Supplementary Materials

Method

Participants

Seventy-eight families completed the baseline assessment, and each participating family member (e.g., index child, mother, and additional family members) completed an assessment individually. Nine families (representing 43 individuals, including 38 alters and 5 non-respondent alters) were excluded from the present study due to missing generational position for the respondents or because fewer than three generations were represented. Families did not vary significantly across ancestry groups in terms of gender composition of the family network (F (2) = 0.83, $p > .05$), family income (F (2) = 1.27, $p > .05$), or generational structure based on parametric chi-square test (χ^2 (2) = 0.92, $p > .05$).

Procedure

Families were randomized to either the intervention or control condition upon entry into the study. Those in the intervention arm received the Families SHARE workbook (Koehly, Morris, Skapinsky, Goergen, & Ludden, 2015) along with a personalized pedigree representing the index child's FHH of type 2 diabetes, heart disease, breast and colorectal cancer. Wilson and colleagues provide additional information about the intervention protocol (Wilson et al., 2016).

Measures

Healthful eating encouragement. Health encouragement data was collected through a social network questionnaire conducted via telephone. Participants ("egos") were prompted to generate a list of family members ("alters"), based on specific biological family ties (e.g., mother, father, children, etc.), then given the opportunity to name other individuals (e.g., spouses, social kin). Using those named alters, respondents indicated with whom they exchanged

encouragement to eat fruits and vegetables and foods with fibre. In-ties (i.e., connections directed from alters to the respondent) were constructed between the respondent and alters who encouraged the respondent to eat either fruits and vegetables or fibre (or both). Out-ties (i.e., connections directed from the respondent to the alters) were constructed between the respondent and alters whom the respondent encouraged to eat either fruits and vegetables or fibre (or both). All reported ties were counted, even in cases of inconsistent informant reports. Type of encouragement was not specified and could have referred to family members' perceptions of encouragement exchange based on behavior, communication, or modeling (de Heer et al., 2016; Skapinsky et al., 2018).

There is a rich literature on network measurement that addresses issues related to recall bias (Brewer, 2000; Marsden, 2005). Because humans tend to use fairly compact heuristics to store and retrieve social information from memory (Brashears & Quintane, 2015), even in hard-to-interview populations of intravenous drug users for example, various social interactions can be accurately recalled between 74-94% of the time over a 30-day period (Bell et al., 2007). Although we do not have an exact assessment of the recall bias of the social interaction measured here (i.e., health encouragement among people who are already interpersonally close), we would not expect it to be worse than other more extreme cases (ibid) given that such health information has been shown to be durable in longitudinal studies (Wright & Pescosolido, 2002). Further, most of our network informants were women, who have much more accurate network recall than men (Brashears et al., 2016).

Ancestry. Anglo-Australian families included three generations of members who were all born in Australia and represented pre-World War II migration from predominantly English-speaking countries. Italian (post World War II migration) and Asian-Australian (immigration in

the 1970s and 1980s) families had at least one adult participant born in the respective country of origin.

Family Income. Family income was calculated by averaging the income of individuals in the family network. Possible values ranged from 1 to 9 (1 = $0-20,000; 2 = $20,001-35,000; 3 = $35,001-50,000; 4 = $50,001-75,000; 5 = $75,001-100,000; 6 = $100,001-125,000; 7 = $125,001-150,000; 8 = $150,001-200,000; 9 = $200,001 or more). Controlling for family income allows us to disentangle the independent associations of family ancestry and socioeconomic status with healthful eating encouragement exchanges within families.

Power Analysis

This is a low-powered test. Power equals 0.04 to detect an effect as small as our smallest significant effect in the interaction model with eight parameters and 68 degrees of freedom at the 0.05 alpha-level. The non-interaction model is only slightly more higher powered at 0.45 probability of correctly rejecting a null when it's false. To detect an effect size this small with a power of 0.80, we would need a sample size of 136 families, which is more than were recruited into the study (Hughes, Hutchinson, Prichard, Chapman, & Wilson, 2015; Wilson et al., 2016).

Analysis Strategy

All family networks have scores for each encouragement pattern and the choice of SUR enables us to model the covariance between outcomes directly by integrating each triadic structure outcome into the regression equation of the others. The nine intergenerational exchange patterns are not mutually exclusive, so to adjust for this, we control for the presence of each nested structure by netting them out in the analysis. Marcum and Koehly (2015) elaborate on this analysis strategy. For example, the sufficient statistic for the skipped-generation pattern is defined only for those triads that do not include a middle generation tie and while the

corresponding tie for intergenerational solidarity must include that tie (and all other ties). Since intergenerational solidarity subsumes other models, it is possible that it may represent a greater range of encouragement patterns than we have characterized here. Although intergenerational solidarity could be evidence for skipped or mediated patterns, those skipped or mediated patterns occur in the presence of all other patterns, rather than separately.

Results

Examination of the additional exchange patterns revealed ancestry differences in intergenerational encouragement of healthful eating behavior (Supplemental Table 1). A main effect of ancestry was observed for Asian-Australian families such that these families were more likely to exhibit needy generation and generational competition patterns, relative to Anglo-Australians. The next set of models assessing moderation by disease density revealed interaction effects for ancestry such that Italian-Australian families were more likely to exhibit the needy generation and downward mediated patterns. Family history of disease was not significantly associated with any of these encouragement patterns. Furthermore, disease density did not moderate the association between ancestry and any of the encouragement patterns.

To address the limited range of possible values for our measure of disease density, we conducted an additional analysis using a disease count measure which did not account for family size, but rather captured the total number of disease diagnoses within each family. The pattern of results for these models was consistent with those models using the original disease density measure. However, this additional analysis resulted in a poorer fitting system of models than the original models (McElroy R^2 goodness-of-fit statistic equaled 0.094 for Model 1 and 0.153 for Model 2), so we do not present these results here.

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