the lowest probability of regular exercise or strength training. These youth also had the highest probability of computer use and getting six hours or less of sleep per night.

\*\*\*\*\*Table 2 here\*\*\*\*\*

### *Differences by Social Identity and Age*

After identifying the latent class structure, we examined whether the classes were further distinguished by social identities and age. Overall Wald chi-square tests identified significant differences among the four classes (Table 3), though fewer between-class differences were found. A general pattern emerged where youth of color, females, and those identifying as gay, bisexual, or unsure of their sexual identity were disproportionately represented in the classes with fewer health promoting behaviors. Between-class comparisons found that Balanced Healthy youth were more likely to be White, older, and heterosexual compared to the Inconsistent youth; and were more likely to be male and heterosexual compared to the Unhealthy youth. The Heavier Exercisers were more likely to be Latinx, male, and younger compared to the Balanced Healthy youth, and less likely to be gay/lesbian or bisexual compared to the Unhealthy youth. The Inconsistent and Unhealthy youth were similar demographically except those in the Unhealthy class were older and more likely to identify as gay or lesbian.

\*\*\*\*\*Table 3 here\*\*\*\*\*

### *Differences by Individual Health and Living Context Factors*

We subsequently examined how individual health and features of youth's living contexts differentiated among the classes. Table 4 displays mean and proportion estimates for each class, overall chi-square tests, and identification of significant between-class differences. Anxiety and urban/rural status were the only factors that did not significantly differentiate classes based on results from the overall chi-square tests. Although the other factors were significant overall, not all demonstrated consistent findings between classes (i.e., fewer significant between-class differences).

**Individual Health.** Findings reveal a pattern of significant between-class differences

wherein Healthy Balanced and Heavier Exercise youth had generally lower asthma and better mental health compared to the Inconsistent and Unhealthy youth. Specifically, Inconsistent and Unhealthy youth had generally higher depression, anxiety, and suicide compared to the other two classes, though anxiety was not significant based on the overall chi-square test. Regarding weight, Balanced youth were more likely to be of a normal weight compared to the Unhealthy youth; meanwhile the Inconsistent and Unhealthy youth were both more likely to be obese than the Balanced youth.

**Living Context.** Balanced Healthy had the lowest contextual adversity compared to the other classes. Notably, these youth shared more frequent family dinners, lived in households where smoking in the house was less acceptable, had more recent dental visits, fewer violence exposures, and less economic instability. The Heavier Exercisers had slightly elevated structural adversity compared to the Balanced youth, though both groups experienced lower adversity than youth in the Inconsistent and Unhealthy classes. The Heavier Exercisers were more likely to live in a rural area compared to Balanced youth, though overall differences were not found for urban/rural living status. The Inconsistent youth experienced higher violence exposure, economic instability, fewer recent dental visits (a proxy for routine health care), and were more likely to live in smoke-friendly households compared to the Unhealthy youth.

\*\*\*\*\*Table 4 here\*\*\*\*\*

## **Discussion**

Studies examining the prevalence or patterning of behavioral indicators of physical health are virtually nonexistent in the current youth gang literature. Our analysis is among the first to test for distinctive patterns of health behaviors among gang-involved youth, including subsequent differences features of youths' health and living contexts. Informed by health

lifestyle theory, a latent class analysis identified four youth profiles – Healthy Balanced, Healthy with Heavier Exercise, Inconsistent Towards Unhealthy, and Unhealthy – which were significantly differentiated by social identity and living context factors in important ways. Findings have implications for research and practice with gang-involved youth to promote short- and long-term health for this population.

### **Health Patterning Among Gang-Involved Youth**

As expected, we found that health behaviors related to physical activity, diet, sleep, and screen-based media use clustered together to form qualitatively distinct health behavior profiles of gang-involved youth. These profiles provide useful insights regarding how health behaviors vary within the youth gang population, highlighting the need for service approaches that attend to this variation. Within this, we also found intriguing patterns of similarity and difference when comparing the two classes with more consistent health promoting behaviors relative to the two classes with lower engagement in healthy behaviors, particularly regarding their health statuses and living contexts.

#### ***Youth with More Consistent Engagement in Health Promoting Behaviors***

Classes 1 and 2 maintained more consistent engagement in health promoting behaviors compared to the less healthy classes, yet also differed from each other in several ways that hold implications for later health. Class 1 (Balanced Healthy, 24%) consistently engaged in health promoting behaviors, including maintaining a healthy diet, getting regular exercise, sleeping longer, and limiting their media use. Meanwhile, Class 2 (Healthy with Heavier Exercise, 37%) maintained a more moderate diet (i.e., less daily consumption of fruits and vegetables), more frequent physical activity of varied forms, and regular consumption of sugar-sweetened beverages. Youth in this class also reported more screen time (TV and computer use), which was

at a similar level to the less healthy classes. Unlike Class 1, these youth were taking physical education (PE) classes and reported spending the majority of their time in PE exercising or playing sports.

The Heavier Exercise class had a higher portion of youth that were overweight compared to the Balanced class. At the same time, both groups maintained higher portions of youth with a normal weight and less health problems (e.g., less asthma, depression) compared to the classes with inconsistent or poor health behaviors (these are detailed below). This suggests that gang youths' engagement in healthier behaviors may have health promoting effects against adverse physical and mental health outcomes (e.g., obesity, suicidality). However, the first group appears to be taking a more balanced approach, whereas the second group may be offsetting less healthy behaviors (e.g., higher sugar consumption and sedentary media use) with more frequent exercise. These youth may also be sleeping longer due to their heavier exercise rather than the intentional choice to get more sleep. Research suggests that consuming a healthy diet concurrent with physical activity and sleep may have greater health promoting effects than physical activity alone (e.g., Loprinzi et al., 2015). Efforts to support gang-involved youth in maintaining an optimal balance of healthy behaviors is likely to have the strongest health promoting effects.

It is unclear whether the second group would maintain such high levels of physical activity if they were not enrolled in PE classes, which could have implications for their overall health. Future research should examine the role of PE in encouraging health promoting behaviors for gang-involved youth, as this may be one readily available and cost-efficient avenue for supporting health promoting behaviors, particularly for youth who may otherwise be engaging in a less healthy behavior pattern (e.g., higher sugar intake and sedentary activity). School-based exercise programs that include components on physical activity and healthy eating habits may

help educate youth and provide needed skills to build and maintain healthy lifestyles (CDC, 2011, 2013), thereby promoting overall wellness and interrupting potentially problematic health trajectories (e.g., transitioning from overweight to obese when PE is no longer required).

### ***Youth with Inconsistent or Poor Engagement in Health Promoting Behaviors***

The profiles of the remaining two classes depicted less consistent or poorer health behavior patterns compared to the first two classes. Class 3 (Inconsistent Towards Unhealthy, 16%) was the smallest. These youth maintained a behavior profile characterized by an inconsistent diet, moderate amount of exercise, and high TV use. Although these youth were in PE, they reported fewer days of attendance and spent less time exercising during their PE classes. Class 4 (Unhealthy, 22%) had an overall pattern indicating the lowest engagement in health promoting behaviors. Specifically, these youth maintained a poor diet, inconsistent exercise, got the least amount of sleep, and had the highest computer (or video game) use.

Though the prevalence of obesity was relatively low in the sample overall (13%), these classes had higher portions of youth who were obese compared to the classes with more consistent health promoting behaviors. Inconsistent and Unhealthy youth were similar with respect to their diet, reporting generally lower daily breakfast consumption and irregular intake of fruits and vegetables. Research suggests that a lower quality diet is associated with obesity during adolescence (Lawless et al., 2020), and that being overweight during adolescence increases the risk for tracking excessive weight into adulthood (Ogden, 2018; Simmonds et al., 2016). Given that adolescent obesity is related to a host of adverse physical health outcomes (e.g., Inge et al., 2013), efforts are needed to interrupt the potential for this negative health trajectory for a subset of gang-involved youth.

Inconsistent and Unhealthy youth reported higher depression, anxiety, and suicidality

compared to the healthier classes. This finding is consistent with previous research using general adolescent samples (e.g., Lowry et al., 2014; Xiao et al., 2019), suggesting that lower engagement in health promoting behaviors may be associated with poorer mental health for gang-involved youth as well. Research has established important connections between higher physical activity, diet quality, longer sleep durations, and limited screen time as important factors for adolescent mental health (e.g., Oberle et al., 2020; Orchard et al., 2020; Wu et al., 2018). School-based approaches that provide that address physical health and mental health needs holistically may be particularly effective for these youth. For example, comprehensive school-based health programs that include physical activity and healthy eating components and supplemented by mental health supports provided by school nurses or other health-care providers may be particularly effective (CDC, 2011).

### **Social Identity and Living Context Differences in Health Patterning**

Together, health lifestyle and social determinants of health frameworks posit that youths' social identities and features of their living contexts shape variations in health behavior by shaping the health options available to youth. Our results are consistent with this theorizing. We found that youth identifying as Latinx, female, and LGBQ were disproportionately represented in the patterns with lower engagement in health promoting behaviors. We also found that the classes with less health promoting behaviors were characterized by greater living context adversities (i.e., less family dinners and dental visits; higher violence exposure, poverty, and family/housing instability). These differences reflect within-gang disparities that hold serious short- and long-term implications for health and well-being of gang-involved youth.

Somewhat unexpectedly, we found that Class 3 (Inconsistent Towards Unhealthy) had significantly higher living context adversity compared to the class with the least engagement in

health promoting behaviors (Unhealthy). The only exception was sharing family dinners, where both groups maintained similarly lower levels than the healthier classes. The Inconsistent youth were younger on average and may be at risk of transitioning to the Unhealthy profile (and subsequently worse health over time) as they get older given the significant living context adversities they are experiencing. In line with prior recommendations (e.g., Quinn, Dickson-Gomez et al., 2019; Quinn, Walsh et al., 2019), attention to the structural and environmental conditions that shape gang-involved youths' lives will be needed to interrupt harmful health trajectories and reduce disparities.

### **Research and Practice Implications**

Findings from our study have research and practice implications for promoting health and reducing disparities for gang-involved youth. First, we found that female and LGBTQ youth generally had lower health promoting behaviors combined with the greatest environmental adversity. Because research indicates that gangs tend to be male-centered and heteronormative (Panfil & Peterson, 2015), youth who identify otherwise may be experiencing unique health challenges resulting from attempts to negotiate a social and cultural milieu that may not be accepting of, or sensitive to, their identities (Panfil, 2017; Quinn, Dickson-Gomez et al., 2019). Research is needed to clarify roles of the gang context for influencing health for youth with diverse genders and sexualities. This includes whether (and to what degree) poor physical health is shaped by the gang context itself, the broader living contexts that simultaneously limit health choices and propel marginalized youth to join gangs, or some combination of both.

Second, our study suggests that gang-involved youth as a whole may be faring worse across certain behavioral indicators of physical health (such as diet), with a subset of these youth experiencing disparities across all indicators. For example, national prevalence estimates indicate

that approximately 73% of adolescents report breakfast consumption on a given day (Terry et al., 2020), 41% report infrequent vegetable intake (Merlo et al., 2020), and 42% report infrequent fruit intake (Merlo et al., 2020). Comparatively, 53% of our sample of gang-involved youth reported breakfast, 60% reported infrequent vegetable intake, and 53% reported infrequent fruit intake. Further, disparities in meeting recommended amounts of physical activity, diet, sleep, and screen time were present for over a third of gang-involved youth (Classes 3 and 4), who were also experiencing greater living context adversities. These disparities are placing gang-involved youth at heightened risk for adverse physical health. To reduce disparities, multilevel approaches are needed. Programs that support youth engagement in health promoting behaviors combined with increased access to resources and supports at the family and community levels are likely to have the greatest impact (Quinn, Dickson-Gomez et al., 2019; Quinn, Walsh et al., 2019).

### **Study Limitations**

Although there are strengths to drawing from a large school-based sample, some characteristics of the sample may reduce generalizability. For example, demographics are likely to differ in varying degrees from those of other states. Additionally, because our sample is school-based, we may not be capturing a subset of gang-involved youth who have dropped out or been expelled. Gang-involved youth with limited or no school engagement may present with unique health behaviors or alternative structural challenges (e.g., systems involvement) not accounted for in the current study.

The use of publicly available behavioral health data offers a practical strategy for developing a broad understanding of health patterning. However, as with all secondary data, we were limited by available measures. We focused on a range of important health behaviors, yet other elements of health lifestyles were not available such as additional indicators of diet quality

(e.g., water, dairy, protein, oil/fat consumption), sports team participation, and sleep quality. We were also limited by available measures of youths' living contexts. For instance, measures of household income, immigration status, access to medical care, disability, and indicators of parental health have been shown to differentiate health lifestyles in general adolescent samples (e.g., Burdette et al., 2017). Research should also consider the role of peer health behaviors, including those who are gang-involved, given the heavy influence of peers on youth behavior during adolescence.

Neighborhoods play an important role in shaping health during adolescence (e.g., Gavand et al., 2019; Ding et al., 2011). We were unable to examine features of the social, economic, physical, or built dimensions of youths' neighborhoods in the current analysis. Because gangs often navigate and create meaning in geographic space (Papachristos & Hughes, 2015), gang-involved youth may spend considerable time hanging out "on the streets" or in public neighborhood spaces such as parks. Research using diverse neighborhood measures beyond urbanicity to understand health behavior patterns for gang-involved youth is warranted.

### **Conclusion**

The current study fills a critical gap in the literature regarding health patterning among gang-involved youth. Our study indicates that youth gang members are a heterogeneous group with respect to the health behaviors that are indicative of physical health trajectories. Variation in health patterning for gang-involved youth may be attributable to social status and the degree of environmental adversity experienced by these youth. Health promotion programs that support balanced engagement in health promoting behaviors combined with a more equitable distribution of resources and opportunities across multiple contexts may interrupt negative health trajectories and reduce disparities for this youth population.

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**Table 1***Model Fit Statistics for One- Through Eight-Class LCA Solutions*

| Class          | Log Likelihood | AIC      | BIC      | Entropy | VLMR       | LMR        | PBLRT      |
|----------------|----------------|----------|----------|---------|------------|------------|------------|
| 1              | -39267.88      | 78581.76 | 78725.51 | -       | -          | -          | -          |
| 2              | -36713.64      | 73521.28 | 73815.02 | 0.96    | 5108.49*** | 5082.82*** | 5108.49*** |
| 3              | -36284.84      | 72711.68 | 73155.42 | 0.87    | 857.59***  | 853.28***  | 857.59***  |
| 4 <sup>a</sup> | -35936.49      | 72062.97 | 72656.71 | 0.80    | 696.49***  | 692.99***  | 696.49***  |
| 5              | -35761.70      | 71761.41 | 72505.14 | 0.77    | 349.57***  | 347.81***  | 349.57***  |
| 6              | -35620.51      | 71527.02 | 72420.75 | 0.76    | 285.74     | 284.31     | 285.74***  |
| 7              | -35504.23      | 71342.47 | 72386.19 | 0.75    | 227.39     | 226.45     | 227.39***  |
| 8              | -35415.45      | 71212.90 | 72406.62 | 0.76    | 177.57     | 176.67     | 177.57***  |

*Notes.* AIC = Akaike information criterion; BIC = Bayesian information criterion; VLMR = Vuong-Lo-Mendell-Rubin likelihood ratio test; LMR = Lo-Mendell-Rubin adjusted likelihood ratio test; PBLRT = parametric bootstrapped likelihood ratio test.

<sup>a</sup>Indicates the chosen model based on outlined criteria and interpretability.

\*p < .05 \*\*p < .01 \*\*\*p < .001.

**Table 2***Sample Proportions and Class Probabilities for Model Indicators for the Four-Class Solution*

|                                  | Total Sample | Healthy<br>Balanced | Healthy with<br>Heavier<br>Exercise | Inconsistent<br>Towards<br>Unhealthy | Unhealthy |
|----------------------------------|--------------|---------------------|-------------------------------------|--------------------------------------|-----------|
| Model Indicators                 | n = 3849     | n = 940             | n = 1414                            | n = 627                              | n = 846   |
| Breakfast                        | 0.53         | 0.60                | 0.55                                | 0.48                                 | 0.45      |
| Fruits                           |              |                     |                                     |                                      |           |
| None                             | 0.06         | 0.01                | 0.03                                | 0.11                                 | 0.13      |
| Some, not daily                  | 0.47         | 0.36                | 0.45                                | 0.50                                 | 0.59      |
| Once per day                     | 0.15         | 0.18                | 0.16                                | 0.14                                 | 0.10      |
| 2+ times per day                 | 0.33         | 0.45                | 0.37                                | 0.25                                 | 0.19      |
| Vegetables                       |              |                     |                                     |                                      |           |
| None                             | 0.07         | 0.02                | 0.04                                | 0.11                                 | 0.15      |
| Some, not daily                  | 0.53         | 0.43                | 0.52                                | 0.57                                 | 0.60      |
| 1-2 times per day                | 0.26         | 0.38                | 0.28                                | 0.20                                 | 0.16      |
| 3+ times per day                 | 0.14         | 0.18                | 0.16                                | 0.12                                 | 0.09      |
| Soda or sugary drinks            |              |                     |                                     |                                      |           |
| None                             | 0.19         | 0.23                | 0.15                                | 0.19                                 | 0.19      |
| Some, not daily                  | 0.56         | 0.55                | 0.57                                | 0.57                                 | 0.57      |
| 1-2 times per day                | 0.16         | 0.16                | 0.18                                | 0.16                                 | 0.15      |
| 3+ times per day                 | 0.09         | 0.07                | 0.10                                | 0.09                                 | 0.09      |
| MVPA                             |              |                     |                                     |                                      |           |
| 0 days per week                  | 0.13         | 0.02                | 0.00                                | 0.20                                 | 0.40      |
| 1-2 days per week                | 0.15         | 0.08                | 0.02                                | 0.30                                 | 0.30      |
| 3-4 days per week                | 0.19         | 0.21                | 0.12                                | 0.33                                 | 0.16      |
| 5+ days per week                 | 0.53         | 0.69                | 0.86                                | 0.17                                 | 0.13      |
| Strength training                |              |                     |                                     |                                      |           |
| 0 days per week                  | 0.23         | 0.08                | 0.04                                | 0.28                                 | 0.64      |
| 1-2 days per week                | 0.20         | 0.19                | 0.07                                | 0.43                                 | 0.24      |
| 3+ times per week                | 0.57         | 0.73                | 0.89                                | 0.29                                 | 0.12      |
| PE: Attendance                   |              |                     |                                     |                                      |           |
| 0 days per week                  | 0.46         | 0.97                | 0.00                                | 0.00                                 | 0.97      |
| 1-2 days per week                | 0.09         | 0.02                | 0.06                                | 0.31                                 | 0.02      |
| 3-5 days per week                | 0.46         | 0.01                | 0.94                                | 0.69                                 | 0.01      |
| PE: Exercise or sports           |              |                     |                                     |                                      |           |
| Not currently in PE              | 0.48         | 1.00                | 0.01                                | 0.03                                 | 1.00      |
| 30 minutes or less               | 0.14         | 0.00                | 0.17                                | 0.46                                 | 0.00      |
| >30 minutes                      | 0.38         | 0.00                | 0.82                                | 0.52                                 | 0.00      |
| Sleep duration                   |              |                     |                                     |                                      |           |
| 6 hours or less                  | 0.47         | 0.45                | 0.42                                | 0.49                                 | 0.56      |
| 7 hours                          | 0.25         | 0.25                | 0.26                                | 0.22                                 | 0.24      |
| 8+ hours                         | 0.28         | 0.30                | 0.32                                | 0.29                                 | 0.20      |
| High tv use <sup>a</sup>         | 0.24         | 0.15                | 0.25                                | 0.30                                 | 0.27      |
| High computer use <sup>a,b</sup> | 0.40         | 0.31                | 0.40                                | 0.41                                 | 0.51      |

Notes. <sup>a</sup>Defined as 3+ hours of use on an average school day. <sup>b</sup>Includes video games. MVPA = moderate and vigorous physical activity. PE = physical education.

**Table 3***Means and Proportions by Class for Social Identity and Age*

|                           | Healthy Balanced | Healthy with<br>Heavier Exercise | Inconsistent<br>Towards Unhealthy | Unhealthy |                         |                           |
|---------------------------|------------------|----------------------------------|-----------------------------------|-----------|-------------------------|---------------------------|
| Variable                  | n = 940          | n = 1414                         | n = 627                           | n = 846   | Overall Wald's $\chi^2$ | Between-class comparisons |
| <b>Race/ethnicity</b>     |                  |                                  |                                   |           |                         |                           |
| White                     | 0.48             | 0.45                             | 0.39                              | 0.44      | 11.06*                  | <i>b,d</i>                |
| Latino/a/x                | 0.18             | 0.23                             | 0.23                              | 0.22      | 8.35*                   | <i>a,b,</i>               |
| AIAN                      | 0.03             | 0.05                             | 0.06                              | 0.04      | 5.14                    | <i>b</i>                  |
| Black                     | 0.06             | 0.07                             | 0.08                              | 0.08      | 5.02                    |                           |
| Asian                     | 0.07             | 0.05                             | 0.07                              | 0.06      | 2.18                    |                           |
| NHPI                      | 0.03             | 0.03                             | 0.02                              | 0.03      | 0.58                    |                           |
| Bi- or multiracial        | 0.08             | 0.05                             | 0.06                              | 0.07      | 2.72                    |                           |
| Other                     | 0.08             | 0.07                             | 0.08                              | 0.06      | 5.02                    |                           |
| <b>Gender</b>             |                  |                                  |                                   |           |                         |                           |
| Male                      | 0.64             | 0.70                             | 0.60                              | 0.55      | 28.45***                | <i>a,c,d,e</i>            |
| Female                    | 0.36             | 0.30                             | 0.40                              | 0.44      |                         |                           |
| <b>Sexual orientation</b> |                  |                                  |                                   |           |                         |                           |
| Heterosexual              | 0.81             | 0.83                             | 0.65                              | 0.71      | 54.09***                | <i>b,c,d,e</i>            |
| Gay or lesbian            | 0.10             | 0.04                             | 0.14                              | 0.16      | 13.78**                 | <i>c,d,e,f</i>            |
| Bisexual                  | 0.10             | 0.09                             | 0.14                              | 0.16      | 13.78**                 | <i>c,d,e</i>              |
| Unsure                    | 0.05             | 0.05                             | 0.10                              | 0.07      | 9.27*                   | <i>b,d</i>                |
| Age                       | 15.25            | 14.81                            | 14.82                             | 15.33     | 36.13***                | <i>a,b,e,f</i>            |

*Notes.* \* $p < .05$  \*\* $p < .01$  \*\*\* $p < .001$ . AIAN = American Indian, Alaska Native. NHPI = Native Hawaiian, Pacific Islander. Between class comparisons indicate significance at  $p < .05$  or better, where *a* = Class 1 vs. Class 2; *b* = Class 1 vs. Class 3; *c* = Class 1 vs. Class 4; *d* = Class 2 vs. Class 3; *e* = Class 2 vs. Class 4; *f* = Class 3 vs. Class 4.

**Table 4***Means and Proportions by Class for Individual Health and Living Context Factors*

| Variable                           | Healthy<br>Balanced<br>n = 940 | Healthy with<br>Heavier Exercise<br>n = 1414 | Inconsistent<br>Towards Unhealthy<br>n = 627 | Unhealthy<br>n = 846 | Overall Wald's $\chi^2$ | Between-class comparisons |
|------------------------------------|--------------------------------|----------------------------------------------|----------------------------------------------|----------------------|-------------------------|---------------------------|
| <b>Individual health factors</b>   |                                |                                              |                                              |                      |                         |                           |
| <b>Weight</b>                      |                                |                                              |                                              |                      |                         |                           |
| Underweight                        | 0.04                           | 0.03                                         | 0.03                                         | 0.04                 | 2.87                    |                           |
| Normal weight                      | 0.68                           | 0.65                                         | 0.63                                         | 0.62                 | 8.36*                   | <i>c</i>                  |
| Overweight                         | 0.14                           | 0.17                                         | 0.17                                         | 0.17                 | 3.55                    |                           |
| Obese                              | 0.13                           | 0.14                                         | 0.18                                         | 0.18                 | 8.24*                   | <i>b,c</i>                |
| Asthma †                           | 0.28                           | 0.26                                         | 0.32                                         | 0.33                 | 9.27*                   | <i>c,d,e</i>              |
| <b>Mental health</b>               |                                |                                              |                                              |                      |                         |                           |
| Depression †                       | 0.36                           | 0.38                                         | 0.43                                         | 0.46                 | 21.50***                | <i>b,c,d,e</i>            |
| Anxiety †                          | 0.62                           | 0.62                                         | 0.64                                         | 0.67                 | 5.31                    | <i>c,e</i>                |
| Suicidality †                      | 0.31                           | 0.32                                         | 0.42                                         | 0.42                 | 34.87***                | <i>b,c,d,e</i>            |
| <b>Proximal factors</b>            |                                |                                              |                                              |                      |                         |                           |
| Family dinners                     | 2.46                           | 2.49                                         | 2.05                                         | 2.05                 | 74.84***                | <i>b,c,d,e</i>            |
| Family rules about smoking         | 0.24                           | 0.29                                         | 0.44                                         | 0.35                 | 38.18***                | <i>a,b,c,d,f</i>          |
| Violence exposure                  | 1.34                           | 1.40                                         | 1.62                                         | 1.42                 | 19.33***                | <i>b,d,f</i>              |
| <b>Macrosocial factors</b>         |                                |                                              |                                              |                      |                         |                           |
| <b>Socioeconomic (in)stability</b> |                                |                                              |                                              |                      |                         |                           |
| Poverty †                          | 0.47                           | 0.54                                         | 0.67                                         | 0.59                 | 65.77***                | <i>a,b,c,d,f</i>          |
| Lives with parent(s) †             | 0.87                           | 0.84                                         | 0.71                                         | 0.80                 | 60.71***                | <i>b,c,d,e,f</i>          |
| Housing instability †              | 0.12                           | 0.13                                         | 0.27                                         | 0.16                 | 58.04***                | <i>b,c,d,f</i>            |
| Recent dental visit †              | 0.78                           | 0.73                                         | 0.57                                         | 0.68                 | 79.01***                | <i>a,b,c,d,e,f</i>        |
| Lives in rural area †              | 0.30                           | 0.34                                         | 0.31                                         | 0.31                 | 3.43                    | <i>a</i>                  |

Notes. \* $p < .05$  \*\* $p < .01$  \*\*\* $p < .001$ . † proportion. Between class comparisons indicate significance at  $p < .05$  or better, where *a* = Class 1 vs. Class 2; *b* = Class 1 vs. Class 3; *c* = Class 1 vs. Class 4; *d* = Class 2 vs. Class 3; *e* = Class 2 vs. Class 4; *f* = Class 3 vs. Class 4.

## CONCLUSION

In this dissertation, I sought to better understand the relationship between youth gang membership and health through an integrated, ecological and intersectional lens. Building on current research, I began by conducting a scoping review of the current youth gang literature as it pertains to health. A thematic analysis was undertaken to explore the relationship between gang membership and health, including how and why health variation might emerge for youth within the gang context. By undertaking this analysis (and in line with the objective of scoping reviews), I was able to identify key gaps which were beneficial toward honing the focus of my remaining two papers. To address two specific gaps related to sexual and physical health, I analyzed secondary data from a statewide survey of school-based, self-identified youth gang members. These analyses aimed to understand how and why sexual and physical health decision-making varies among gang-involved youth.

In concluding, I provide a brief summary of key study findings and related conclusions. This is followed by a discussion of key policy, practice, and social justice implications of these findings as well as directions for future research related to youth gangs and health.

### **Summary of Findings**

#### ***Paper 1: Scoping Review of the Youth Gang Literature as it Pertains to Health***

In Paper 1, I reviewed 65 studies published from 1990-2020 which maintained some degree of focus on youth gang membership and health. I used a scoping review methodology to synthesize what is currently known about health within the youth gang literature. Scoping reviews are particularly useful for answering questions about the scope of available evidence and the theoretical boundaries of an existing literature in order to identify research gaps (Munn et al., 2018). In line with scoping review methodology (Levac et al., 2010), I used thematic analysis to analyze the theories and methods used, as well as key findings and author conclusions. Four

themes emerged from this analysis, and together, illustrate the varied approaches taken in this body of research. These included diversity in how the gang is conceptualized in relation to health; theoretical differences regarding *why* and *how* youth gang membership might be linked to health and why health variation might exist within gangs; and that gender as well as ecological influences from the neighborhood and family contexts are important elements for understanding health for gang-involved youth.

While it was an ambitious undertaking, by conducting a scoping review I was able to illuminate significant gaps in our current understanding of youth gangs and health. I see this work as a meaningful contribution to the field of youth gang research in that it provides myself and other scholars a set of clear directions for future research regarding what is needed to systematically study and address health needs and broader disparities for gang-involved youth.

First, the majority of reviewed studies conceptualized the gang as a social-cultural context with norms and values that influence individual members' health, yet few studies included gang-level contextual factors in analyses. Relatedly, few studies assessed whether the gang serves as a positive or negative (or both) context for health decision-making, or what specific features of the gang might promote or inhibit health (and for whom). Second, nearly half of the reviewed studies were atheoretical and did not articulate *why* or *how* gang membership might be linked to health nor the reasons for potential health variation within gangs. Of studies that did use theory, a majority took an ecological approach and over half cited neighborhood and family influences as important. Yet, the potential mediating role of gang membership in the environment-health link was largely neglected, and few studies tested for ecological factors that may help explain within-gang variation. Third, gender was commonly cited as important for health decision-making; however, studies were limited in their definitions and measurement of

gender and little attention was paid to related social identities such as sexual orientation.

### ***Paper 2: Latent Class Analysis of Sexual Decision-Making Among Gang-Involved Youth***

Paper 2 addressed a key gap related to sexual health as identified in the scoping review. Although several studies pointed to potential variation in sexual behavior among gang-involved youth (Sanders, Lankenau et al., 2009; King et al., 2013; Nydegger et al., 2017; Wesche & Dickson-Gomez, 2019), no studies specifically tested for heterogeneity. In Paper 2, I aimed to address this gap by examining patterns of sexual decision-making among gang-involved youth, including how youths' social identities and interpersonal and macrosocial factors related to this patterning.

Using latent class analysis (LCA), I identified four sexual decision-making classes within a school-based sample of gang-involved youth (n = 2,060): Non-Sexually Active (54%), Single Partner with Condom Use (14%), Multiple Partners with Sexting (19%), and Multiple Partners with Early Debut (13%). In line with premises of health lifestyle theory, I found the classes to be significantly differentiated according to social identities. I found that males, lesbian, gay, bisexual, and questioning (LGBQ) youth, and Black youth were disproportionately represented in the more vulnerable sexual decision-making classes; White and Asian youth were more likely to be in the non-sexually active and monogamous classes. The sexually active classes were more likely to use substances and had an earlier age of substance use onset compared to the non-sexually active youth. Informed by social determinants of health and ecological theory, I also found that youth in the classes characterized by increasingly risky sexual decision-making were also those experiencing greater ecological adversity, including multiform violence exposures, socioeconomic instabilities, and limited social support and access to health resources.

### ***Paper 3: Latent Class Analysis of Physical Health Behaviors Among Gang-Involved Youth***

Paper 3 addressed a second gap identified in the scoping review related to physical health. Of the 65 reviewed studies, only five examined physical health outcomes, and four of these tested for health differences between gang and non-gang youth (for reference, studies focused on physical health include Connolly & Jackson, 2019; Hunt et al., 2011; Knox & Tromanhauser, 1999; Li et al., 2002; Rima et al., 2019). I found no studies examining common behavioral indicators of physical health – such as exercise, diet, sleep, and screen time – in the current youth gang literature. Yet, research points to the importance of health promoting behaviors during adolescence for short- and long-term health (e.g., Burdette et al., 2017; Due et al., 2011; Frech, 2012); and these behaviors may co-occur in ways that are particularly meaningful for adolescent health (e.g., Burdette et al., 2017; Xiao et al., 2019). In Paper 3, I aimed to address this gap by examining patterns of health promoting behaviors among gang-involved youth, including how features of social identity and youths’ living contexts relate to potential heterogeneity.

Informed by health lifestyle theory, I identified four health behavior profiles of gang-involved youth using LCA ( $n = 3,849$ ): Balanced Healthy (24%), Healthy with Heavier Exercise (37%), Inconsistent Towards Unhealthy (16%), and Unhealthy (22%). These classes were distinguished by indicators of physical activity, diet, sleep, and screen-based media use. In line with the premises of health lifestyle theory and social determinants of health, I found that these profiles were significantly differentiated in meaningful ways according to youths’ social identities and features of their living contexts. Specifically, youth identifying as Latinx, female, and LGBTQ were disproportionately represented in the patterns with lower engagement in health promoting behaviors. I also found that the classes with less health promoting behaviors were characterized by poorer mental health and greater adversity in their living environments (i.e., less family dinners and dental visits; higher violence exposure, poverty, and family and housing

instability).

### **Broad Conclusions of this Dissertation**

Several overarching conclusions can be drawn from the collective findings of these three papers. First, gang-involved youth are a heterogeneous group with respect to health decision-making, and not all youth gang members are engaging in health compromising behavior. Common perceptions and assumptions about gangs and delinquency imply that all gang-involved youth are engaging in risky behavior. However, the existence of a sexually inactive group in Paper 2 and a group with a balanced health lifestyle profile in Paper 3 challenges these assumptions. At the same time, findings indicate that there are subsets of gang-involved youth who are in need of services and supports to bolster health and well-being (e.g., sexually vulnerable group in Paper 2 and group with few physical health promoting behaviors in Paper 3).

Second, heterosexuality within youth gangs is not universal. Although a number of gang scholars have articulated the ways in which gang culture is male-centered, including the consequences of unequal gender norms for the health of female members (Dickson-Gomez et al., 2017; Hunt & Joe-Laidler, 2001; King et al., 2013; Miller, 1998; Nydegger et al., 2017; Panfil & Peterson, 2015; Quinn et al., 2019; Wesche & Dickson-Gomez, 2019), very few studies have documented the existence of lesbian, gay, bisexual, and queer-identified youth in gangs (exceptions include Panfil, 2017; Petering 2016, 2017; Sanders et al., 2009). This dissertation is among a small number of studies beginning to document diversity in sexual identity among gang-involved youth. Papers 2 and 3 also extend one step beyond this contribution by also being the first studies (to my knowledge) to explicitly test for, and find, differences in health decision-making according to different sexual identities among gang-identifying youth.

Third, disparities in health exist *within* youth gangs and are observed at the intersection of

multiple marginalized identities. In Papers 2 and 3, I found a general pattern whereby youth of color (with some variation for ethnoracial identity by health type) and LGBTQ youth were disproportionately represented in classes with more vulnerable sexual decision-making and fewer health promoting behaviors. Gender varied, with a greater portion of males represented in vulnerable sex profiles (i.e., very early debut with many sexual partners) and greater portion of females in poorer physical health profiles (i.e., limited exercise and sleep with poor diet).

Fourth, the structural and environmental drivers of gang membership (e.g., racism, poverty, neighborhood violence) are also undermining health for these youth. Disparities in health among gang-involved youth are likely attributable to the ecological contexts in which these youth are embedded. In the scoping review (Paper 1), I found that authors commonly cited neighborhood and family characteristics as important for influencing health for gang-involved youth, yet few studies actually examined these relationships empirically. In Papers 2 and 3, I intentionally examined these relationships and found a pattern whereby youth in classes characterized by increasing health vulnerability were also experiencing significantly greater environmental adversities at different ecological levels. This included greater adversity in interpersonal relationships (i.e., peer victimization, multiform violence exposures), higher socioeconomic instability (i.e., poverty, parental and housing instability) and lower health resource access (i.e., sex education, school counselor, health care).

### **Implications and Future Directions**

The conclusions drawn from this dissertation have important social justice-oriented implications for policy, practice, and research related to youth gangs and health.

#### ***Shifting Policy and Programmatic Focus to Health Promotion***

Research and policy narratives on youth gangs routinely center issues of delinquency and

violence. Unsurprisingly, the solutions that emerge in response to the “youth gang problem” aim to prevent or interrupt gang involvement – usually as legal system interventions – in order to reduce delinquency and violence. Yet for many youth, and particularly youth of color and females living in unsafe neighborhoods, gangs offer a social and cultural milieu that provides stability, belonging, protection, and identity in the face of exclusion from mainstream society. In light of this understanding, the criminalization of gang membership, the perpetuation of stereotypes that all gang-involved youth are engaging in deviant or criminal behavior (e.g., the “thug” stereotype), and the overemphasis on crime and punishment combined with an underemphasis on health represents an issue of injustice and inequity. By shifting policy and programmatic focus towards health promotion and addressing systemic drivers of adverse health, we can begin to address the health challenges and needs of this population.

Findings from Papers 2 and 3 suggest that less stereotype-assumptive models for service identification and provision are needed. Not all gang-involved youth are engaging in health compromising behaviors, and therefore will not require the same level or type of support as those for whom more intensive services might be warranted. Further, service approaches to address health needs should be situated outside of the legal system. Data for Papers 2 and 3 came from a school-based sample of youth, suggesting that schools may be one important context for service provision, or at the very least, for identifying needs and linking youth to relevant services in the community.

### ***Flexible, Intersectional Service Approaches to Meet Varied Needs and Promote Health***

Gang-involved youth are a heterogenous group with respect to sexual and physical health decision-making. This points to the need for services approaches and strategies that can be tailored to fit varied needs and which are responsive to the multiple social identities that shape the

lives of gang-involved youth.

Based on Paper 2 findings, the following strategies may hold utility for promoting healthy sexual decision-making among gang-involved youth. Comprehensive sexuality education should include efforts to build youths' sexual knowledge and increase self-efficacy so that youth are equipped with the information and skills needed to make informed choices about sex. Health practitioners should assess needs using comprehensive sexual health assessments (e.g., Johnson, 2020) and provide individualized education and guidance as indicated. This should include areas of sexual/gender identity and expression, healthy relationships (sexual and non-sexual), sexual communication (including consent and activity negotiation), contraception use, preventative STI screening, and contingency planning (e.g., emergency contraception). Youth engaging in substance use should be informed about the risks associated with having sex while under the influence (e.g., inability to consent, increased risk of STI exposure and unintended pregnancy). At the same time, research has documented the use of substances as a way to cope with coercive sexual experiences among gang-involved youth (Miller et al., 2011), underscoring the need for supportive, non-judgmental counseling to address potential comorbidities. For youth who are not sexually active, providing early education and opportunities to build and practice skills in an environment where youth feel comfortable asking questions may have preventive effects.

Based on Paper 3 findings, comprehensive school-based programs that include components on physical activity and healthy eating habits may help educate youth and provide needed skills to build and maintain balanced, healthy lifestyles (CDC, 2011, 2013). Ensuring families have access to affordable, healthy food and quality health care as well as safe places to exercise and play in their immediate living environments will also be critical. At the same time, Paper 3 represents the first study (to my knowledge) to understand physical health behavior

among gang-involved youth. This suggests that further research is needed to build a more comprehensive portrait of physical health needs among gang-involved youth in order to identify and develop the most relevant and effective service approaches for health promotion.

### ***Attending to Multiple Levels of a Youth's Social Ecology***

Findings from this dissertation highlight the contextual complexity associated with health decision-making among gang-involved youth, demonstrating the need for service approaches which attend to multiple levels of a youth's social ecology. The scoping review (Paper 1) highlighted the importance of the neighborhood and family contexts for youth gang health; and while less common, several authors of the reviewed studies explicitly called attention to the structural drivers that may be contributing to adverse health for gang-involved youth (e.g., structural racism, gender norms favoring toxic forms of masculinity; Quinn et al., 2019). Papers 2 and 3 found that youth with health profiles characterized by fewer health promoting behaviors were also embedded within increasingly adverse living environments across ecological contexts (e.g., multiform violence exposures across the peer, family, and neighborhood contexts; economic, family, and housing instabilities; limited access to health resources).

Research suggests that youth rarely join gangs as an opportunity to participate in violent or deviant behavior; rather, these behaviors are best understood as a by-product of social, cultural, and economic survival which often occurs through asserting more toxic forms of masculinity such as violence (e.g., Baird, 2012; Quinn et al., 2019). Service approaches geared toward health promotion for gang-involved youth must account for, and seek to modify, the structural inequities that simultaneously contribute to gang joining and adverse health for these youth. For example, the marginalization of youth of color and their exclusion from mainstream society contributes to youth seeking out gangs as an opportunity to have various needs met. In

light of this understanding, policy and program approaches should address the adverse structural and environmental conditions contributing to gang joining and poor health rather than targeting individual behaviors. These include racism, poverty, gender inequality, unemployment, residential segregation, disparities in public school funding and health care access, community and family violence, food deserts, and inequitable access to green spaces or areas conducive to physical activity and play.

### ***Harm Reduction as a Potential Service Framework for Youth Gang Health Promotion***

The proposed recommendations I outline above fall within a broader harm reduction framework. Harm reduction is an orientation to practice which is rooted in principles of social justice that are the cornerstone of social work practice. Harm reduction is built on the philosophy of meeting youth where they are at in terms of their health decision-making, offering compassionate, pragmatic strategies to minimize harm (Andrasik & Lostutter, 2012; Marlatt et al., 2012; Marlatt & Witkiewitz, 2010). Service strategies that are consistent with a harm reduction approach include a) comprehensive needs assessment, motivational interviewing, and individualized case planning; b) increasing availability, access, and use of health promoting resources such as contraceptives; c) behavioral and cognitive-behavioral approaches (e.g., contingency management, skills training such as diet choices, sexual communication and contraceptive negotiation); and d) youth-centered educational campaigns that promote non-judgmental messaging across contexts (e.g., peer, family, school, community) and the spectrum of behavior (e.g., Andrasik & Lostutter, 2012; Hawk et al., 2017; Marlatt et al., 2012).

Harm reduction represents a novel orientation to engagement and service provision for gang-involved youth but has yet to be considered in research and practice. Harm reduction has demonstrated success in reducing health vulnerabilities for adolescents generally and may be a

particularly useful service framework for providers working with gang-involved youth.

### ***Directions for Research***

Gang-involved youth disproportionately come from communities experiencing significant structural and environmental adversities, and as a result, challenges to health and well-being. An intentional focus on health decision-making and outcomes merits a more prominent position in youth gang research and scholarship. This dissertation represents one step in the process of understanding the complex relationships between gang membership, social identity, environment, and health. This dissertation offers important contributions to the youth gang literature, and also illuminates key gaps for future research.

Moving forward, it will be important to clarify *why* and *how* youth gang membership is linked to health, and the relative influence of the gang when other aspects of a youth's environment are accounted for. Further, youth gangs and individual membership is dynamic and varied, and findings from this dissertation suggests this is also the case with respect to health decision-making. Approaches to measurement that account for multiple levels of influence, which clarify the potential adverse *and* health promoting features of gangs, and the complex role of social identity (e.g., gender, sexuality) within the gang context or as it intersects with gang membership are needed.

One specific direction includes the need to clarify the role of the gang context itself for shaping health experiences. This may include examining gang-specific factors such as group-level gender and sexual orientation composition as well as group norms and expectations that may influence health behaviors. For example, findings from the scoping review highlighted that gang gender structures may influence health differentially for male and female members. Unfortunately, I was unable to examine these factors in the quantitative analyses due to measure

limitations. Research accounting for additional measures of the gang context beyond individual membership can more fully assess the extent to which the social and cultural context of gangs shapes individual health experiences, including the mechanisms by which health may be indirectly shaped by gang-level norms via individual behavioral responses to these norms. This will be an important next step to ensure service approaches are responsive to diverse needs while attending to features of the gang context that may be driving adverse health for certain members.

Theory specification and expanded definitions and measurement approaches are needed to build a body of evidence that can be used to inform practice approaches geared toward health promotion. Empirical examination of the links between youth gang membership and health necessitates the use of longitudinal designs with data collected at multiple levels and across multiple contexts of a youth's ecology. Efforts to understand heterogeneity and the structural and ecological factors associated with health variation within gangs may benefit from multilevel and person-centered approaches (e.g., multilevel latent class analysis, MLCA) using geographically and demographically diverse data. Meanwhile, efforts to gain a deeper understanding of how identity and diverse lived experiences shape health decision-making within the gang context may benefit from qualitative inquiry, and in particular, grounded theory work.

Finally, as findings from this dissertation and future studies emerging from the directions proposed here are translated to practice, research will be needed to ensure new service approaches are feasible, acceptable, and effective for the youth gang population.

### **Final Remarks**

As a social welfare scholar, I approach questions about youth gangs from a critical, intersectional perspective with the aim of shifting the current research paradigm in order to build an evidence base that can inform practice efforts which are grounded in social justice, equity,

and health promotion. I see this dissertation as one contribution towards this larger objective. At the same time, it is important to recognize that while I have had several meaningful experiences related to youth gangs in my personal and professional life, I do not personally have the lived experience of gang membership, nor do I understand what it means to hold the gang identity. Bringing youth voice and ownership into the research process and ensuring gang-involved youth are stakeholders in service delivery models will be critical for research and practice moving forward. Youth gang members represent a population of youth who are infrequently asked about their needs or lived experiences. Yet, they are the experts of their experiences. By building partnerships with youth and engaging in co-design efforts through participatory approaches, we can ensure solutions to address needs and reduce disparities are relevant and responsive to youth's lived experiences and their environmental realities.

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- Wu, X., Bastian, K., Ohinmaa, A., & Veugelers, P. (2018). Influence of physical activity, sedentary behavior, and diet quality in childhood on the incidence of internalizing and externalizing disorders during adolescence: A population-based cohort study. *Annals of Epidemiology*, 28, 86-94. doi:10.1016/j.annepidem.2017.12.002
- Xiao, Y., Romanelli, M., & Lindsey, M. A. (2019). A latent class analysis of health lifestyles and suicidal behaviors among U.S. adolescents. *Journal of Affective Disorders*, 255, 116-126. doi:10.1016/j.jad.2019.05.031
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## CURRICULUM VITAE

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### EDUCATION

**PhD**, Social Welfare, June 2021  
University of Washington, Seattle, WA  
Statistics Concentration, Center for Statistics and the Social Sciences

**MSW**, Policy Practice, June 2012  
University of Washington, Seattle, WA  
Master's Thesis, completed June 2012

**BA**, Sociology, March 2010  
Western Washington University, Bellingham, WA

### RESEARCH INTERESTS

Marginalized youth populations; Structural inequity; Health disparities; Research-to-practice translation; Service provision, access, and utilization; Juvenile legal system; Ecology and intersectionality perspectives; Multiple and mixed methods; Community engagement and participatory approaches

### PEER REVIEWED PUBLICATIONS

**Bishop, A.**, Nurius, P. S., Logan-Greene, P., & Rousson, A. (in press). Micro-system supports, therapeutic progress, and court re-involvement: Implications for juvenile probation. *Journal of the Society for Social Work and Research*.

Walker, S., **Bishop, A.**, Lee, T., Schmidt, H., Lyon, D., Indermark, J., & Veele, S. (in press). Expert versus youth raters on measuring social and therapeutic climate in secure juvenile placement. *Journal of the American Academy of Psychiatry and the Law*.

**Bishop, A.**, Fleming, C., & Nurius, P. (2020). Substance use profiles among gang-involved youth: Social ecology implications for service approaches. *Children and Youth Services Review*. Advanced online publication. doi.org/10.1016/j.childyouth.2020.105600

- Rebbe, R., **Bishop, A.**, Ahn, J., & Mienko, J. (2020). Opioid overdose rates and child maltreatment indicators: Differential county-level associations. *Children and Youth Services Review*. Advanced online publication. <https://doi.org/10.1016/j.chilyouth.2020.105671>
- Bishop, A.**, Walker, S., Herting, J., & Hill, K. (2020). Neighborhoods and health during the transition to adulthood: A scoping review. *Health & Place*, *63*. doi.org/10.1016/j.healthplace.2020.102336
- Walker, S., Duong, M., Hayes, C., Berliner, L., Leve, L., Atkins, D., Herting, J., **Bishop, A.**, & Valencia, E. (2019). A tailored cognitive behavioral program for juvenile justice-referred females at risk of substance use and delinquency: A pilot quasi-experimental trial. *PLoS ONE*, *14*(11), 1-16.
- Bishop, A.**, Walker, S., Lockhart, M., & Herrenkohl, T. (2018). Applying a community-based participatory research approach to the development of a structured assessment tool: A case study in a multiservice youth initiative. *Collaborations: A Journal of Community-based Research and Practice*, *2*(1), 1-14.
- Walker, S., Valencia, E., **Bishop, A.**, Irons, M., & Gertseva, A. (2018). Developing a coordinated youth housing stability program for juvenile courts. *Cityscape: A Journal of Policy Development and Research*, *20*(3), 117-137.
- Bishop, A.**, Hill, K., Gilman, A., Howell, J., Catalano, R., & Hawkins, J. (2017). Developmental pathways of youth gang membership: A structural test of the social development model. *Journal of Crime and Justice*, *40*(3), 275-296.
- Walker, S., **Bishop, A.**, Catena, J., & Haumann, E. (2017). Deploying street outreach workers to reduce failure to appear in juvenile court for youth of color: A randomized study. *Crime & Delinquency*. Advanced online publication. <https://doi.org/10.1177/2F0011128717739567>
- Walker, S., & **Bishop, A.** (2016). Length of stay, therapeutic change, and recidivism for incarcerated juvenile offenders. *Journal of Offender Rehabilitation*, *55*(6), 355-376.
- Walker, S., **Bishop, A.**, Nurius, P. S., & Logan-Greene, P. (2016). The heterogeneity of treatment needs for justice-involved girls: A typology using latent class analysis. *Criminal Justice and Behavior*, *43*(3), 323-342.
- Lee, T., Walker, S., & **Bishop, A.** (2016). The impact of psychiatric practice guidelines on medication costs and youth aggression in a juvenile justice residential treatment program. *Psychiatric Services*, *67*(2), 214-220.
- Walker, S., **Bishop, A.**, Pullmann, M., & Bauer, G. (2015). A research framework for understanding the practical impact of family involvement in the juvenile justice system: The Juvenile Justice Family Involvement Model. *American Journal of Community Psychology*, *56*(3-4), 408-421.
- Walker, S., **Bishop, A.**, Trayler, K., Jaeger, R., Gustaveson, S., & Guthrie, A. (2015). Impact of peer partner support on self-efficacy for justice-involved parents: A controlled study of Juvenile Justice 101. *Journal of Child and Family Studies*, *24*(2), 443-454.

Herrenkohl, T., Walker, S., Lockhart, M., Sidorowicz, G., McGlynn-Wright, A., & **Bishop, A.** (2014). Using an innovative developmental evaluation framework to promote the use of evidence-based practice and programs in violence prevention: The Seattle Youth Violence Prevention Initiative. In *Sage Research Methods Cases*. London, UK: SAGE Publications.

Higley, E., Walker, S., **Bishop, A.**, & Fritz, C. (2014). Achieving high quality and long-lasting matches in youth mentoring programmes: A case study of 4Results mentoring. *Child and Family Social Work*. Advanced online publication. <https://doi.org/10.1111/cfs.12141>

#### ARTICLES UNDER REVIEW

Gubner, N., Gilbert, E., Weil, L., **Bishop, A.**, & Walker, S. A cognitive behavioral and relational-empowerment program for juvenile justice-referred females at risk of delinquency: Recidivism effects at 6- and 12-months. *Feminist Criminology*

#### ARTICLES IN PREPARATION

**Bishop, A.**, Rousson, A., Nurius, P. S., Walker, S., & Weiss, N. Youth gang membership and health: A scoping review. *Prepared for Journal of Adolescent Health*

**Bishop, A.**, Nurius, P., Walker, S., Vesneski, W., & Oxford, M. Social identity and ecology influences of patterned sexual decision-making among gang-involved youth: Implications for service approaches. *Prepared for BMJ Sexual & Reproductive Health*

**Bishop, A.**, Nurius, P., Walker, S., & Hill, K. Health patterning among gang-involved youth: Social identity and living context implications for physical health. *Prepared for Journal of Adolescent Health*

Leith, J., **Bishop, A.**, Walker, S., & Lau, F. Therapist characteristics and perceived cultural responsiveness in evidence-based practice. *Prepared for Administration and Policy in Mental Health and Mental Health Services*

Rebbe, R., **Bishop, A.**, Ahn, J., & Mienko, J. Prenatal opioid exposure and transitions through the child welfare system: Trends from birth through early childhood. *Prepared for Child Abuse & Neglect*

Gavin, A., Ncube, C., & **Bishop, A.** Maternal experiences of racial discrimination during pregnancy and offspring adverse birth outcomes among Black women: A systematic review. *Journal TBD*

Gavin, A., & **Bishop, A.** Linking racism, trauma, and adverse birth outcomes within the Black community: A systematic review. *Journal TBD*

Logan-Greene, P., **Bishop, A.**, Nurius, P. S., & Kim, E. Youth aggression: Resilience as a buffer of child maltreatment histories for youth on probation. *Prepared for Youth Violence and Juvenile Justice*

## AWARDS, GRANTS, FELLOWSHIPS

2020-21 Warren G. Magnuson Scholar (award of \$37,000)  
*University of Washington: Seattle, WA*

2018 Boeing Endowed/Naomi Gottlieb Fellowship (one quarter award for tuition, benefits, and \$7,545 stipend)  
*University of Washington: Seattle, WA*

2017-18 MSW Students' Choice Teaching Award, Nomination  
*University of Washington School of Social Work: Seattle, WA*

2018 Dolores Liebmann Fellowship, Nomination (selected as campus nominee for the national competition)  
*University of Washington: Seattle, WA*

2016-2020 Graduate Conference Travel Award (three disbursements of \$300, totaling \$900)  
*University of Washington: Seattle, WA*

2015 Top Scholar Award (one quarter award for tuition, benefits, and \$6,639 stipend)  
*University of Washington: Seattle, WA*

2008-2010 Presidential Award for Academic Excellence  
*Western Washington University: Bellingham, WA*

2006 Multicultural Achievement Scholarship (\$2,000 for a demonstrated commitment to multiculturalism)  
*Western Washington University: Bellingham, WA*

## SELECT TECHNICAL REPORTS, MANUALS

**Bishop, A.,** & Walker, S. (2016). *Seattle Youth Violence Prevention Initiative (SYVPI) risk and needs assessment tool validation: Final report*. Seattle, WA: City of Seattle.

**Bishop, A.,** Leith, J., & Trupin, E. (2015). *Model protocol process evaluation*. Seattle, WA: Center for Children & Youth Justice.

**Bishop, A.,** & Walker, S. (2015). *Assessing the feasibility of utilizing service data for risk and needs assessment tool validation*. Seattle, WA: City of Seattle.

Walker, S., **Bishop, A.,** & Ojalehto, H. *Creative justice program evaluation*. Seattle, WA: 4Culture.

Walker, S., & **Bishop, A.** (2015). *Warrant Prevention Program: Process evaluation final report*. Seattle, WA: King County Juvenile Court and Alive & Free Program of the YMCA of Greater Seattle.

Walker, S., **Bishop, A.**, Judge, D., Burden, H., Gold, H., & Trupin, E. (2014). *Mental health diversion in Washington State: A guide for juvenile courts*. Olympia, WA: Washington State Association of Juvenile Court Administrators, Administrative Office of the Courts.

**Bishop, A.**, & Walker, S. (2014). *Seattle Youth Violence Prevention Initiative (SYVPI) risk assessment tool and youth check-in: User's manual*. Seattle, WA: City of Seattle.

## PEER REVIEWED PRESENTATIONS

**Bishop, A.**, Nurius, P., & Walker, S. (under review). Physical health variability among gang-involved youth: Addressing health needs to reduce disparities. 2022 Society for Social Work and Research Annual Conference.

Rousson, A., **Bishop, A.**, Ramirez, J., & Lizarraga, A. (under review). Identifying diverse needs and supports for doctoral students' success as student-educators. 2021 Council on Social Work Education Annual Program Meeting.

**Bishop, A.**, Nurius, P. S., Walker, S., Vesneski, W., & Hill, K. (January 2021). Sexual health risk among gang involved youth: Ensuring services are sensitive to marginality and adversity experiences. Oral presentation. Society for Social Work and Research Annual Conference, San Francisco, CA.

**Bishop, A.**, Mienko, J., Ahn, J., & Rebbe, R. (January 2021). Prenatal opioid exposure and the child welfare system: Community context implications for placement decision-making. Oral presentation. Society for Social Work and Research Annual Conference, San Francisco, CA.

Rebbe, R., **Bishop, A.**, Ahn, J., & Mienko, J. (January 2021). The opioid epidemic and child maltreatment: The importance of macro-level context for child outcomes. Oral presentation. Society for Social Work and Research Annual Conference, San Francisco, CA.

Logan-Greene, P., **Bishop, A.**, Nurius, P. S., & Kim, E. (January 2021). Examining the personal and relational buffers of childhood adversity to address problem behaviors among probation youth. Oral presentation. Society for Social Work and Research Annual Conference, San Francisco, CA.

Harrop, E., Harner, V., & **Bishop, A.** (November 2020). Research methods 101: Integrating a social justice lens into foundational research courses. Interactive workshop. Council on Social Work Education Annual Program Meeting, Denver, CO.

**Bishop, A.**, Fleming, C., Nurius, P. S., & Ramirez, J. (January 2020). The importance of social ecologies and adaptable service approaches for addressing youth gang substance use. Oral presentation. Society for Social Work and Research Annual Conference, Washington, DC.

**Bishop, A.**, Walker, S., Gavin, A., & Herting, J. (January 2020). Exploring the importance of neighborhoods for health during the transition to adulthood: A scoping review. Poster presentation. Society for Social Work and Research Annual Conference, Washington, DC.

Walker, S., **Bishop, A.**, Leve, L., & Duong, M. (May 2019). Mechanisms of change at the client and organizational level for selective prevention programs embedded within juvenile courts: Results from a female-specific study. Paper Symposia. Society for Prevention Research Annual Meeting, San Francisco, CA.

**Bishop, A.**, Fentress, T., Rousson, A., Carey, C., & Musumeci, L. (January 2019). A comprehensive portrait of service needs and programming options for gang-involved youth: A review of the literature to identify directions for research and practice. Poster presentation. Society for Social Work and Research Annual Conference, San Francisco, CA.

**Bishop, A.**, Nurius, P S., & Logan-Greene, P. (January 2019). The importance of skills development for therapeutic progress and reduced court involvement for at-risk youth on probation. Oral presentation. Society for Social Work and Research Annual Conference, San Francisco, CA.

Walker, S., **Bishop, A.**, Parker, E., Valencia, E., Peterson, A., & McCurley, C. (November 2018). Preventing and addressing housing instability and homelessness for justice-involved youth. Oral presentation. Annual Meeting of the American Society of Criminology, Atlanta, GA.

**Bishop, A.**, Walker, S., Lee, T., Schmidt, H., Veele, S., & Lyne, D. (November 2017). The association between youth perceptions of fidelity ratings of residential evidence-based practices. Paper presentation. Annual Meeting of the American Society of Criminology, Philadelphia, PA.

**Bishop, A.**, & Walker, S. (January 2017). Are gang youth really that different from their high-risk peers? Examining group differences on treatment needs and service referrals in a community-based violence prevention setting. Poster presentation. Society for Social Work and Research Annual Conference, New Orleans, LA.

Walker, S., **Bishop, A.**, & Lockhart, M. (2016). When readiness is a luxury: Co-designing a risk assessment and quality assurance process with violence prevention frontline workers in Seattle, WA. In Proceedings of the 3<sup>rd</sup> biennial conference of Society for Implementation Research Collaboration (SIRC) 2015: Advancing efficient methodologies through community partnerships and team science. *Implementation Science*, 11(Suppl 1): A25.

Walker, S., Hedstrom, C., Sauve, S., **Bishop, A.**, & Pullmann, M. (June 2015). Juvenile justice family partnership efforts in Washington State and a case example in Pierce County. Oral presentation at the Coalition for Juvenile Justice Annual Conference, Washington, DC.

Lee, T., Walker, S., **Bishop A.**, Redman, J., & Jenkins, E. (October 2014). Impact of psychiatry practice guidelines on medication costs and youth aggression in a residential juvenile justice setting. Poster presentation. 61<sup>st</sup> Annual American Academy of Child & Adolescent Psychiatry (AACAP) Meeting, San Diego, CA.

Walker, S., Lockhart, M., Herrenkohl, T., & **Bishop, A.** (July 2014). Applying an innovative developmental evaluation framework to the study of youth violence prevention in an urban context. Themed Collaboration (Symposium). Youth Strengths and Prevention of Delinquency and Gang Involvement: Academics and Community Acting Together, Surrey, BC, Canada.

Walker, S., **Bishop, A.**, Logan-Greene, P., & Nurius, P. S. (2014). Diversity in treatment needs among justice-involved girls: Results of a latent class analysis. Oral Presentation. Society for Research on Adolescence Biennial Meeting, Austin, TX.

## RESEARCH EXPERIENCE

### **Understanding the Service Needs of Gang-Involved Youth: The Role of Identity and Social Ecology in Mental, Physical, and Sexual Health**

School of Social Work, University of Washington

Role: PI, Committee: Drs. Paula Nurius, William Vesneski, Sarah Walker, Karl Hill

Multimethod dissertation study: content and thematic analysis of literature (scoping review: protocol registered with OSF, see <https://osf.io/ajp98>); person-centered quantitative analysis (latent class analysis) of the Washington State Healthy Youth Survey. 2019-present.

### **Substance Use and Youth Gang Involvement**

School of Social Work, University of Washington

Role: Predoctoral Research Associate, PI: Dr. Paula Nurius

Conceptualized study; quantitative analysis of statewide behavioral surveillance data (WA State Healthy Youth Survey); prepared conference abstract and presentation; prepared manuscript (published). 2019-present.

### **Neighborhoods and Health During the Transition to Adulthood: A Scoping Review**

School of Social Work, University of Washington

Role: PI, Committee: Drs. Amelia Gavin, Sabrina Oesterle, Sarah Walker, Jerald Herting, Karl Hill

Scoping review for qualifying exam; prepared manuscript (published). 2019-2020.

### **Mathematica/Administration for Children and Families OPRE HHSP-233-37022T Risk of Death and Injury Study (RODIS)**

Partners for Our Children, School of Social Work, University of Washington

Role: Predoctoral Research Associate, Co-PIs: Drs. Joseph Mienko, Rebecca Rebbe

Accessed and prepared publicly available data; performed quantitative analyses on population-based linked administrative datasets; prepared two manuscripts (published and in preparation). 2019-2020.

### **Micro-Meso Resources, Therapeutic Progress and Juvenile Probation Re-Involvement**

School of Social Work, University of Washington

Role: Predoctoral Research Associate, Co-PIs: Drs. Paula Nurius, Patricia Logan-Greene

Conceptualized study; quantitative analysis; prepared conference abstract and presentation; prepared manuscript (under review). 2018-present.

### **Housing Stability for Youth in Courts (H-SYNC)**

Center for the Study and Advancement of Justice Effectiveness, University of Washington

Role: Predoctoral Research Associate, PI: Dr. Sarah Walker

Developed a housing stability assessment manual to determine youth risk/needs under the Youth Housing Stability Model for Juvenile Courts; prepared manuscript (published). 2017-2018.

**Developmental Pathways of Adolescent Gang Membership**

Social Development Research Group, School of Social Work, University of Washington

Role: Predoctoral Research Associate, PI: Karl Hill

Quantitative analysis (structural equation modeling) of longitudinal data (Seattle Social Development Project, NIDA R01-DA024411); prepared manuscript (published). 2017.

**Bachelor of Social Welfare (BASW) Alumni Survey**

School of Social Work, University of Washington

Role: Predoctoral Research Associate, PI: Emiko Tajima

Co-designed and implemented survey; data management and preparation; quantitative analysis; wrote report for program administrators and the Dean. 2016.

**Washington State Model Protocol for the Commercial Sexual Exploitation of Children (CSEC) Task Force Process Evaluation**

Center for Children & Youth Justice (Seattle, WA)

Role: Contracted Analytic Consultant, Supervisors: Justice Bobbe Bridge (ret.), Dr. Eric Trupin

Analyzed survey data and qualitative interviews; presented findings to stakeholders; prepared report. 2015.

**NIDA R21-DA037455 A Girls-Specific Prevention Program for Substance Use and Delinquency**

Department of Psychiatry and Behavioral Sciences, University of Washington

Role: Research Analyst Lead, PI: Dr. Sarah Walker

Managed and prepared data; quantitative analysis; prepared manuscripts (one published, two in progress). 2015-2017.

**Seattle Youth Violence Prevention Initiative (SYVPI) Risk and Needs Assessment Tool Validation**

Department of Psychiatry and Behavioral Sciences, University of Washington

Role: Research Analyst II, PI: Dr. Sarah Walker

Conducted qualitative interviews with service providers from community-based agencies; obtained and prepared quantitative service data; qualitative and quantitative analysis; presented findings to stakeholders and at academic conferences; prepared manuscript. 2014-2018.

**Creative Justice Program Evaluation**

Department of Psychiatry and Behavioral Sciences, University of Washington

Role: Research Analyst II, PI: Dr. Sarah Walker

Co-developed interview guide with program staff; conducted qualitative interviews with youth participants of an arts-based alternative to formal court processing; qualitative analysis of youth, parent, artist mentor and community stakeholder interview data; quantitative analysis of survey data; presented findings to stakeholders; prepared report. 2015-2016.

**Warrant Prevention Program Process Evaluation**

Department of Psychiatry and Behavioral Sciences, University of Washington

Role: Research Analyst II, PI: Dr. Sarah Walker

Conducted qualitative interviews; request, prepared juvenile court data; qualitative and quantitative analysis; draft final report; presented findings to stakeholders; prepared manuscript (published). 2015-2016.

**Impact of Psychiatric Prescribing Guidelines in Juvenile Residential Settings**

Department of Psychiatry and Behavioral Sciences, University of Washington

Role: Research Analyst II, PI: Dr. Terry Lee

Quantitative data analysis; prepared manuscript (published). 2014-2015.

**Assessing Diversity in Treatment Needs for Justice-Involved Girls**

Department of Psychiatry and Behavioral Sciences, University of Washington

Role: Research Analyst II, PI: Dr. Sarah Walker

Quantitative data analysis; prepared manuscript (published). 2014-2015.

**Development of a Research Framework for Family Involvement in the Juvenile Justice System**

Department of Psychiatry and Behavioral Sciences, University of Washington

Role: Research Analyst II, PI: Dr. Sarah Walker

Conducted literature review and synthesis; prepared manuscript (published). 2014-2015.

**Juvenile Justice 101: Quasi-Experimental Evaluation Study**

Department of Psychiatry and Behavioral Sciences, University of Washington

Role: Research Analyst I, PI: Dr. Sarah Walker

Quantitative data analysis; prepared manuscript (published). 2013-2014.

**NIJ 2012-IJ-CX-0040 Therapeutic Change, Length of Stay, and Recidivism in Incarcerated Juvenile Offenders**

Department of Psychiatry and Behavioral Sciences, University of Washington

Role: Research Analyst I, PI: Dr. Sarah Walker

Managed complex, linked administrative datasets; managed IRB application, renewals, and closures; partnered with systems to align research and practice objectives; planned and conducted advanced quantitative analyses; developed final reports; prepared manuscripts (one published, one under review). 2013-2016.

**Race, Poverty, and Environmental Risks Associated with Adolescent Gang Membership**

School of Social Work, University of Washington

Role: PI, Committee: Drs. Karl Hill, Amanda Gilman, Emiko Tajima

Master's thesis examining ecological factors relevant to adolescent gang membership joining in a longitudinal study (Seattle Social Development Project, NIDA R01-DA024411). 2011-2012.

**Research Assistant.** Department of Sociology, Western Washington University, Bellingham, WA. Assisted undergraduate students in developing and implementing analysis plans for their Capstone research projects, Supervisor: Dr. Ronald Helms. 2010.

TEACHING INTERESTS

Research methods; Applied and translational research methods; Community-based and participatory research methods; Critical pedagogy; Community and policy practice; Health inequity and social determinants of health; Social and economic justice; Youth service systems; Theoretical perspectives; Introduction to the social work profession

## TEACHING EXPERIENCE

- Courses**
- Sole Instructor**, Honors Seminar and Applied Research Skills (SOC WF 491), University of Washington BASW course, Fall-Spring 2019-2020.
- Sole Instructor**, Independent Study in Pedagogical Research (SOC W 599, 1-credit), University of Washington MSW program, Spring 2019.  
Student: Katrina Herzog, Project: *Identifying institutional supports for effective team teaching in Schools of Social Work.*
- Sole Instructor**, Independent Study in Pedagogical Research (SOC W 599, 1-credit), University of Washington MSW program, Spring 2019.  
Student: Casey Drobnick, Project: *Exploring barriers and unmet needs of teaching teams in Schools of Social Work.*
- Sole Instructor**, Social Work Research and Evaluation (SOC W 506), University of Washington MSW course, Spring 2018.
- Sole Instructor**, Introduction to Social Welfare Research (SOC WF 390), University of Washington BASW course, Fall 2017.
- Teaching Associate**, Evidence-Based Practices in Social Welfare (SOC WF 410), University of Washington BASW course, Winter 2017.
- Sole Instructor**, Statistics Lab - Introduction to Social Welfare Research (SOC WF 390), University of Washington BASW course, Fall 2016.
- Teaching Practicum**, Policy Processes, Institutions, and Influences (SOC W 560), University of Washington MSW course, Fall 2016.
- Teaching Assistant**, Sociology of Deviant Behavior (SOC 251), Western Washington University, Fall 2009.
- Student Mentorship**
- Master's Thesis Committee Member**, Reed Klein (MSW), Thesis: *Evaluating program effects of a therapeutic intervention for incarcerated veterans.* 2019-2020.
- Research Mentor**, Adely Martinez (BASW), Project: *Cultural competence and training needs among mental health practitioners serving Latinx communities.* 2019-2020.  
Recipient of the 2020 UW Mary Gates Research Scholarship. Poster presented at the 2020 UW Undergraduate Research Symposium.

**Research Mentor**, Stacie Tao (BASW), Project: *Effectiveness of CORE teen: On-going support for resource parenting for American Indian teens*. 2019-2020. Recipient of the 2020 UW Mary Gates Research Scholarship. Poster presented at the 2020 UW Undergraduate Research Symposium.

**Research Mentor**, Isabelle Chappel (BASW), Project: *LGBTQ+ health disparities: Organizational perspectives on service provision and Policies*. 2019-2020. Poster presented at the 2020 UW Undergraduate Research Symposium.

**Research Mentor**, Redeite Moges (BASW), Project: *Understanding mental health stigma and barriers to mental health services among East African young adults*. 2019-2020. Poster presented at the 2020 UW Undergraduate Research Symposium.

**Research Mentor**, Casey Drobnick and Katrina Herzog (MSWs), Project: *The importance of training and team teaching in professional programs*. 2017-2019. Poster presented at the 2019 UW Teaching and Learning Symposium.

**Master's Thesis Committee Member**, Benjamin Beach (MSW), Thesis: *Understanding the implementation of diversionary juvenile justice programs: An examination of organizational and political processes*. 2016-2018. Proposal presented at the 2018 UW Three Minute Thesis (3MT) Competition.

**Research Mentor**, Kayla Cody (MSW), Project: *The relationship between racism-related stress and binge eating among Black female students in graduate and professional programs of study: Examining the role of depression as a mediator*. 2018.

**Research Mentor**, Bridgette Blacker (BA), Project: *Diversion agreement policy implementation across Washington State*. 2013-2014. Poster presented at the 2014 UW Undergraduate Research Symposium.

Guest  
Lectures

**Research methods review** (1 hour). Class: Introduction to Social Welfare Research (SOC WF 390) with David La Fazia, Fall 2018.

**Descriptive and inferential statistics in social work research** (1.5 hours). Class: Advanced Standing Social Welfare Research and Evaluation (SOC W 507) with David La Fazia, Summer 2017.

**Descriptive and inferential statistics in social work research** (3 hours). Class: Social Welfare Research and Evaluation (SOC W 506) with Stacey De Fries, Winter 2017.

**Community-based participatory research methods** (1 hour). Class: Social Welfare Research and Evaluation (SOC W 506) with Amanda Gilman, Winter 2017.

**Policy implementation and adoption: A case study of assessment implementation in community violence prevention settings** (1 hour). Class: Policy Processes, Institutions, and Influences (SOC W 560) with Amelia Gavin, Fall 2017.

**Content analysis: Definitions, methods, and techniques.** (1.5 hours). Class: Qualitative Analysis (Soc WL 586) with Taryn Lindhorst, Spring 2017.

**Engaging in research as a social work practitioner** (1.5 hours). Class: Social Welfare Research and Evaluation (SOC W 506) with Amanda Gilman, Winter 2016.

**Best practices in data management and analysis: Using SPSS syntax as the analyst's journal** (1 hour). Division of Public Behavioral Health and Justice Policy, Psychiatry and Behavioral Sciences, University of Washington, Winter 2015.

**Therapeutic models for incarcerated youth: A case study of Washington State Juvenile Justice Rehabilitation Integrated Treatment Model** (1.5 hours). Class: Racial and Ethnic Disparities in the Juvenile Justice System (GEN ST 197) with Eric Trupin and Andrea Negrete, Spring 2014.

**What will you do with your MSW? Engaging in research and policy practice as a social worker** (1 hour). Class: Social Welfare Research and Evaluation (SOC W 506) with Amanda Gilman, Spring 2014.

## PRACTICE EXPERIENCE

### Micro-level Practice

**Case Manager, Multicultural Counseling Services** (Seattle, WA): 2012  
Provided case management and mentoring to youth at-risk of gang involvement and delinquency. Implemented gang prevention and desistance intervention. Participated on interdisciplinary teams to address program implementation issues and solutions. Co-developed grant proposals for program sustainability with Executive Director.  
*Supervisor: Maurice Ward*

### **Mitigation Specialist (Advanced MSW Intern), The Defender Association** (Seattle, WA): 2011-2012

Performed psychosocial assessments and write mitigation reports for clients awaiting felony trial. Participated on interdisciplinary teams with public defense attorneys, social workers, and forensic experts to advocate for reduced sentences and treatment in lieu of incarceration. Attended court hearings to support clients through the legal process. Developed chemical dependency and mental health treatment plans and coordinate referrals.  
*Supervisors: Cynthia Skow, Nina Elmore, Valarie Mitchell, LICSWs*

### **Probation Counselor (MSW Intern), Municipal Community Court** (Seattle, WA): 2010-2011

Performed psychosocial assessments to establish program eligibility and service needs of clients charged with misdemeanor offenses. Developed chemical dependency and mental health treatment plans and coordinate referrals. Conducted program orientation and transport clients to community service sites. Maintained the Court Resource Center. Entered and tracked case information and outcomes. Advocated for client needs in court workgroup meetings with prosecution, defense, and the Judge. Attended court hearings.  
*Supervisors: Joni Wilson, MSW, Kent Hay*

Mezzo- and  
Macro-level  
Practice

**Research Translation in Multiservice Practice Contexts.** Department of Psychiatry and Behavioral Sciences, University of Washington (Seattle, WA): 2013-2016

Co-led service provider and youth focus groups to assess feasibility and acceptability of structured assessments within/across diverse practice settings. Co-designed risk and needs assessment tool with university partners, community providers, and city administrators. Developed user's manual, assessment guidelines, and training materials and resources. Conducted systematic literature review to assign evidence-based weights and developed scoring system to translate data collection to case planning in real-time. Consulted on the development of an interagency database and data management infrastructure.  
*Supervisor: Dr. Sarah Walker*

**Implementation and Evaluation of Washington State House Bill 1524.**

Department of Psychiatry and Behavioral Sciences, University of Washington (Seattle, WA): 2013-2015

Coordinated multidisciplinary workgroup to support continued advocacy and policy implementation efforts for House Bill 1524: *Providing for juvenile mental health diversion and disposition strategies*. Supported grant writing for policy translation efforts. Prepared and analyzed county-level data to assess statewide trends in the usage of 3<sup>rd</sup> diversion practices. Conducted interviews and wrote case studies of promising practices and programs for successful diversion. Developed policy guidebook for juvenile court administrators.

*Supervisors: Drs. Sarah Walker, Eric Trupin*

**Law Enforcement Assisted Diversion (LEAD), Racial Disparity Project** (Seattle, WA): 2011-2012

As program intern, assessed implementation feasibility of various drug-related policies and practices, including harm reduction and evidenced-based chemical dependency programs. Participated on interdisciplinary teams with attorneys, law enforcement, social service agencies, and community members to address implementation challenges and solutions.

*Supervisor: Kris Nyrop*

**Interdisciplinary Committee on Juvenile Justice Research and Policy.**

Department: Psychiatry and Behavioral Sciences, University of Washington (Seattle, WA): 2014-2015

As committee coordinator, convened a monthly meeting for faculty, staff, policymakers and practitioners engaging in juvenile legal system reform efforts across Washington State.

*Supervisor: Dr. Eric Trupin*

## UNIVERSITY AND PROFESSIONAL SERVICE

Committee Member, Doctoral Program Impact Science Workgroup. University of Washington School of Social Work, 2018.

Ad Hoc Reviewer, Journal of Child and Family Social Work, 2014 – present.

## PROFESSIONAL MEMBERSHIPS, AFFILIATIONS

Council on Social Work Education, 2020 – present

Partners for our Children (P4C), University of Washington, 2019 – present

Society for Social Work and Research, 2017 – present

CoLab for Community and Behavioral Health Policy, University of Washington, 2017 – present

Social Development Research Group, University of Washington, 2015 – present

Coalition for Juvenile Justice, 2015

Alpha Kappa Delta National Sociology Honors Society, 2010 – present