



HHS Public Access

Author manuscript

Prev Sci. Author manuscript; available in PMC 2018 July 01.

Published in final edited form as:

Prev Sci. 2017 July ; 18(5): 600–609. doi:10.1007/s11121-017-0796-y.

Effects of Sectoral Diversity on Community Coalition Processes and Outcomes

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Abstract

Collaboration with diverse partners is challenging but essential for the implementation of prevention programs and policies. Increased communication with partners from diverse sectors may help community coalitions overcome the challenges that diversity presents. We examined these issues empirically in a study of 17 substance use prevention coalitions in Mexico. Building on coalition and workgroup literatures, we hypothesized that sectoral diversity would improve outcomes but undermine coalition processes. Conversely, we expected uniformly positive effects from higher levels of intersectoral communication. Data are from a 2015 survey of 211 members within the 17 community coalitions. Regression models used sectoral diversity and intersectoral communication to predict coalition processes (cohesion, leader-member communication, efficiency) and outcomes (community support, community improvement, sustainability planning). Sectoral diversity was negatively associated with coalition processes and was not associated with coalition outcomes. Intersectoral communication was positively associated with two of the three measures of coalition outcomes but not associated with coalition processes. Our findings concur with those from prior research indicating that sectoral diversity may undermine coalition processes. However, more communication between sectors may facilitate the coalition outcomes of community support and sustainability planning. Skilled team leaders and participatory decision making may also help coalitions promote intersectoral communication, thereby engaging diverse

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Disclosure of potential conflicts of interest: The authors declare that they have no conflict of interest.

Ethical approval: All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards. This article does not contain any studies with animals performed by any of the authors.

Informed Consent: Informed consent was obtained from all individual participants included in the study.

community sectors to implement preventive interventions and actualize sustained public health impact.

Keywords

community coalitions; sectoral diversity; intersectoral partnerships; youth substance use prevention; implementation science

Prevention program and policy implementation is widely accepted as requiring collaboration among diverse partners (Frieden, 2014; Robert Wood Johnson Foundation, 2016). However, prevention practitioners often embrace diversity without thoughtfully considering the attendant challenges. Even among those aware of such potential implications, there are a dearth of suggestions based on evidence to inform a proper course of action. The need for such information is particularly salient among community coalitions, which are commonly used to bring together diverse partners to facilitate prevention program and policy implementation.

The community coalition, sometimes characterized as a collaborative prevention team, is intended as empowerment in action. Community coalitions have demonstrated that they can prevent public health problems such as crime, violence, and drug use (Feinberg, Jones, Greenberg, Osgood, & Bontempo, 2010; Hawkins et al., 2009). Coalition models range from relatively structured alternatives, such as PROSPER and Communities that Care, to less-structured options, such as Drug Free Coalitions, the Strategic Prevention Framework, and the Getting To Outcomes process (Chinman et al., 2008; Hawkins et al., 2008; Orwin, Edwards, Buchanan, Flewelling, & Landy, 2012; Spoth, Greenberg, Bierman, & Redmond, 2004).

These models encourage or require inclusion of stakeholders representing different sectors and perspectives within the focal community. Such diverse membership is intended to facilitate the community's commitment to coalition efforts, systems change, and sustainability as multiple groups become involved in the work and producing community-wide outcomes. To benefit from representation and inclusivity, however, requires evidence about related challenges plus guidance on how to overcome them to actualize diversity's positive potential. In this paper, we explore these issues by assessing how sectoral diversity and intersectoral communication are correlated with coalition processes and outcomes in 17 Mexican youth substance use prevention coalitions. We define sectoral diversity as the inclusion of members representing different agencies and institutions, as well as individuals representing classes of people the coalition seeks to serve, and intersectoral communication as that occurring between members in different sectors. Sectors often represented in community coalitions include healthcare, education, business, religious, volunteer clubs, law enforcement, adult and youth residents from the community, and various state and local governmental agencies (Kegler & Swan, 2011). Coalition members may be an official representative of the agencies or be considered part of the sector based on life experience.

Mexico provides a compelling context for the study of substance use prevention coalitions, as drug-related crime has become epidemic, with over 164,000 civilians killed between

2007 and 2014 (Breslow, 2015; Villatoro-Velázquez et al., 2012). Mexico had a homicide rate of 18.3 per 100,000 people in 2015, with an estimated 39% of all murders organized-crime style killings (Heinle, Ferreira, & Shirk, 2016). Data on rates of substance use in Mexico is limited but a national survey estimates past year illegal drug use among youth age 12–17 rose 114% from .7 to 1.5 users per 100 youth from 2002 to 2011 (Villatoro-Velázquez et al., 2012). Past year alcohol, tobacco, and marijuana use among youth aged 12–17 in 2011 was estimated at 30.0%, 12.3%, and 1.3% respectively (Medina-Mora et al., 2012; Reynales-Shigematsu et al., 2012; Villatoro-Velázquez et al., 2012). Rates are substantially higher in non-national epidemiological samples of adolescents. For example, a sample of high school students in northern Mexico found past year rates of alcohol use at 56.9% for males and 45.2% for females, tobacco use at 65.4% for males and 47.9% for females, and marijuana at 4.6% for males and 1.6% for females (Floyd, Latimer, Vasquez, & O'Brien, 2005).

Conceptualizing the potential implications of sectoral diversity

The primary conceptual framework for the current study is Foster-Fishman's (2001) model of coalition collaborative capacity, which synthesizes findings from 80 prior publications to identify keys to community coalition success. In addition to the coalitions literature, this study draws on work group research because coalitions are a type thereof, being comprised of individuals who work together for sustained periods of time, see themselves and are recognized by others as interdependent social entities, and collectively yield outputs that affect others (Hackman, 1987).

Research implies that sectoral diversity will enhance coalition goal accomplishment, but at the cost of more difficult interpersonal processes, with an attendant loss of efficiency. Within Foster-Fishman's (2001) framework, sectoral diversity is an element of a coalition's 'member' capacity, potentially affecting the ability to develop shared understanding of problem domains, community contexts, and solution options, as well as to garner the political support to effect change. Although research about optimal diversity in coalitions is lacking, including all relevant societal sectors needed for holistic health promotion has been noted as an imperative for community based coalitions (Butterfoss, 2006; Frieden, 2014; Geneau, Legowski, & Stachenko, 2009), and coalition participants have reported rich exchanges when diverse perspectives have been included (Hien, Takano, Seino, Ohnishi, & Nakamura, 2008). In general, prior evidence suggests that task-related diversity such as that from multiple sectors improves performance through enhanced information access and better decision making when groups are able to synthesize differing perspectives (Horwitz & Horwitz, 2007). Such diverse insights are arguably essential to addressing the complex social determinants of health. Along this vein, some prior research has linked sectoral diversity to implementation of community coalition plans (Hays, Hays, DeVille, & Mulhall, 2000).

Despite its positive potential, sectoral or functional diversity can also complicate developing common understanding and decision-making consensus because participants from different sectors may have diverging knowledge, terminology, beliefs, values, and organizational priorities and constraints (Ostrom, Burger, Field, Norgaard, & Policansky, 1999). People in diverse groups may also differentiate themselves from others on the basis of any category

that is salient in a given context and to consider “other” groups as lesser or subordinate. This can lead coalition members to discount the views of other sectors (Brewer & Kramer, 1985).

In keeping with the communication challenges attendant to spanning organizational and identity boundaries, prior research has found that sectoral diversity has complicated and slowed developing consensus in community-based initiatives (Maskill & Hodges, 2001). Similarly, research on other work groups has linked diversity to task-related conflict (Li, 2014), lower cohesion (Ancona & Caldwell, 1992), and more difficult and slower decision making (Staw & Nemeth, 1989).

Potential benefits of intersectoral communication

One way to overcome challenges related to intersectoral differences may be more communication among sectors (Gruenfeld, Mannix, Williams, & Neale, 1996). Information sharing may be particularly important when expertise is distributed, as in coalitions (Huberman & Glance, 1993). Within Foster-Fishman’s framework, the relevant capacity is termed ‘relational,’ where communication across sectors aids the development of shared visions and solutions (Foster-Fishman et al., 2001). This may occur as people learn to see past surface differences and hence better attend to the value in each other’s perspectives (Pettigrew & Tropp, 2006).

More communication among sectors should also ultimately enable coalitions to have more impact on complex public health issues (Ramanadhan et al., 2012). Here, the logic is similar to that for coalition processes; that is, that more contact between individuals from different sectors should overcome initial unfamiliarity, lack of trust, and hesitancy to exchange information (Johns 2010), thus helping coalitions to create synergy that capitalizes on their diversity strengths. In community collaboratives, communication frequency has been positively associated with community engagement, policy engagement (Ramanadhan et al., 2012), and systems change (Nowell, 2009).

Current study

Overall, prior evidence suggests that sectoral diversity may improve coalition outcomes (Hays et al., 2000; Horwitz & Horwitz, 2007). Thus, our first hypothesis is that *H1: Sectoral diversity will be positively associated with coalition outcomes*. Given that previous research also suggests diversity may undermine coalition processes (Brewer & Kramer, 1985; Ostrom et al., 1999) our second hypothesis is that *H2: Sectoral diversity will be negatively associated with coalition processes*. Conversely, other research has suggested that greater intersectoral communication will improve both coalition processes and outcomes (Nowell, 2009; Ramanadhan et al., 2012), leading to our third and fourth hypotheses. *H3: The level of intersectoral communication within coalitions will be positively associated with coalition processes*. Finally, *H4: The level of intersectoral communication within coalitions will be positively associated with coalition outcomes*. Given the salience of multisectoral strategies for improving prevention program and policy implementation, this study sought to test all of these predictions within the context of substance use prevention coalitions in Mexico.

Method

Although community coalitions have been prevalent in the United States for decades now, they are relatively new to Mexico. The Mexican coalitions examined in this study were supported through a partnership between Programa Compañeros Asociación Civil (PC) and the Alliance of Border Collaboratives (ABC) with financial support from the United States Department of Anti-Narcotic Affairs at the US Embassy in Mexico. The partnership—now called the Red de Coaliciones Comunitarias de Mexico (The Network of Community Coalitions in Mexico)—started in 2012 with 9 coalitions in 4 cities. The network subsequently grew to 17 coalitions in 2014 across 11 cities. City populations in 2010 ranged from approximately 80,000 to 1.6 million people, with a mean of about 930,000 (INEGI, 2010).

PC and ABC believed it essential to involve multiple sectors in the creation of the coalitions that would become the Network of Community Coalitions in Mexico. PC and ABC prepared an initial list of sectors for the newly forming coalitions which they could adapt based on local realities. Among the sectors on the list were health providers, social service agencies, religious organizations, law enforcement, government agencies, schools, and parents and youth. The expectation was not to include all sectors on the list but that the coalition members learn about the diversity in their community to be inclusive.

PC and ABC hired and trained local coalition coordinators to facilitate operations, typically as part-time paid staff. The model employed to train the coalition members to develop their action plans was the Strategic Prevention Framework (SPF), which is a cyclical 5-step process for implementing sustainable evidence-based practices to prevent youth substance use (Orwin et al., 2012). The Community Anti-Drug Coalitions of America (CADCA) provided training that emphasized comprehensive action using seven individual and environmental change strategies – 1) provide information, 2) enhance skills, 3) provide support, 4) enhance access/reduce barriers, 5) change consequences, 6) change physical design, and 7) change policies. Although evidence-based approaches were valued, the existing evidence is primarily from the U.S. and does not necessarily transfer to a Mexican context, which has substantially different infrastructure and culture (Brown, Chilinski, Ramos, Gallegos, & Feinberg, 2016). Thus, rather than drawing from a list of evidence-based programs, the coalitions were taught how to identify strategies that could address the fundamental causes and local conditions behind the community problems prioritized in their community diagnosis. Coalitions sought community and population level changes through the comprehensive implementation of best practices for the seven community change strategies (Yang, Foster-Fishman, Collins, & Ahn, 2012).

Following the trainings, technical support was provided by a regional interdisciplinary team of trainers and technical assistance providers under the direction of ABC, which focused on supporting best practices and helping coalitions overcome implementation challenges. Coalitions pursued strategies to prevent substance use that primarily relied on volunteer time, in-kind, and limited cash donations, as they each had approximately \$10,000 per year to fund prevention activities. One common approach to changing the physical design of the community was to mobilize residents to renovate neighborhood parks frequented by drug

dealers, thereby creating safe and attractive recreational spaces for families. To provide information and enhance skills coalitions also organized youth events and sports competitions where anti-drug messages were communicated, hosted workshops, delivered health education presentations, and created public service announcements, among other educational and skill building strategies.

Data for the current analyses are from a 2015 survey of 211 members of 17 substance use prevention coalitions in Mexico. The survey was administered via paper and pencil at coalition trainings, to which all coalition members had been invited. Technical assistance providers administered the surveys. On the basis of coalition membership rosters from 2015, we estimated a total of 316 members at the time of data collection. Although 100% of training participants completed a survey, the sample represents the approximately 67% of coalition members who attended the training. Among the completed surveys, the percentage of missing data across items ranged from 4% to 18%. Once member responses were aggregated to the coalition level for analysis, no data were missing. All study processes were approved by the primary author's institutional review board.

Measures

The sectors within the coalitions in the current study were health, nongovernmental substance use-related, business, religious, civic or volunteer, criminal justice, other governmental agencies, civic organizations for youth, parent associations, art and culture, and education (Table 1). Further, individual volunteer youth and family members were each treated as an additional sector.

Rather than a simple count of representatives from different sectors (Kegler and Swan 2011), sectoral diversity was measured using an entropy index,

$$ENTR = \sum_{i=1}^k (p_i) \ln \left(\frac{1}{p_i} \right)$$

in which there are $i=1$ to k sectors and p_i is the proportion of each coalition's members in the i th sector (Malizia & Ke, 1993). The final entropy index for each coalition is composed of the products of the proportion of that coalition from each sector and the natural log of the inverse thereof. The minimum index value of 0 occurs when all members belong to the same sector. The value increases as the number of sectors increases and the distribution of the coalition's membership across these sectors becomes more equal, with a maximum value equal to the natural log of the number of sectors. In this study there were 13 sectors, thus the maximum possible sectoral diversity value was 2.6.

We used a social network approach to measure the construct of intersectoral communication, examining dyadic ties between individuals. Respondents named 0–3 individuals in the coalition to whom they went to for advice about coalition matters. We interpreted these as the top 3 individuals each member sought communication with on coalition matters. Coalition coordinators determined sector codes for all respondents and named individuals. Whenever an individual cited a person from a different sector as someone to whom they

went for advice, that dyad was counted as an intersectoral tie. The level of intersectoral communication for each coalition was measured as the coalition's mean number of intersectoral ties per respondent. A larger number of these intersectoral advice seeking ties (i.e., communication) typically indicates greater connectedness and trust between sectors in the coalition network. However a larger number of these intersectoral advice-seeking ties is not a measure of overall network density—which is the number of actual ties out of the number of possible ties—because density would include intrasectoral ties whereas our measure is only of the ties between sectors.

Measures of coalition processes and outcomes were based on previously validated scales (Brown, Feinberg, & Greenberg, 2012; Brown, Redelfs, Taylor, & Messer, 2015). The process measures were based on member perceptions of internal coalition processes: coalition cohesion, leader-member communication, and efficiency. The outcomes scales measured member perceptions of external coalition conditions: community support for the coalition, community improvement attributed to coalition activities, and coalition sustainability planning. More objective measures of coalition outcomes or outputs were not available. Response options for all items were on 7-point Likert scales, such as 1) Strongly Disagree, 3) Disagree, 5) Agree, and 7) Strongly Agree. Cronbach's alphas of 0.82–0.91 indicated acceptable internal measurement consistency of scale items. Reliability Within-Group (RWG) statistics of 0.75–0.86 supported aggregating member responses to the coalition level (James, Demare, & Wolf, 1993).

Cohesion (3 items, $\alpha = 0.78$, RWG = 0.84) measured the extent to which coalition members perceived feelings of unity, group spirit, trust, and belonging within their coalitions (e.g., “There is a strong feeling of belonging in this coalition”). Leader-member communication (3 items, $\alpha = 0.88$, RWG = 0.83) measured the frequency, productiveness, and clarity of communications between coalition leaders and members (e.g., “Please rate communication between your team leaders and team members on the following scales: Frequency of communication”). Coalition efficiency (3 items, $\alpha = .91$, RWG = .77) items quantified the work ethic, efficiency, and task focus of the coalition members (e.g., “This is a highly efficient work-oriented team”).

Community support (4 items, $\alpha = .84$, RWG = .75) related to key entities' support of coalition efforts (e.g., “Does the administrative leadership in participating community agencies support your coalition's initiatives?”). Community improvement (8 items, $\alpha = .89$, RWG = .86) measured perceptions of how much coalition efforts contributed to changes in areas such as community awareness, systematic and comprehensive prevention planning, the quality of services, collaboration, and the well-being of community residents (e.g., “Please indicate how each of the following areas has changed over the last year due to your coalition... Well-being of people in our community”). Sustainability planning (6 items, $\alpha = .82$, RWG = .78) measured the coalitions' exploration of funding strategies and the development of a realistic, concrete plan for program continuation (e.g., “Has your coalition explored potential funding sources to continue similar programs?”).

Coalition age in years and the number of coalition members were included as covariates to reduce potential confounding owing to the effects on processes and outcomes of coalition

size (Nowell, 2009) and maturity (Brown, Feinberg, & Greenberg, 2010; Brown, Feinberg, Shapiro, & Greenberg, 2015). To estimate coalition size, we used 2015 membership rosters.

Analysis

We used SAS version 9.4 Proc Reg to conduct all analyses at the coalition level. We conducted analyses at the coalition level, rather than employ multi-level models, because our conceptual focus was on coalition level outcomes: the group processes of the coalition as a whole (e.g., how socially cohesive they are) and their outcomes (e.g., how much the community supports the coalition). We therefore used all available data through a measure of central tendency (the mean) of individual responses to survey items. Understanding that coalition level measures in this study originate in individual member perceptions, multilevel modeling also would have depended on large numbers of coalitions to provide reasonable estimates of how much variance was at each respective level (Maas & Hox, 2005). Multi-level models also make strong assumptions which can lead to biased estimates. For instance, multi-level models assume that variance is consistent across coalitions, that error terms are uncorrelated with predictors, and that unobservables across levels are also unrelated to each other (De Leeuw & Meijer, 2008). Thus, we chose the modeling approach that best aligned with our focus and was the most robust, at the loss of some granularity.

Multiple regression coefficients quantified the association between coalition sectoral diversity and the level of intersectoral communication with each coalition process and outcome measure, holding coalition size and age constant. In each regression model, we looked for influential observations with DFFITS values greater than 0.84 (Chen, Ender, Mitchell, & Wells, 2003). Models had between 3 and 6 influential observations, with some increasing and others decreasing regression coefficients. Removing these observations from the models shifted coefficients slightly but did not substantially change the magnitude or direction of estimates. We concluded that these observations were true possibilities and thus kept them in the analysis.

We also tested the assumptions of regression for normality of residuals with the Shapiro-Wilk *W* test, heteroscedasticity with the White test, multicollinearity with the variance inflation factor, nonlinearity by examining scatter plots of residual and predicted values, and model specification with the link test (Chen et al., 2003). All tests were consistent with regression assumptions. In examining the distributions of the variables, community support was the only measure that had an outlier. We reduced its influence by assigning it a value three standard deviations below the mean (Tabachnick & Fidell, 2013). None of the variables were significantly skewed, and community support was the only variable with a significant kurtosis value, which was resolved through a square root transformation of that measure. Thus, community support had two transformations. These transformations did not alter the statistical significance of any associations with community support or any hypothesis tests.

Results

In keeping with the new role of community coalitions in Mexico and the initiation and growth of Red de Coaliciones Comunitarias between 2012 and 2014, the mean coalition age was 1.8 years (Table 1). Coalitions averaged 18.6 members. The most common participant

category was independent volunteer family member (mean, 3.5 per coalition). Coalitions averaged just over 1 (1.2) independent volunteer youth each. The most common categories among agency representatives were health organizations (mean, 2.7 per coalition) and non-governmental substance use related organizations (mean, 1.7 per coalition). The least commonly represented sector was education, at a mean of 0.1 per coalition, i.e., present in 1 of the 17 coalitions in the sample.

Given the option of identifying 0–3 individuals from whom they sought advice about coalition matters, the mean number of such individuals identified was 2.2. For all perceptual measures of coalition processes and outcomes—given potential response values ranging from 1 to 7—the means varied from a low of 5.3 for community support to a high of 6.1 for coalition efficiency.

Table 2 reports the multivariate regression results testing our predictions. The first hypothesis that sectoral diversity would improve coalition outcomes was not supported: the diversity index was unrelated to community support, community improvement, and sustainability planning. On the other hand, sectoral diversity was negatively associated with leader-member communication ($B = -0.70, P < .05$), which was one of the three coalition processes examined. Associations between sectoral diversity and the other two process measures, coalition cohesion ($B = -0.63, P < .10$) and efficiency ($B = -0.67, P < .10$) were also negative and were similar in size to that for leader-member communication, on the same scale. However, these latter two coefficients were not statistically significant and hence were not considered to meet the threshold for supporting this hypothesis. Contrary to our third hypothesis, the level of intersectoral communication was unrelated to the three process outcomes measured. Our fourth hypothesis was generally supported, as intersectoral communication was positively associated with two of the three outcomes examined: community support ($B = 0.79, P < .05$) and sustainability planning ($B = 0.66, P < .05$).

Among the measures included as covariates, coalition size was unrelated to all outcomes but was negatively related to intersectoral communication ($r = -0.58, P < .05$). Coalition age was positively associated with sectoral diversity ($r = 0.50, P < .05$), intersectoral communication ($r = 0.41, P < .10$), perceptions of leader-member communication ($B = 0.72, P < .05$), and community support ($B = 0.74, P < .05$). Intersectoral diversity was positively although not significantly associated with intersectoral communication ($r = 0.29, P = .26$).

Discussion

Substance use and related violence, including that associated with illicit drug trade, are public health problems that are particularly salient in Mexico. Community-based coalitions including stakeholders from multiple sectors are being touted as part of the solution, yet, high levels of sectoral diversity can bring challenges as well as opportunities (Office of National Drug Control Policy, 2015). The goal of this study was to investigate these issues empirically. Consequently, we examined linkages between sectoral diversity and levels of intersectoral communication with coalition processes and outcomes in a sample of 17 substance use prevention community coalitions in Mexico.

The results failed to support the first hypothesis that sectoral diversity would have a positive impact on coalition outcomes of community support for the coalition, community improvement from coalition activities, and coalition sustainability planning. This null result may be in part because at the time of the study these coalitions were only 1–3 years old. Prior investigators have concluded that diversity slows group processes (Maskill & Hodges, 2001). Hence, it may take more time than that reflected during our study period for coalitions to actualize their combinative potential for community substance use–related goals. Indeed, it is notable that internal leader-member communication and community support for the work of the coalition were higher among relatively older coalitions. Most coalitions in the study sample may still be in the process of mobilizing their diverse partners to achieve community improvements, as coalitions were not expected to have community action plans being fully implemented until their second year of operation.

Results partially supported our second hypothesis that higher levels of sectoral diversity would be associated with lower perceptions of coalition processes. Functional diversity sometimes engenders both task and interpersonal conflict (Jehn, Northcraft, & Neale, 1997). Although the performance outcomes may end up being positive, perceptual measures may reflect members' disaffection associated with the interpersonal challenges of interacting with others bringing different priorities, perspectives, and ways of framing issues. These findings concur with those from prior research showing that group diversity makes developing shared goals and understanding more difficult and time consuming (Ancona & Caldwell, 1992; Maskill & Hodges, 2001). As noted previously, these dynamics may also reflect the human tendency to discount the views of others seen as different (Brewer & Kramer, 1985).

Contrary to the third hypothesis, intersectoral communication was unrelated to coalition processes. This may to some extent reflect the sample's lack of statistical power, as two of the three coefficients were approximately 0.50—on the same scales as all of the other measures in the analyses. Hence, we believe these data suggest that intersectoral communication may improve coalitions' social dynamics. Regardless, the associations between intersectoral advice-seeking and coalition *outcomes* were stronger than were the associations of intersectoral advice-seeking with coalition *processes*, suggesting that asking people from other sectors for advice may have more benefits for instrumental facets of coalition functioning than for interpersonal processes.

Finally, although sectoral diversity was not associated with coalition outcomes, higher levels of intersectoral communication were, in two of the three outcome measures. Coalitions with members who sought advice from more members in other sectors perceived higher levels of support by community leaders and organizations. In addition, coalitions with more intersectoral communication were perceived to have more advanced sustainability planning. These findings partially supported our fourth hypothesis that more between-group (i.e., intersectoral) communication enables coalitions to unleash the potential of multisectoral diversity, which was posited to improve the quality of decision making and shared commitment to resulting plans (Pettigrew & Tropp, 2006). The lack of associations between coalition sectoral diversity and outcomes, combined with the positive associations between intersectoral communication and outcomes, imply that building a representative and diverse coalition may not suffice. Instead, attention to intersectoral communication may be

necessary to achieve true collaboration (Foster-Fishman et al., 2001). Meetings, events, and social media can play a vital role in promoting such intersectoral communication.

Strengths, limitations, and future research

Our study has a number of strengths and some limitations. The study used well-developed measures of coalition processes and outcomes (Brown et al., 2012). However, perceptual measures of performance such as those used here may bias findings (van Dijk, van Engen, & van Knippenberg, 2012). To enhance rigor, future studies on coalitions should add more objective outcome measures.

Our data come from a sample of community prevention coalitions in Mexico. Almost all of them serve a single neighborhood area within a large urban area. The urbanism and Mexican culture may create distinctive conditions that do not generalize to other contexts. The community sectors represented are largely similar to those used by U.S. coalitions. However, the independent volunteer family and youth sectors (i.e. private citizens as opposed to representing organizations) were 37% of the coalition members, which is substantially higher than typical U.S. coalitions. For example, in a sample of 79 coalitions in Pennsylvania, 11% of coalition members were private citizens (Wells, Ward, Feinberg, & Alexander, 2008). In addition, the education sector was substantially less involved in the Mexican coalitions than they typically are in U.S. coalitions. It is difficult to know how these differences affect findings. That said, our results generally support those from prior U.S. research, suggesting that similar dynamics apply across countries. However, these findings most easily generalize to urban, Mexican coalitions. Future research on these topics in other coalition contexts is needed.

One study limitation is that we do not know how the sectoral representation of survey respondents differs from all coalition members. However, given that survey respondents are likely to be more active in the coalition, study findings should generalize to the sectors that are active within coalitions. These active sectors drive coalition outcomes, thus we do not believe this is a major limitation.

Because of the small sample, the complexity of the statistical model was limited. Future research with larger samples should explore individual linkages between sectoral diversity, demographic diversity, coalition process, intersectoral communication, and public health outcomes. Although 17 is seemingly a small sample, it is sizeable considering the demands of community intervention research. The costs associated with conducting large-scale community prevention projects tend to prohibit large samples. Seventeen communities is sufficient to represent a wide range of coalitions, as the descriptive statistics indicate.

The data are cross-sectional; examining how diversity changes over time and then affects intersectoral communication and coalition outcomes would allow stronger causal inferences about how these processes unfold over time. Supplementary analyses of the current data indicated that sectoral differences are associated with demographic characteristics (e.g., 85% of the independent volunteer family members were female). We did not control for this kind of individual demographic diversity.

Implications for prevention

Often coalition members feel a sense of urgency to quickly implement prevention programs addressing urgent needs. However, this push to move forward is in some tension with the current study, which implies that coalition leaders may need more time to build a collective identity and to create and solidify communication practices. Coalition leaders may be particularly well positioned to encourage members of different sectors to cooperate for two reasons. First, coalition leaders are likely to be knowledgeable about member capabilities and thus able to share information about how members from different sectors might help each other. Second, other coalition members are likely to have collaborated with the lead agencies and coordinating staff, developing trust with them (Luke et al., 2010). Hence, lead agencies should be generally well positioned to facilitate new and deepening ties between other members. Another way of overcoming an imbalance toward disproportionate communication within certain sectors is intentionally distributing decision making across different sectors, which may build shared trust (Brown et al., 2013; Jones, 2004). In general, participatory decision making may also build coalitions' capacity for intersectoral cooperation (Johns, 2010).

Conclusion

This study is among the very few to explore directly the impact on both coalition processes and outcomes of the increasingly common expectation that community coalitions will include representatives from multiple sectors (Hays et al., 2000). Findings from this study fit those from prior research indicating that sectoral diversity may undermine coalition processes (Maskill & Hodges, 2001). However, our results also imply that more communication between sectors within coalitions may facilitate more robust community support and sustainability planning. Given the time-limited nature of most funding for community coalitions, leadership investment in building communication between members of different sectors may pay off through more sustainable systems change and health outcomes. Enhancing communication across diverse partners may more generally be an effective strategy for managing the challenges of diversity while capitalizing on its strengths to promote prevention program and policy implementation.

Acknowledgments

This research was supported by a grant from the U.S. Embassy in Mexico. Additionally, this study was supported in part by the U.S. National Cancer Institute (NCI) through a Community Networks Program Center grant, U54 CA153505. Findings and recommendations herein are not official statements of the U.S. Embassy or the NCI. We are grateful for the time contributed by the many coalition members who participated in this study. We also acknowledge the leadership of Rebeca Ramos, Nora Gallegos, and Apolonia Hernandez of the Alliance of Border Collaboratives, without whom this research would not have been possible. We thank Karen Phillips for her scientific review and editorial assistance with the manuscript.

Compliance with Ethical Standards

Funding: This research was supported by a grant from the U.S. Embassy in Mexico. Additionally, this study was supported in part by the U.S. National Cancer Institute (NCI) through a Community Networks Program Center grant, U54 CA153505. Findings and recommendations herein are not official statements of the U.S. Embassy or the NCI.

References

- Ancona DG, Caldwell DF. Demography and design: Predictors of new product team performance. *Organization Science*. 1992; 3:321–341.
- Breslow, JM. The Staggering Death Toll of Mexico's Drug War. *Frontline*. 2015. Retrieved from <http://www.pbs.org/wgbh/frontline/article/the-staggering-death-toll-of-mexicos-drug-war/>
- Brewer MB, Kramer RM. The psychology of intergroup attitudes and behavior. *Annual Review of Psychology*. 1985; 36:219–243.
- Brown LD, Alter TR, Brown LG, Corbin MA, Flaherty-Craig C, McPhail LG, Weaver ME. Rural Embedded Assistants for Community Health (REACH) Network: First-person accounts in a community-university partnership. *American Journal of Community Psychology*. 2013; 51(1–2): 206–216. DOI: 10.1007/s10464-012-9515-9 [PubMed: 22547002]
- Brown LD, Chilinski S, Ramos R, Gallegos N, Feinberg ME. Community prevention coalition context and capacity assessment: Comparing the United States and Mexico. *Health Education & Behavior*. 2016; 43:145–155. DOI: 10.1177/1090198115596165 [PubMed: 26205249]
- Brown LD, Feinberg ME, Greenberg MT. Determinants of community coalition ability to support evidence-based programs. *Prevention Science*. 2010; 11:287–297. DOI: 10.1007/s11121-010-0173-6 [PubMed: 20352332]
- Brown LD, Feinberg ME, Greenberg MT. Measuring coalition functioning: Refining constructs through factor analysis. *Health Education & Behavior*. 2012; 39:486–497. DOI: 10.1177/1090198111419655 [PubMed: 22193112]
- Brown LD, Feinberg ME, Shapiro VB, Greenberg MT. Reciprocal relations between coalition characteristics and the provision of implementation support. *Prevention Science*. 2015; 16:101–109. DOI: 10.1007/s11121-013-0447-x [PubMed: 24323363]
- Brown LD, Redelfs AH, Taylor TJ, Messer RL. Comparing the functioning of youth and adult partnerships for health promotion. *American Journal of Community Psychology*. 2015; 56:25–35. DOI: 10.1007/s10464-015-9730-2 [PubMed: 26066568]
- Butterfoss FD. Process evaluation for community participation. *Annual Review of Public Health*. 2006; 27:323–340.
- Chen, X., Ender, P., Mitchell, M., Wells, C. Regression with SAS. 2003. Retrieved from <http://www.ats.ucla.edu/stat/sas/webbooks/reg/default.htm>
- Chinman M, Hunter SB, Ebener P, Paddock SM, Stillman L, Imm P, Wandersman A. The getting to outcomes demonstration and evaluation: An illustration of the prevention support system. *American Journal of Community Psychology*. 2008; 41:206–224. DOI: 10.1007/s10464-008-9163-2 [PubMed: 18278551]
- De Leeuw, J., Meijer, E., editors. *Handbook of Multilevel Analysis*. New York: Springer; 2008.
- Feinberg ME, Jones D, Greenberg MT, Osgood DW, Bontempo D. Effects of the Communities That Care model in Pennsylvania on change in adolescent risk and problem behaviors. *Prevention Science*. 2010; 11:163–171. [PubMed: 20020209]
- Floyd LJ, Latimer WW, Vasquez M, O'Brien M. Substance use among school-based youths in Northern Mexico. *The American Journal on Addictions*. 2005; 14:464–470. DOI: 10.1080/10550490500247164 [PubMed: 16257883]
- Foster-Fishman PG, Berkowitz SL, Lounsbury DW, Jacobson S, Allen NA. Building collaborative capacity in community coalitions: A review and integrative framework. *American Journal of Community Psychology*. 2001; 29:241–261. [PubMed: 11446279]
- Frieden TR. Six components necessary for effective public health program implementation. *American Journal of Public Health*. 2014; 104:17–22. [PubMed: 24228653]
- Geneau R, Legowski B, Stachenko S. An intersectoral network for chronic disease prevention: the case of the Alberta Healthy Living Network. *Chronic Diseases in Canada*. 2009; 29:153–161. [PubMed: 19804679]
- Gruenfeld DH, Mannix EA, Williams KY, Neale MA. Group composition and decision making: How member familiarity and information distribution affect process and performance. *Organizational Behavior and Human Decision Processes*. 1996; 67:1–15.

- Hackman, JR. The design of work teams. In: Lorsch, JW., editor. Handbook of organizational behavior. Englewood Cliffs, NJ: Prentice-Hall; 1987. p. 315-342.
- Hawkins JD, Catalano RF, Arthur MW, Egan E, Brown EC, Abbott RD, Murray DM. Testing communities that care: The rationale, design and behavioral baseline equivalence of the community youth development study. *Prevention Science*. 2008; 9:178–190. [PubMed: 18516681]
- Hawkins JD, Oesterle S, Brown EC, Arthur MW, Abbott RD, Fagan AA, Catalano RF. Results of a type 2 translational research trial to prevent adolescent drug use and delinquency: A test of Communities That Care. *Archives of Pediatric and Adolescent Medicine*. 2009; 163:789–798.
- Hays CE, Hays SP, DeVille JO, Mulhall PF. Capacity for effectiveness: The relationship between coalition structure and community impact. *Evaluation and Program Planning*. 2000; 23:373–379. DOI: 10.1016/s0149-7189(00)00026-4
- Heinle, K., Ferreira, OR., Shirk, DA. Drug violence in Mexico: Data and analysis through 2015. San Diego, CA: Justice in Mexico, University of San Diego; 2016.
- Hien LTT, Takano T, Seino K, Ohnishi M, Nakamura K. Effectiveness of a capacity-building program for community leaders in a healthy living environment: a randomized community-based intervention in rural Vietnam. *Health Promotion International*. 2008; 23:354–364. [PubMed: 18957490]
- Horwitz SK, Horwitz IB. The effects of team diversity on team outcomes: A meta-analytic review of team demography. *Journal of Management*. 2007; 33:987–1015.
- Huberman, BA., Gance, NS. Diversity and collective action. In: Haken, H., Mikhailov, A., editors. *Interdisciplinary approaches to nonlinear complex systems*. New York: Springer; 1993. p. 44-64.
- INEGI. Mexico en cifras: Información nacional, pro entidad federativa y municipios. 2010. Retrieved from <http://www3.inegi.org.mx/sistemas/mexicocifras/default.aspx?e=08>
- James LR, Demare RG, Wolf G. RWG: An assessment of within-group interrater agreement. *Journal of Applied Psychology*. 1993; 78:306–309.
- Jehn, K., Northcraft, G., Neale, M. Opening Pandora's Box: A field study of diversity, conflict, and performance in Workgroups (Working Paper). Philadelphia, PA: Wharton School; 1997.
- Johns S. Early childhood service development and intersectoral collaboration in rural Australia. *Australian Journal of Primary Health*. 2010; 16:40–46. [PubMed: 21133297]
- Jones EC. Wealth-based trust and the development of collective action. *World Development*. 2004; 32:691–711.
- Kegler MC, Swan DW. An initial attempt at operationalizing and testing the community coalition action theory. *Health Education & Behavior*. 2011; 38:261–270. DOI: 10.1177/1090198110372875 [PubMed: 21393621]
- Li C. Top management team diversity in fostering organizational ambidexterity: Examining TMT integration mechanisms. *Innovation: Management, Policy & Practice*. 2014; 16:303–322.
- Luke DA, Harris JK, Shelton S, Allen P, Carothers BJ, Mueller NB. Systems analysis of collaboration in 5 national tobacco control networks. *American Journal of Public Health*. 2010; 100:1290–1297. [PubMed: 20466950]
- Maas CJM, Hox JJ. Sufficient sample sizes for multilevel modeling. *Methodology: European Journal of Research Methods for the Behavioral & Social Sciences*. 2005; 1:85–91.
- Malizia EE, Ke S. The influence of economic diversity on unemployment and stability. *Journal of Regional Science*. 1993; 33:221–235.
- Maskill, C., Hodges, I. Intersectoral initiatives for improving the health of local communities: A literature review. Ministry of Health; 2001.
- Medina-Mora, ME., Villatoro-Velázquez, JA., Fleiz-Bautista, C., Téllez-Rojo, MM., Mendoza-Alvarado, LR., Romero-Martínez, M., Guisa-Cruz, V. Encuesta nacional de Adicciones 2011: Reporte de alcohol. Mexico City: Instituto Nacional de Psiquiatría Ramón de la Fuente Muñiz; Instituto Nacional de Salud Pública Secretaría de Salud; 2012.
- Nowell B. Profiling capacity for coordination and systems change: The relative contribution of stakeholder relationships in interorganizational collaboratives. *American Journal of Community Psychology*. 2009; 44:196–212. DOI: 10.1007/s10464-009-9276-2 [PubMed: 19902348]
- Office of National Drug Control Policy. National Drug Control Strategy. Washington, DC: Office of National Drug Control Policy; 2015.

- Orwin RG, Edwards JM, Buchanan RM, Flewelling RL, Landy AL. Data-driven decision making in the prevention of substance-related harm: Results from the Strategic Prevention Framework State Incentive Grant Program. *Contemporary Drug Problems: An Interdisciplinary Quarterly*. 2012; 39:73–106.
- Ostrom E, Burger J, Field CB, Norgaard RB, Policansky D. Revisiting the commons: Local lessons, global challenges. *Science*. 1999; 284:278–282. [PubMed: 10195886]
- Pettigrew TF, Tropp LR. A meta-analytic test of intergroup contact theory. *Journal of Personality and Social Psychology*. 2006; 90:751. [PubMed: 16737372]
- Ramanadhan S, Salhi C, Achille E, Baril N, D'Entremont K, Grullon M, Savage C. Addressing cancer disparities via community network mobilization and intersectoral partnerships: A social network analysis. *PloS one*. 2012; 7:e32130. [PubMed: 22384156]
- Reynales-Shigematsu, LM., Guerrero-López, CM., Lazcano-Ponce, E., Villatoro-Velázquez, JA., Medina-Mora, ME., Fleiz-Bautista, C., Guisa-Cruz, V. Encuesta nacional de adicciones 2011: Reporte de tabaco. Mexico City: Instituto Nacional de Psiquiatría Ramón de la Fuente Muñiz; Instituto Nacional de Salud Pública Secretaría de Salud; 2012.
- Robert Wood Johnson Foundation. Removing barriers to better health. 2016. Retrieved from <https://www.rwjf.org/>
- Spoth R, Greenberg M, Bierman K, Redmond C. PROSPER community-university partnership model for public education systems: Capacity-building for evidence-based, competence-building prevention. *Prevention Science*. 2004; 5:31–39. DOI: 10.1023/B:PREV.0000013979.52796.8b [PubMed: 15058910]
- Staw C, Nemeth C. The tradeoffs of social control and innovation in groups and organizations. *Advances in Experimental Social Psychology*. 1989; 22:175–210.
- Tabachnick, BG., Fidell, LS. Using multivariate statistics. 6th. Needham Heights, MA: Pearson; 2013.
- van Dijk H, van Engen ML, van Knippenberg D. Defying conventional wisdom: A meta-analytical examination of the differences between demographic and job-related diversity relationships with performance. *Organizational Behavior and Human Decision Processes*. 2012; 119:38–53.
- Villatoro-Velázquez, J., Medina-Mora, M., Fleiz-Bautista, C., Téllez-Rojo, M., Mendoza-Alvarado, L., Romero-Martínez, M., Guisa-Cruz, V. Encuesta nacional de adicciones 2011: Reporte de drogas. Mexico City: Instituto Nacional de Psiquiatría Ramón de la Fuente Muñiz / Secretaría de Salud; 2012.
- Wells R, Ward AJ, Feinberg M, Alexander JA. What motivates people to participate more in community-based coalitions? *American Journal of Community Psychology*. 2008; 42(1–2):94–104. [PubMed: 18594964]
- Yang E, Foster Fishman P, Collins C, Ahn S. Testing a comprehensive community problem-solving framework for community coalitions. *Journal of Community Psychology*. 2012; 40:681–698. DOI: 10.1002/jcop.20526

Table 1

Coalitions' descriptive statistics.

Variable	Mean	Standard Deviation	Minimum	Maximum
Coalition age (in years)	1.8	1.0	1	3
Coalition size (number of members)	18.6	6.8	10	34
<i>Number of sector representatives</i>				
Independent volunteer family members	3.5	3.3	0	11
Health	2.7	2.6	0	9
Nongovernmental substance use organizations	1.7	1.0	1	5
Independent volunteer youth	1.2	1.6	0	5
Business	0.7	0.9	0	3
Religion	0.7	1.0	0	3
Civic or volunteer groups	0.7	0.8	0	2
Criminal justice	0.4	0.6	0	2
Other governmental agencies	0.3	0.6	0	2
Civic organizations for youth	0.2	0.6	0	2
Parents' associations	0.2	0.5	0	2
Art and culture	0.2	0.4	0	1
Education	0.1	0.2	0	1
Intersectoral diversity (entropy)	1.5	0.3	0.7	2.1
Intersectoral communication	2.2	0.3	1.7	2.6
Cohesion	6.0	0.6	4.8	6.8
Communication	6.0	0.6	4.9	6.9
Efficiency	6.1	0.6	4.9	6.9
Community support	5.3	0.8	3.1	6.3
Community improvement	5.4	0.5	4.6	6.3
Sustainability planning	5.4	0.6	4.0	6.3

Multiple regression models of perceived coalition process and outcomes with sectoral diversity and intersectoral communication as key predictors

Table 2

Dependent Variable	Sectoral diversity		Intersectoral communication		Coalition size		Coalition age	
	B	95% CI	B	95% CI	B	95% CI	B	95% CI
<i>Processes</i>								
Cohesion	-0.63 [†]	-2.40 to 0.16	0.46	-0.59 to 2.55	0.40	-0.32 to 1.04	0.22	-0.28 to 0.55
Communication	-0.70*	-2.24 to -0.19	-0.06	-1.39 to 1.13	0.04	-0.51 to 0.58	0.72*	0.09 to 0.76
Efficiency	-0.67 [†]	-2.20 to 0.02	0.48	-0.42 to 2.30	0.33	-0.31 to 0.87	0.04	-0.34 to 0.39
<i>Outcomes</i>								
Community support	-0.07	-0.54 to 0.43	0.79*	0.11 to 1.29	0.45	-0.08 to 0.43	0.03	-0.15 to 0.17
Community improvement	-0.04	-0.92 to 0.82	-0.02	-1.10 to 1.04	0.11	-0.38 to 0.55	0.74*	0.08 to 0.66
Sustainability planning	-0.01	-1.06 to 1.03	0.66*	0.10 to 2.67	0.22	-0.36 to 0.75	0.25	-0.19 to 0.49

Note:

[†] p < .10;

* p < .05