Social Network Analyses and Mapping Studies of Intimate Partner Violence: A Systematic Review

Intimate partner violence (IPV) is a significant global public health issue. Worldwide, 27% (95% CI 23-31%) of women aged 15-49 have experienced some form of IPV (Word Health Organization, 2021). IPV is defined as physical, sexual, and/or psychological aggression that occurs between current and former spouses and dating partners. IPV has a myriad of physical and mental health consequences (Campbell, 2002; Coker et al., 2002; Dillon et al., 2013), interrupts employment (Swanberg, Logan, & Macke, 2005) and creates economic burden for survivors and their communities (Peterson et al., 2018). IPV negatively affects the health and welfare of millions of women worldwide.

Social isolation of survivors is an important consequence of IPV. IPV survivors report experiencing social isolation related to psychological aggression by an intimate partner (Smith et al., 2017). In a large national probability sample, 16.4% of U.S. women reported their partner tried to keep them from seeing or talking to family or friends and 23.5% reported their partner kept track of them by demanding to know where they were or what they were doing (Smith et al., 2017). As IPV survivors are at an increased risk for social isolation, a greater focus on social support interventions for survivors is needed.

Informal social support is a known protective factor for IPV (Sylaska & Edwards, 2014; Edwards & Cardis, 2016) and survivors are most likely to seek informal help from social network members (Coker et al., 2000; Goodman et al., 2003; Laughon, Bloom, Amar, Debnam, 2021). The majority of people experiencing IPV disclose to at least one member of their social support network (Sylaska & Edwards, 2014). Friends and female family members are the most

utilized supporters and often considered the most helpful (Sylaska & Edwards, 2014). However, network members' reactions to disclosure can be negative and unhelpful in some cases (Sylaska & Edwards, 2014). Informal help seeking may connect survivors with instrumental support in the early stages of violence (Cho et al., 2020). Survivors may also seek formal support from institutions and professionals, particularly when violence is severe (Cho et al., 2020). Attitudes towards formal and informal support-seeking vary significantly among women based on age, working status, experience of violence, and other factors (Sayem, Begum, & Moneesha, 2015).

A significant amount of IPV research has explored help-seeking (Ravi et al., 2021; Robinson et al., 2021) and social support, particularly the impact of social support on mental health outcomes (Coker et al., 2002; Mburia-Mwalili et al., 2010; Ogbe et al., 2020). Social support theory has informed the search for and development of effective and appropriate interventions for IPV (Ogbe et al., 2020). While an increasing number of studies have adopted a network perspective by focusing on informal social support in IPV, little is known about the structure, composition, and size of these social networks. To date, no reviews have been published on social network analyses and social network mapping studies of IPV survivors.

Social network analysis (SNA) enables researchers across many disciplines, including public health and violence research, to better understand underlying structural relations among social entities (Knoke & Yang, 2019). It provides a unique perspective that contrasts social science theories that are individualistic, viewing actors and their decisions within a vacuum without looking at the behavior of other actors (Marin & Wellman, 2011, Knoke & Yang, 2019). A social network approach provides additional context regarding the decisions and behaviors of IPV survivors and their social supporters.

The characteristics of social networks include size, structure and composition. Social networks are comprised of entities and relations (Knoke & Yang, 2020), also known as nodes and ties in mathematical terms. Entities may also be referred to as actors. Entities are individual persons or collective actors within the network that can be connected through different types of connections or ties (Knoke & Yang, 2020). For example, in a SNA of social support for IPV survivors, the actors within the network include the survivor as well as individuals named as supporters by the survivor. The total network size is the number of all nodes within the network. In the aforementioned example, the total network size is the survivor plus every individual they name. To calculate total network size, we would simply add up the number of supporters plus the survivor.

The structure of the network depends on the relationship of interest to the researcher. Relationships of interest may concern flow of information, transactions, or resources shared between entities. In regards to IPV survivorship, support and resource sharing could be relationships of interest. Structure of social networks include several dimensions such as network density, average degree, centrality measures, and clustering and segmentation within networks (Crossley et al., 2015). Network density refers to the number of connections within a network out of all of the possible connections. Degree is the number of connections of a particular node. Centrality refers to the importance of a node within a network, and can be measured in several different ways. The centrality measures of interest are listed in Table 1. For example, a survivor could have high degree centrality, meaning they have many connections with others in the network. If one measures the ego-network of the survivor, it is likely the survivor has the highest degree centrality. The survivor may also have high betweenness centrality if they are on the shortest path between many other pairs of people in the network.

Table 1

Social Network Analysis Terminology

Term	Definition
Node/entity	Individuals or groups within a social network
Tie/link/relationship	Representation of a pre-defined and specific type of connection between nodes
Ego	Central node within an ego-centric network (the respondent providing data)
Alter	All other nodes besides the ego within an ego-centric network that are named by the ego
Degree	Number of ties a node has with other nodes
Centrality a. Degree centrality b. Betweenness centrality c. Closeness centrality d. Eigenvector centrality	How "important" a node is within a network. a. The number of ties a node has b. Number of times a node is along the shortest path between two other nodes c. Average shortest distance to other nodes d. The degree of the alters of the node of interest (the 'power' of the node's 'friends')
Density	The number of ties divided by the number of all possible ties within a network

Composition of networks, for the purposes of this review on IPV SNA, is based on categories of network members and type of support provided by network members. Social network members may be categorized by type of relationship (family member, friend, coworker), demographics, and/or which network they belong to if multiple networks are analyzed.

Social network mapping may also be used to understand the networks of survivors, but may be supplemented more by qualitative interviewing rather than a quantitative analysis of social network characteristics. Studies that include this technique are also of interest, as they also provide insight into the social lives of survivors and their informal support systems.

The purpose of this systematic review is to examine the current state of knowledge on the characteristics of social networks (i.e., size, composition, and structure) of IPV survivors and the implications of those characteristics for IPV social support. The current study will explore common themes among social network analyses and network mapping studies examining size, structure and composition of support networks of women experiencing IPV. Better understanding of the characteristics of social networks will support development of more effective interventions to prevent IPV and mitigate its harms.

Methods

The review followed the Preferred Reporting Items for Systematic Reviews and Meta-Analysis (PRISMA) Statement guidelines (Page et al., 2021) and was organized using the Covidence systematic review software (2022). The PRISMA outline was automatically updated in Covidence and filled out separately by one reviewer for confirmation of result flow. Inclusion and exclusion decisions were conducted independently by reviewers and discrepancies were resolved during bi-weekly meetings.

Search Strategy

Studies were identified in four electronic databases in the following order: PubMed, CINAHL, Web of Science and PsychINFO. Keyword searches were used to identify studies by combining the terms [social network analysis OR network analysis] AND [intimate partner

violence OR domestic violence OR domestic abuse]. The search was limited to articles published in the years 2012 to 2022. The search was not limited by the language it was published in, but articles were later excluded if no versions were available in English, Spanish or French. A search was conducted in Google Scholar using the terms social network analysis and intimate partner violence to detect relevant articles missed in the database search.

Studies were included in the review if they were published between the years 2012 and 2022, are written in English, Spanish or French, focus on an IPV survivor population, and include a formal SNA or social network mapping of IPV survivor networks. The search was limited to articles from 2012 to 2022 as this time range follows the call for social network approaches to IPV by Goodman & Smyth (2011). The authors screened articles for elements of SNA such as measures of network structure, directions of links, betweenness or closeness centrality measures, and/or calculation of network size. Studies were excluded if they focus on social support but contain no SNA or social network mapping, only identifies types of support (instrumental, emotional, informational) or types of supporters (family, friends), not related to IPV, examine attitudes towards gender violence but contain no analysis of IPV survivor networks, analyzes the networks of perpetrators of IPV, or have a focus on family violence against children/adolescents.

578 studies were identified and imported to Covidence. Once 147 duplicates were removed, the first author conducted title-based screening. The first and second author then conducted abstract screening. The first and second author met via videoconference to discuss discrepancies of exclusion based on abstract and type of reason for exclusion. 398 articles were eliminated once title and abstract screening was completed.

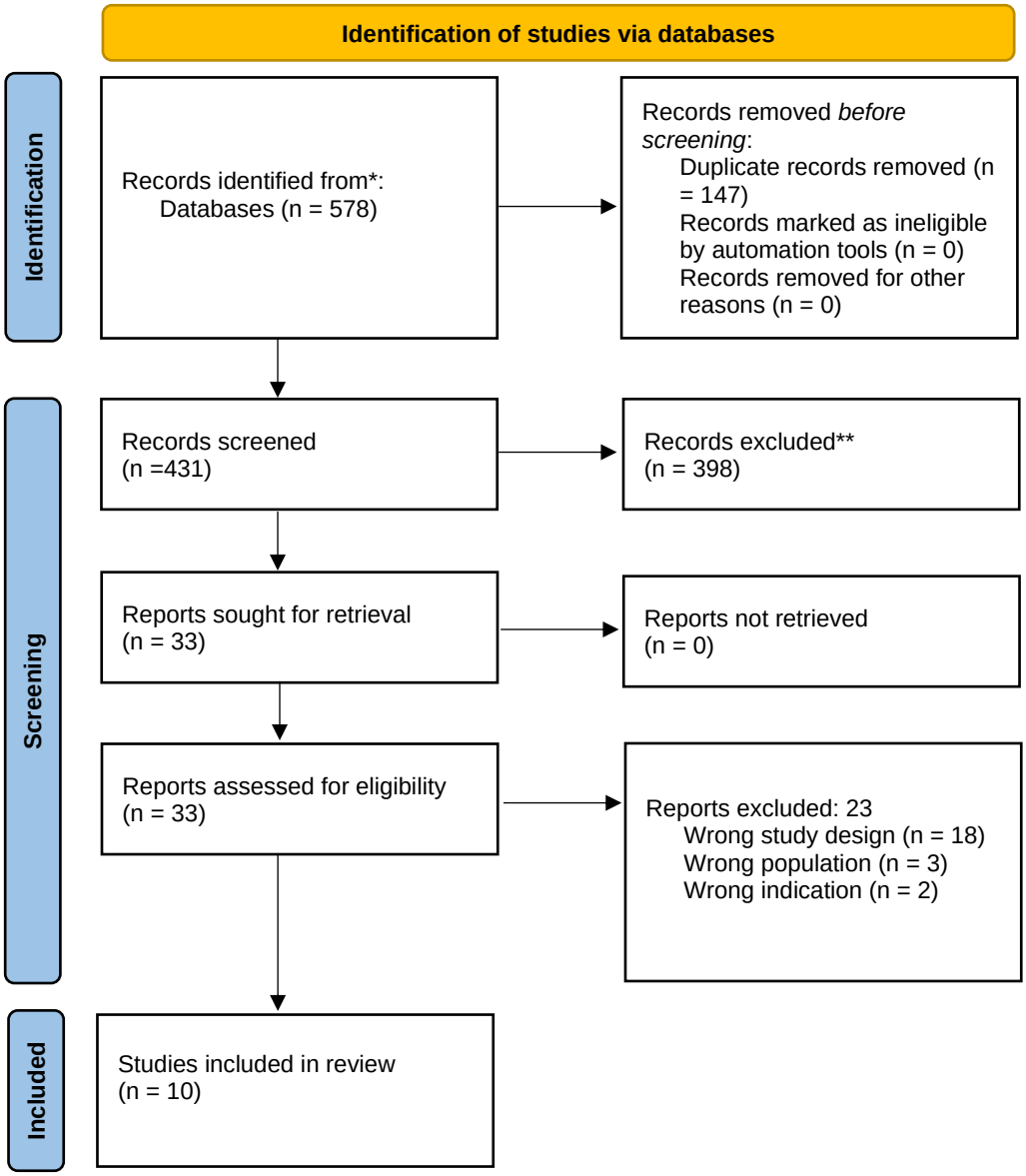

Figure 1: PRISMA Diagram

Quality Assessment

Following full article review, quality assessment was conducted in Covidence. Quality assessment domains were derived from the National Heart, Lung, and Blood Institute's quality assessment tool for observational studies. Cochrane Risk of Bias domains were the default

assessment domains in Covidence; three of these domains were included in the assessment. Studies were assessed for sampling bias, exposure and outcome measure bias, confounding variables, incomplete outcome data, selective outcome reporting, follow-up, and other sources of bias. Risk of bias for each domain was rated as HIGH, LOW, or UNCLEAR with supporting annotations and comments on judgment. The majority of risk of bias ratings were HIGH or UNCLEAR. Studies were rated as having unclear risk of bias if the criteria were not clearly described in the study article. Several studies were rated as having a HIGH risk of bias for at least one risk of bias domain. One reviewer completed the quality assessment of all included articles through the process outlined in Covidence.

Results

Following full-text review, a total of 10 studies were included in the review. The included studies underwent risk of bias assessment and were included in the final stage of extraction in Covidence. Following full text review, data extraction was conducted. The following data were extracted: SNA methodology, sample characteristics, size of networks, characteristics relevant to network structure, and network composition.

Study Characteristics

All studies were published in academic journals. Included studies were conducted in the United States (*n*=3), Mexico (*n*=2), Brazil (*n*=3), and Canada (*n*=2). Eight studies were published in English (dos Santos et al., 2022; Gauthier et al., 2021; Katerndahl et al., 2013; Netto et al., 2017; Nolet et al., 2021; Petering et al., 2014; Vieira et al., 2015; Willie et al., 2019) and two studies were published in Spanish (Estrada-Pineda et al., 2012; Rodriguez Hernandez, 2016). Total sample sizes ranged from *n*= 19 to *n*= 386. The majority of study samples included women

18 and older and at least one group of women experiencing or have experienced IPV. One study sampled female and male homeless youth who had experienced dating/intimate partner violence (Petering et al., 2014). This study was included as it addresses the social networks of survivors of IPV. It should be noted there are developmental differences between youth and adults experiencing IPV.

The majority of the included quantitative studies were cross-sectional (dos Santos et al., 2022; Estrada Pineda et al., 2012; Gauthier et al., 2021; Katerndahl et al., 2013; Nolet et al., 2021; Petering et al., 2014; Rodriguez-Hernandez et al., 2016; Vieira et al., 2015). A subgroup of cross-sectional studies employed mixed-methods designs. In these four mixed-methods studies, qualitative description was used in conjunction with SNA or social network mapping (Nolet et al., 2021; Katerndahl et al., 2013; Vieira et al., 2015, dos Santos et al., 2020). One cohort study was included (Willie et al., 2019). Willie et al. (2019) employed a prospective cohort study design to examine the relationship between the PrEP care continuum, social networks, and IPV.

Two major themes related to IPV emerged among the included studies. IPV survivors have smaller, low-density networks in which they are central to the flow of information. Additionally, IPV survivors rely primarily on female relatives and friends for support.

Network Size and Density of Social Networks of IPV Survivors

In the five studies that measured size of IPV survivor networks, IPV survivors' networks were smaller in total network size than other women and, among the studies that measured density, were found to be sparse. Network size was calculated as the number of all nodes (in this case, social supporters of women) in the network.

Overall, abuse appears associated with smaller networks. In comparison to never-abused women, IPV survivors were found to have smaller networks (Katerndahl et al., 2013; Willie et al., 2019). Katerndahl et al. (2013) found women in violent relationships had smaller networks. IPV survivors also had fewer contacts with alters in the last 3 months, less reciprocated ties, less indegree-outdegree balance, and fewer expected triads. Similarly, both Vieira et al. (2015) and Willie et al. (2019) also found women experiencing IPV had smaller networks than women without experiences of IPV.

In the one study that examined severity of abuse, women who reported severe abuse had significantly smaller networks compared to women who reported moderate or no abuse (Rodriguez-Hernandez, 2016). This effect was consistent across each category of supporters (family, friends, others). The moderate abuse and no-abuse groups did not show a significant difference in network size.

Unique among the five studies measuring network size, Nolet et al. (2021) conducted the only study that compared networks of women at different stages of their relationships. They measured network size and relational redundancy among women still in their violent relationship, living in a shelter for abused women, and after exiting the shelter. They found network size increased when leaving the abusive relationship and entering a shelter, but decreased in the post-shelter stage.

Network Structure

Regarding the structure of networks, in a small, sparse network, the survivor may be better able to control the flow of information between supporters. Katerndahl et al. (2013) found women in abusive relationships have smaller, less interconnected social networks and greater

centrality within their networks compared to never-abused women. Centrality, in this study, was measured as how many times a person bridges the shortest path between two other network members (betweenness) and the degree to which the participant's alters are highly connected to other alters (eigenvector). IPV subjects had higher betweenness centrality ($t = -2.36$, $p < .024$) and eigenvector centrality ($t = -4.14$, $p < .000$). The centrality of abused women within their ego-networks suggests that abused women play a more important role in the cohesion of their networks than do never-abused women. The cohort of abused women may better control the flow of information among alters (social network members), with less information flowing between alters. This may make it more difficult for social network members to coordinate their support. Their social ties were less reciprocal than the ties of never-abused women, meaning they provided more support than the support given to them in return.

Density

Generally, abused women appear to have less dense network structure than their never-abused peers. Katerndahl et al. (2013) found the networks in the IPV group to be less dense than the control group of never-abused women. Dos Santos (2020) found survivors to have medium density networks, with a higher density within the secondary network (institutions) than in the primary network (social supporters). Social network maps of women in the South of Brazil revealed low density networks with ruptured bonds due to the partner's imposition on the network.

Prominence of Female Support Network Members

Connections to female relatives and friends in the support networks of IPV survivors proved important in a number of studies (dos Santos et al., 2022; Estrada Pineda et al., 2012,

Katerndahl et al., 2013; Petering et al., 2014; Rodriguez Hernandez, 2016; Vieira et al., 2015.) Katerndahl et al. (2013) found the percentage of women and relatives in the support network higher for the IPV group compared to the control group. Social networks of the IPV group were 78.5% female compared to 65% female in the controls' networks. Vieira et al. (2015) also found network members were predominantly female. Emotional support was offered more from female network members and financial help was offered more by male members. Among severely abused, moderately abused, and never-abused women, the percentage of female supporters among the total number of supporters was about 65% across all 3 participant groups (Rodriguez Hernandez, 2016).

Female Family Members

Several studies explored the types of relationships within the social network and the roles of social network members. In most cases, women provided more support than men. Estrada Pineda et al. (2012) grouped support network members by family of origin, partner and children, and friends/others. Perceived emotional, instrumental and informational support given by each type of supporter was measured. Participants perceived male members of their family of origin as part of the support network less than female family members (Estrada Pineda et al., 2012). Dos Santos (2022) found women sought emotional support from their female family members such as the mother, aunts, and sisters the most. Support networks contained a majority of female network members.

Among female family members, mothers were most often perceived as supportive by participants, followed by female friends and sisters (Estrada Pineda et al., 2012; Rodriguez Hernandez, 2016). Dos Santos (2022) also found participants relied primarily on their mothers within their primary support network. Participants' mothers served both in a caring and

protective capacity and some participants noted their mothers provided a place to stay when needed.

Female Friends

Estrada Pineda et al. (2012) found friends were the main providers of support to the participants; among those friends, the majority were female. Similarly, Brazilian women cited both female friends and relatives as the most involved in their support networks (Vieira et al., 2015.) Female friends primarily provided emotional support, such as listening or giving advice.

In contrast, Petering et al. (2014) found female homeless youth who experienced IPV had more male friends than females who did not experience IPV. Additionally, female homeless youth who witnessed family violence had more male friends, but those who experienced sexual abuse during childhood had fewer male friends. IPV was not significantly related to any measure of male homeless youths' social networks. This study is unique within this review as it included both female and male youth participants who have experienced IPV.

Discussion

SNA can be a useful tool for understanding the social experiences of IPV survivors. IPV survivors have smaller, less interconnected networks and perceive female family members and friends as somewhat more important than men to their support networks. However, these findings should be treated with caution due to the small number of studies available.

The literature search reveals only a few formal social network analyses of the support networks of women survivors of IPV have been conducted. The social network analyses by Katerndahl et al. (2013), Willie et al. (2019), and Nolet et al. (2021) are the only studies with an ego-centric SNA of adult women experiencing IPV. All other studies included in the review

were either qualitative explorations of social networks, supplemented with a social network mapping tool or a network analysis of other types of IPV survivors' networks, but not analyzing survivors' support networks. While these studies add valuable knowledge about IPV, rigorous social network analyses of the support networks of IPV survivors are needed to inform network-based interventions.

Qualitative Studies with Social Network Mapping

A number of qualitative descriptive studies with social network mapping have explored the social networks of IPV survivors. Network mapping is a useful method to collaborate with participants in describing and visualizing their ego-networks. Social network mapping, as it has been applied in studies within this review (Estrada Pineda et al., 2012; Vieira et al., 2015; Netto et al., 2017; dos Santos et al., 2022), can elicit data through symbols, lines, colors and text. Mapping can tell us about types or categories of relationships (familial, friendship, etc.), strength of ties based on line thickness, attributes of network members, reciprocity of ties, and overall network size. Network mapping elicits some, but not all, of the data needed for quantitative SNA. There is an open opportunity to build upon these studies by conducting in-depth SNA within the same settings or with comparable samples.

Health Outcomes and Behaviors

Surprisingly, the majority of included articles did not discuss relationships between IPV support networks and health outcomes and behaviors. While SNA and social network mapping has been implemented in IPV research primarily to understand social support, it has also been applied to questions of health and health behaviors (Willie et al., 2019). However, the relationship between support network structure and health outcomes has yet to be explored

within the context of IPV survivorship. Social support has been associated with mental health outcomes such as depression, anxiety and PTSD (Carlson, McNutt, Choi, & Rose, 2002; Coker et al., 2002; Ogbe et al., 2020). Future studies of IPV support networks should explore the relationship of social network structure and health outcomes.

Gender and Familial Norms

Gender norms and norms around family structure significantly impacted the findings of these studies. The authors of the studies conducted in Mexico and Brazil highlighted how gender norms in Mexican and Brazilian culture could impact the social networks and help-seeking behaviors of abused women. In particular, the concepts of marianismo, machismo and familismo, rooted in Catholicism brought by Spanish colonists to what is now Mexico, are cultural standards that support strong familial bonds and rejects any behavior that may strain these bonds (Brabeck & Guzman, 2009; Katerndahl et al., 2013). "Familismo" may increase informal help-seeking by women survivors (Brabeck & Guzman, 2009; Katerndahl et al., 2013). Subscribing to these norms can lead to increased psychological distress. Brazilian stereotypes of gender, in which care and compassion is the responsibility of the woman and providing financially is the responsibility of the man, influenced the types of support provided by network members (Vieira et al., 2015; Netto et al., 2017; dos Santos et al., 2020).

More generally, gender norms influenced categorization of support network members. Among the studies that analyzed types of relationships, the binary categories "female network members/supporters" and "male network members/supporters" were used consistently. This categorization also depended on the participants' understanding of sex and gender. Future studies should include non-binary and genderqueer categories when assessing the composition of social networks.

Limitations

The literature search was restricted to 2012-2022 and only included articles written in English, Spanish, or French. The publication date range for articles was limited to the last ten years, following Goodman & Smyth's (2011) call for a social network approach to IPV. If any social network analyses on IPV were published before 2012, they were not included in this review. The language of included articles was restricted by the authors' first and second languages. Grey literature was not included in this review.

The geographical context of this review ranges from Canada, moving southward to the United States, Mexico and Brazil. Cultural and economic differences may impact specific findings from each study, as well as the cultural lens of the investigators. For example, Vieira et al. (2015) were interested in the influence of Brazilian stereotypes (women as emotional caregivers, men providing practical support) on social networks. Lia Sanicola's social networks theoretical framework informed the studies conducted in Brazil. Estrada Pineda et al. (2012) contextualize their study around changes in family structure in Latin America over the previous two decades. Culture influences the relationship dynamics, such as the amount and type of support provided by family members or friends. However, the findings of decreased network size and density among IPV survivors was found to be consistent across studies. Considering IPV as a global health issue, researchers should consider the cultural and geographical settings in which social networks of IPV survivors have yet to be studied.

Future Directions

Future research should focus on the social network structures of IPV survivors. Among the studies reviewed, only three of the studies utilized SNA methods to determine network

characteristics of support networks of IPV survivors (Katerndahl et al., 2013; Willie et al., 2019; Nolet et al., 2021). Future studies should investigate the size, structure, and composition of the support networks of IPV survivors in comparison to the networks of women who have not experienced IPV. Additionally, future research should explore changes in the support networks of IPV survivors over time. For example, SNA can be used to compare the networks of women currently in abusive relationships versus women leaving or out of abusive relationships. Data from these social network analyses could inform social support interventions for women at different stages of survivorship.

Mixed methods SNA incorporated with qualitative description is recommended for ego-net analytical approaches. Qualitative descriptive studies with social network mapping are valuable for understanding the networks of individual IPV survivors as well and can provide direction for follow-up social network analyses. Future social network analyses should implement a mixed-methods approach to understanding the networks of IPV survivors.

SNA can inform future social network-based interventions. Social network-based interventions have proven effective in other health domains, such as nutrition, exercise, diabetes treatment, mental health, substance use and sexual and reproductive health (Hunter, et al., 2019; Latkin, et al. 2015). Additionally, prior research has shown that abused individuals prefer to receive support from informal rather than formal sources. For example, only 36% of women have called the police while over 70 % have turned to friends and family for support (Breiding, Chen, & Black, 2014). However, friends and family members of those experiencing abuse often fear repercussions, injury, or unintentionally causing more harm when helping (Latta & Goodman, 2011). Understanding the social networks of abused women is a first step toward developing interventions focused on providing effective support for individuals experiencing

abuse as well as leveraging these networks to change social norms around relationships to prevent future abuse.

Conclusion

This review identifies key findings among an emerging body of social network analyses related IPV survivorship. This review also shows a paucity of social network analyses applied to the support networks of IPV survivors.

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Table 2

Final Included Studies

Author/Year/Title	Quality Assessment	Sample	Research Design	Results	SNA Components
Estrada Pineda et al. (2012) Support networks of women victims of partner violence in Jalisco	UNCLEAR risk of bias ratings: Exposure measures, selective outcome reporting, other sources of bias, confounding variables, follow up	*n* =204 IPV survivors in Jalisco, Mexico	Cross-sectional survey	Friends were main providers of emotional support. Male members of family perceived as less involved. Three groups of support network structures identified.	Social network mapping: -Network compositions
Gauthier, Francisco, Khan, & Dombrowski (2021) Social Integration and Domestic Violence Support in an Indigenous Community	HIGH: Sampling UNCLEAR: Incomplete outcome data, follow up	*n* =171 Indigenous women in Canada	Cross-sectional survey	Less socially integrated women made fewer DV support nominations than more integrated women. Higher number of alcohol-use co-partners predicted more DV nominations.	-Membership in groups of interest Integration in traditional network -Integration in exchange network
Katerndahl et al. (2013) Differences in social network structure	UNCLEAR: Incomplete outcome data, selective outcome reporting, follow up	IPV subjects *n* =42 Non-abused matched cohort *n* =14 Women	Case-control social network analysis	IPV networks-significantly greater eigenvector and betweenness centrality but fewer social contacts and gave more	-Network size -Network density -Betweenness and eigenvector centrality

		from San Antonio, TX clinic		support than received	
Netto et al. (2017) Social support networks for women in situations of violence	UNCLEAR: Follow up	*n* =20 Women in Brazil	Qualitative semi-structured interviews and network mapping	Greater proximity and stronger bonds with children, DIL, and SIL-weaker bonds with parents and conflicting bonds with partner	-Social network mapping -Network size -Strength of ties
Nolet et al. (2021) The Social Network of Victims of Domestic Violence	UNCLEAR: Selective outcome reporting, other sources of bias, confounding variables, follow up	*n* =30 Women in Canada	Mixed-methods, qualitative description and SNA	Relational autonomy increases after leaving relationship, but relational diversity decreases	-Network size -Relational constraints -Dyadic constraints
Petering et al. (2014) The Social Networks of Homeless Youth-about adolescents, not adults	HIGH: Other sources of bias UNCLEAR: Selective outcome reporting, follow up	*n* =386 Los Angeles youth	Cross-sectional study	IPV not significantly related to any measure of male social networks-females experiencing IPV had more male friends	-Network size -Network composition
Rodriguez-Hernandez (2016) La Red de Apoyo	HIGH: Sampling UNCLEAR: Incomplete outcome data, selective outcome reporting, follow up	Total *n* = 264 No IPV= 78 Moderate= 89 High= 97 Women in Mexico	Cross-sectional study	Network size decreased from no IPV group to moderate IPV group to high IPV group	-Network size -Network density

Santos et al. (2022) Social Support Networks for Women in Situations of Intimate Partner Violence	UNCLEAR: Other sources of bias	*n* = 21 Women in Palo Velho-Rodonia	Qualitative study with network mapping	Secondary network was central to lives of participants-participants sought emotional and spiritual support	-Alter listing and characteristics -Alter to alter links -Network size -Network density -Primary vs secondary network
Vieira et al. (2015) Support to women who denounce experiences of violence	UNCLEAR: Exposure measures	*n* =19 Women in Brazil	Qualitative descriptive study with network mapping	Primary social network more salient but women access secondary network occasionally for violence related problems.	-Alter listing and characteristics -Alter to alter links -Network size -Network density
Willie et al. (2019) Social Networks…PrEP	UNCLEAR: Exposure measures, other sources of bias	IPV group *n* = 94 Non-IPV *n* = 124 Women in Baltimore, MD	Prospective cohort study	IPV modified associations between network characteristics and PrEP care.	-Alter listing and characteristics -Network size -Network density -Closeness