

## The “Madre Sana” Data Set

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### Abstract

The Madre Sana data set was compiled as a part of a community-engaged health promotion research study. The data set includes 150 actor variables plus multiplex edges between study participants (N=116 pregnant women) at two time points.

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### Notes

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### 1. Overview

The Madre Sana data set was collected as a part of a community-engaged health promotion research project entitled Madre Sana (Healthy Mother). The project was conducted in 2011 in a mid-sized city in the southeastern United States, in conjunction with that city’s department of parks and recreation. Participants in the Madre Sana program were expecting mothers, the majority of whom were Latina. This research study was designed with two aims: (1) To assess the feasibility and initial efficacy of a skills-based cognitive-behavioral intervention to prevent excessive gestational weight gain in a hard-to-reach, high-risk population; and (2) To intentionally monitor whether new supportive social relations developed among treatment group members, and to assess the potential effectiveness of such relations in further reducing excessive gestational weight gain. Participants were randomized to one of two groups: All participants

received the control intervention; the treatment group also received the healthy lifestyle intervention. The intervention met weekly for 12 weeks in small, consistent groups of 8-10 women to learn to achieve healthy weight gain during pregnancy, and, were also engaged through a number of activities designed to build supportive social relations among participants. The control group members were not introduced to other study members. The study details are published elsewhere (Gesell, Katula, Strickland, & Vitolins, 2015). The intervention showed efficacy in preventing excessive weight gain during pregnancy in normal weight women (47.1 % usual care vs. 6.7 % intervention; absolute difference 40.4 %;  $p = .036$ ) (Gesell, Katula, Strickland, & Vitolins, 2015). We found that the intervention activities had a significant and positive effect on the likelihood of tie formation, however, in this particular timeframe we did not detect any additional effect of such relations on gestational weight gain (Tesdahl & Gesell, In Press). As the sum

of intervention attendances increased among dyads, the likelihood of their forming a tie increased proportionally with the number of sessions attended ( $\beta=0.09$ ,  $p<.001$ ). For example, a pair of participants in this study who both attended four intervention sessions, had a 71.6% greater likelihood of forming a new supportive tie ( $OR=1.716$ ,  $p<.001$ ) relative to pairs where each member attended just one session. The effect for session attendance was linear and the same for high attenders as well as low attenders.

## 2. Data Collection

Data collection occurred between January and April of 2011. Six inclusion criteria were used in recruiting participants to this study. Enrolled participants were: (1) between 10 and 28 weeks pregnant, (2) 16 years of age or older, (3) receiving prenatal care, (4) a fluent speaker of either Spanish or English, (5) expecting to remain in the geographic area of the study for the remainder of their pregnancy, and (6) willing to release medical chart information for the purposes of the study. Participants were randomly assigned to either the control or treatment group, with randomization stratified by pre-pregnancy body mass index categories (under-weight, normal weight, over-weight, obese) as indicated by previous research (IOM 2009). The study was approved by the Institutional Review Boards at Vanderbilt University Medical Center and Wake Forest School of Medicine and registered on ClinicalTrials.gov.

Sociometric data were collected from all participants (both the control and treatment groups) in two waves by bilingual, trained study staff via interview in participants’ homes, at Week 6 (Wave 1\_edges) and Week 12 (Wave 2\_edges). A total of 116 women (57 in the control group, 59 in the treatment group) completed at least one wave of data collection. Among all 116 participants, the mean number of ties was 1.72 ( $sd = 2.27$ ), yielding an overall network density of 0.7%. Among treatment group participants, the mean number of ties during the study was 3.56 ( $sd = 2.11$ ), yielding an overall network density of 2.1%. Respondents were asked to freely recall the names of alters (“other women in the Madre Sana program”) to whom they had ties. Respondents were first asked to list the other women in the program they knew by name: (“We are studying how social relationships affect our health. These next questions will be about relationships you may have with other women in the Madre Sana program. We do not expect you to have made new friendships but if you did, we would like to know. Who do you know in the Madre Sana program? What are their names?”); all respondents were allowed to name alters from both the treatment and

control groups. The data collection sheet allowed for up to 15 names to be listed. After respondents named alters, they were shown pictures of the alters to confirm the person she had in mind (to avoid confusion with common names and nicknames). This was not aided recall. This process ensured that we were reliably distinguishing individuals with the same name. Respondents were then asked a series of questions about the names generated: (a) “Of the people you listed, who is/are your closest friend/s?” (b) “Have you spoken with this person about any of these things: your pregnancy weight, eating healthy, getting enough sleep or exercise?” (c) “How often have you spoken to her about these things in the last month?” (d) “Did you know her before the Madre Sana program?” (e) “Are you related?”

In addition to sociometric data, respondents completed a questionnaire covering a variety of health status and behavior variables at all three waves. Actor-level survey data were collected in three waves by bilingual, trained study staff via interview in participants’ homes at baseline (variablename\_1), Week 6 (variablename\_2), and Week 12 (variablename\_3). Included are sets of variables capturing respondents’ day to day self-reported sleep, exercise habits, intentions for infant feeding, dietary patterns (fruit and vegetables, sweetened beverages, fat intake), total weight gain during pregnancy, general and pregnancy-specific medical conditions, and demographics (including food insecurity).

At baseline only, the Social Network Index was administered to all participants (both the control and treatment groups), to assess 12 types of relationships (Cohen, 1991; Cohen et al., 1997). These include relationships with a spouse, parents, parents-in-law, children, other close family members, close neighbors, friends, workmates, school mates, fellow volunteers (e.g., charity or community work), members of groups without religious affiliations (e.g., social, recreational, or professional), and members of religious groups. Items were added to capture members of an additional group relevant to the focal population: members of other groups (e.g., home visitors, coordinators of social services, social workers, therapists, friends of your husband/partner, friends you meet regularly at the park or bakery or market). One point was assigned for each type of relationship (possible score of 13) for which respondents indicated that they speak (in person or on the phone) to someone in that relationship at least once every 2 weeks. This tool was used to assess social network diversity. The total number of persons with whom they speak at least once every 2 weeks (number of network members) can also be assessed from these variables.

### 3. Data Files and Formats

The data for this study are stored in one MS Excel workbook, with individual worksheets containing actor-level data, two waves of sociometric data, and the additional relations ‘Knew before the study began’ and ‘Related as kin’, respectively. Sociometric data are stored as directed edgelists with the sender and receiver of each tie given in the first two columns, and tie variables denoted by subsequent column headers. Tie variables are binary, with the exception of ‘Q4\_Spoken\_To\_Preg\_Health\_Frequency’ which indicates the frequency of the ‘Q3\_Spoken\_to\_Pregnancy\_Health’ relation in each wave. Each worksheet containing edgelist data includes

self-loop ties with a value of zero to ensure that all actors in the study (including network isolates) are included within the analysis. These are denoted with gray shading. Study participants are identified by a three-digit numeric variable ‘ID’. As an added convenience, those persons included in the treatment group have ID numbers beginning with a 1, and those in the control group have ID number beginning with 2. All potentially identifying information on participants within this study have been removed to safeguard participant confidentiality.

A detailed codebook describing the data collection measures for actor-level and sociometric data has also been included. Data collection forms with the exact item wording (Spanish – English) are also provided.

### 4. Data Details

Response Rate	12-week study retention rate: 81% in treatment group, 82% in control group
Non-Respondent Bias	We did not observe differential attrition between study arms.
Theoretical Grouping	These data were collected as part of a group-level health behavior change intervention.
Publications Using This Data	<p>Tesdahl E &amp; Gesell SB (2015). Assessing the impact of de novo social ties within health intervention settings: New questions for health behavior intervention research. <i>Clinical and Translational Science</i>, 8(6):676-81. doi: 10.1111/cts.12345.</p> <p>Additional publications using other (not network) data collected in the trial:</p> <p>Gesell SB, Katula JA, Strickland C, &amp; Vitolins MZ (2015). Feasibility and initial efficacy evaluation of a community-based cognitive-behavioral lifestyle intervention to prevent excessive weight gain during pregnancy in Latina women. <i>Maternal and Child Health Journal</i>, 19(8):1842-52.</p> <p>Arinze NV, Karp SM, &amp; Gesell SB (2016). Evaluating provider advice and women’s beliefs on total weight gain during pregnancy. <i>Journal of Immigrant and Minority Health</i>, 18(1):282-6. doi: 10.1007/s10903-015-0162-8.</p>
Data Context	Small randomized controlled trial
Respondents	Pregnant women
Longitudinal	Yes, two time points 6 weeks apart
Temporality	High. Tesdahl & Gesell paper 2015 (In Press) showed ties were short lived
Analytical or Pedagogical Utility	<ul style="list-style-type: none"> <li>• Analysis of social network and self-reported health behavior data collected at the same time points</li> <li>• Analysis of development of new social ties within the context of a group intervention, including comparison of treatment and control group</li> <li>• Analysis of pre-existing ties between study participants</li> </ul>
Known Issues	Gesell, Katula, Strickland & Vitolins (2015) describes variable attendance at protocol-specified group sessions, which likely affected formation of new ties (the network is sparse), along with the recruitment and retention strategies used.

## References

- Arinze NV, Karp SM, Gesell SB (2015). Evaluating provider advice and women’s beliefs on total weight gain during pregnancy. *Journal of Immigrant and Minority Health*, 2015 Feb 4 [Epub ahead of print].
- Cohen, S (1991). Social supports and physical health: Symptoms, health behaviors, and infectious disease. In E. M. Cummings, A. L. Greene, & K. H. Karraker (Eds.), *Life-span developmental psychology: Perspectives on stress and coping* (pp. 213–234). Hillsdale, NJ, England: Lawrence Erlbaum Associates, Inc.
- Cohen S, Doyle WJ, Skoner DP, Rabin BS, Gwaltney JM. (1997). Social ties and susceptibility to the common cold. *JAMA*, 277(24), 1940–1944. <http://doi.org/10.1001/jama.1997.03540480040036>
- Gesell SB, Katula JA, Strickland C, Vitolins MZ (2015). Feasibility and Initial Efficacy Evaluation of a Community-Based Cognitive-Behavioral Lifestyle Intervention to Prevent Excessive Weight Gain During Pregnancy in Latina Women. *Maternal and Child Health Journal*, 1–11. <http://doi.org/10.1007/s10995-015-1698-x>
- Institute of Medicine (US) and National Research Council (US) Committee to Reexamine IOM Pregnancy Weight Guidelines (2009). *Weight Gain During Pregnancy: Reexamining the Guidelines*. National Academies Press.
- Tesdahl E & Gesell SB (2015). Assessing the impact of de novo social ties within health intervention settings: New questions for health behavior intervention research. *Clinical and Translational Science*, 8(6):676-81. doi: 10.1111/cts.12345.