

The Importance of Older Family Members in Providing Social Resources and Promoting Cancer Screening in Families With a Hereditary Cancer Syndrome

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Purpose: This study evaluates the role of older family members as providers of social resources within familial network systems affected by an inherited cancer susceptibility syndrome. **Design and Methods:** Respondents who previously participated in a study that involved genetic counseling and testing for Lynch syndrome and their family network members were invited to participate in a onetime telephone interview about family communication. **Results:** A total of 206 respondents from 33 families identified 2,051 social relationships (dyads). Nineteen percent of the respondents and 25% of the network members were older (≥ 60 years). Younger respondents (≤ 59 years) were more likely to nominate older network members as providers of social resources than younger members: instrumental support (odds ratio [OR] = 1.68), emotional support (OR = 1.71), help in crisis situation (OR = 2.04), and dependability when needed (OR = 2.15). Compared with younger network members, older members were more likely to be listed as encouragers of colon cancer screening by both younger (OR = 3.40) and older respondents (OR = 1.90) independent of whether support exchange occurred in the relationship. **Implications:** Engaging older network members in health interventions to facilitate screening behaviors and emotional well-being of younger

members within families affected by inherited conditions may be beneficial. Findings can be used to empower older individuals about their important social roles in enhancing the well-being of their family members and to inform younger individuals about their older relatives' resourcefulness to facilitate positive social interactions.

Key Words: Social relationships, Social support, Cancer screening, Lynch syndrome, Communication

Introduction

Lynch syndrome (LS) is an inherited cancer susceptibility syndrome associated with mutations in mismatch repair genes (*MLH1*, *MSH2*, *MSH6*, and *PMS2*; Lynch & De la Chapelle, 2003). The lifetime risk of developing associated cancers such as colorectal, endometrial, ovarian, small intestine, pancreatic, and brain is high among mutation carriers, ranging from 47% to 85% if no preventive actions are taken (Lindor et al., 2006). It is estimated that up to 5% of all colorectal cancer cases may be due to LS (Aaltonen et al., 1994). The identification of a mutation within a family allows other members to consider genetic testing to determine if

they carry the disease causing mutation and thus need to engage in preventive behaviors (Winawer et al., 2003). Participating in colonoscopy screening at an early age (20–25 years) and frequently (every 1–2 years) can lead to a dramatic reduction in colorectal cancer morbidity and mortality among those suspected or known to have LS (Vasen et al., 2007) because precancerous polyps can be detected and removed through colonoscopy (Jarvinen et al., 2000). However, the identification of a mutation can also have undesirable impacts on family members. Because of the inherited nature of the illness, remaining biological family members are at increased risk for developing the associated conditions, potentially impacting their psychological well-being (Meiser, 2005). In addition, because multiple family members are affected by the condition, it is often necessary to coordinate care and support within families, which can lead to additional strain on family systems.

Characteristics of the familial social environment and the extent to which social resources are exchanged have been shown to influence how individuals address health concerns and conditions (Berkman & Glass, 2000), particularly for inherited conditions (Rolland & Williams, 2005). A positive social environment within the family (high cohesion and low conflict among members) was associated with improvement in psychological well-being of individuals in families affected by LS (Ashida et al., 2009). In terms of social resource exchange, the provision of emotional support helped to facilitate the psychological well-being of members in families affected by hereditary breast and ovarian cancer syndromes (HBOC; Hughes et al., 2002; Koehly et al., 2008). The exchange of informational support can facilitate engagement in primary prevention (e.g., informing about preventive behaviors) and secondary prevention (e.g., informing about screening for early detection) strategies among family members (Christophe, Vennin, Corbeil, Adenis, & Reich, 2009). Social influence among family members, specifically encouragement to screen, has also been shown to motivate individuals to engage in colon cancer screening within families affected by LS (Ersig, Williams, Hadley, & Koehly, 2009). For individuals who develop cancer, tangible and emotional support from family members becomes essential through treatment and recovery processes.

When individuals appraise the risk of developing illnesses, it can lead them to engage in “problem-focused” (e.g., undergoing cancer screening) or “emotion-focused” coping (e.g., cognitive reframing;

Leventhal, Leventhal, & Cameron, 2001). In the context of family systems, problem-focused coping, found to be more adaptive in addressing chronic health conditions (Maes, Leventhal, & DeRidder, 1996), can be examined using a “communal coping” framework. This framework explains the processes through which a group of individuals with a common health threat develop cooperative efforts to address the threat (Affi, Hutchinson, & Krouse, 2006). According to this framework, family members first communicate about a shared stressor. As a result, family members may appraise the issue as their common health threat or problem and may develop cooperative actions to address this problem. For families affected by LS, coping can be effective if family members communicate about LS risks, appraise LS as a common health threat, and develop cooperative strategies to address it (e.g., provide social support and encourage screening; Lyons, Mickelson, Sullivan, & Coyne, 1998). This framework has been used to understand health behaviors among couples (Lewis et al., 2006) and to study adaptation among sisters from families affected by HBOC (Koehly et al., 2008). In this study, we use this framework to evaluate the extent to which constructs of communal coping (e.g., risk communication, social support, and influence) occur within families affected by LS.

According to the interdependence model of social influence and interpersonal communication, social influence can affect individuals’ health behaviors (Lewis, DeVellis, & Sleath, 2002). Family constitutes an influential social context in which members from different generations share mutual interests, experiences, and values. Family relationships have been targeted for health interventions, for example, to facilitate the well-being of older individuals by eliciting social support from younger family members (Silverstein & Bengtson, 1994) and to encourage older adults to undergo cancer screening by mobilizing their adult children (Bullock & McGraw, 2006). Among families affected by LS, it was shown that encouragement from family members may lead to participation in colonoscopy (Ersig et al., 2009). Given the tremendous benefits of colonoscopy in reducing morbidity and mortality, understanding the characteristics of the social relationships through which screening encouragement flows among these high-risk individuals is important so that such relationships can be capitalized upon in family-based interventions.

Numerous studies have looked at whether older individuals receive sufficient support or belong to

social networks that facilitate their well-being (Arthur, 2006; Hawkey & Cacioppo, 2007). However, less explored is the social role of older adults as providers of resources to their younger generation family members. Older generations tend to provide more affection (Giarrusso, Stallings, & Bengtson, 1995) and resources than younger generations within families (Baker, Silverstein, & Putney, 2008; Bengtson, 2001). One study reported a primary reason for multigenerational households as children needing support from their elderly parents rather than parents needing support from their adult children (Ward, Logan, & Spitze, 1992). Furthermore, social influence from older network members was significantly more important compared with the influence from younger members in motivating family members to engage in screening for cardiovascular disease and diabetes (Ashida, Wilkinson, & Koehly, 2010). Older generation family members are especially important in families affected by LS as they tend to know more of their family health history, information used to determine disease risk levels of other members (Goergen et al., 2010). They are also likely to have gained more psychological resources to cope with illness through their experiences (Baltes & Smith, 1990). Therefore, older individuals may be ideal targets in family-based interventions to facilitate the well-being of their family members through enhanced risk communication, support provision, and social influence to increase cancer surveillance.

The current study explores the social roles of older individuals (ages 60 years or older) in families affected by LS and evaluates whether social resources fundamental to communal coping processes (i.e., risk information, social support, social influence) are exchanged more within relationships that involve older network members compared with relationships between two younger members. More specifically, we evaluate whether older network members are more likely to be providers of various types of social resources compared with younger members. Because of the importance of colonoscopy screening among this population, we further evaluated the characteristics of social relationships (e.g., demographic composition, communication, support exchange) associated with screening encouragement to inform future practice that aims to promote communal coping processes.

Much of the previous research evaluated social roles from the perspective of older individuals themselves (Mendes de Leon et al., 1999; Seeman, Lusignolo, Albert, & Berkman, 2001). This study

moves beyond to examine older individuals' social roles as viewed by other network members using social network methodology. Evaluation of social roles in this manner will help us identify potential pathways through which health-related cognitions and behaviors of family members can be indirectly influenced by older relatives. Because evidence also supports the importance of older individuals being active in their social environment to maintain their own well-being (Glass, Seeman, Herzog, Kahn, & Berkman, 1995), such approaches are likely to help facilitate the well-being of not only younger family members but also older members as well.

Methods

Procedure

The Institutional Review Board of the National Human Genome Research Institute reviewed and approved the presented study (NHGRI #95-HG-0165). Verbal consent was obtained prior to participation. Respondents were recruited from an established cohort previously described (Hadley et al., 2003) that investigated the outcomes of genetic education, counseling, and optional genetic testing (1995 and 2006). Individuals with cancer who were suspected of having LS were recruited into the cohort. Those found to carry a LS-associated mutation were invited to recruit their first-degree biological relatives (at risk to inherit the mutation) to participate in the study. The current report is based on information from the Family Communication Study (FCS). Cohort participants were invited to participate in the FCS study and their family members who did not participate in the cohort study were recruited using a snowball sampling approach. This allowed for the inclusion of biological relatives (relatives at risk to inherit the family mutation receiving and declining genetic services and relatives not at risk to inherit the mutation) and nonbiological family members (spouses/partners, in-laws, adopted, and stepchildren). This broad recruitment of family members provided the greatest opportunity to study the social contexts surrounding these families. FCS participants completed a single telephone interview consisting of closed- and open-ended questions and received gift cards to nationwide retail stores for their participation. A total of 206 individuals from 33 families completed telephone interviews about their social network systems (family and friends) and the patterns of communication within their family (data collected between 2007 and 2010).

Measures

Social Networks and Relationships.—Respondents' social network members were enumerated by asking "When I say 'family,' who do you think of? These can be people who are biologically related to you (like your children), people who are related to you but not through biological ties (like your spouse/partner or in-laws), or people who you consider to be family (like very close friends or coworkers)." The number of uniquely enumerated individuals within a family reflected the social network size. Social relationships that involve *encouragement to screen* were identified by asking respondents to select network members "who [have] encouraged [the respondent] to have a screening test like a colonoscopy?" *Communication* relationships were identified by asking respondents to select members with whom they have "talked about genetic counseling and testing for LS." Five questions were used to identify the presence of social support within relationships: "which members of your family help you? [e.g., provide a meal, labor, ride to the doctor]" (instrumental support); "whom could you really count on to help you out in a crisis situation, even though they would have to go out of their way to do so?" (support in crisis situation); "which members of your family support you emotionally?" (emotional support); "whom can you really count on to be dependable when you need help?" (dependability); and "whose advice do you take?" (advice support).

Age Characteristics Between Respondents and Network Members (alters).—Respondents self-reported their age and also provided age information regarding each of the network members they enumerated. Age of the respondents was dichotomized to indicate whether each individual is 60 years of age or older (R_o) or 59 years or younger (R_y). Similarly, age of each network member (*alter*) was dichotomized to indicate whether s/he was 60 years or older (A_o) or 59 years or younger (A_y). Each relational dyad was categorized into one of four groups: a relationship between older respondent and younger alter ($R_o - A_y$), between younger respondent and older alter ($R_y - A_o$), between older respondent and older alter ($R_o - A_o$), and between younger respondent and younger alter ($R_y - A_y$), which served as a referent category.

The age 60 was selected as the cutoff because the importance of familial social roles is thought to

increase as other social roles like employment fade and individuals reallocate attention to their family (Nuegarten, Moore, & Lowe, 1968). An increasing number of Americans are choosing to retire early (Gustman & Steinmeier, 2001), with a spike in retirement occurring at age 62 (Blau, 2008). Additionally, colorectal cancer diagnosis before the age of 60 years indicates a familial risk. Individuals in families affected by LS have likely experienced associated cancers directly or indirectly through members of their own generation by this age. Because the importance of emotionally meaningful relationships (e.g., familial social ties) increases as individuals perceive time constraints due to mortality and serious illnesses (Carstensen, Fung, & Charles, 2003), this may be the age when individuals increasingly become concerned about the health of their family members. The chronological age composition of family relationships rather than generational differences was considered to assess the resourcefulness of individuals who may be available and capable to provide support resources.

Covariates.—Network member characteristic. In addition to age, respondents provided information on gender and kinship (e.g., friend, mother, cousin) regarding each enumerated alter. Dichotomous variables were created to indicate whether each alter is a significant other, biological family member, nonbiological family, or nonfamily network member of the respondent. Other demographic characteristics of the respondents (i.e., marital status, educational levels, employment status, health insurance status, cancer history) were not available for all participants in the FCS.

Social Network Dependence Structures.—Because multiple participating family members were included in the analyses, we constructed and controlled for dependence structures defined from exponential random graph models. These dependence structures included: density, instars, and outstars. *Density* controls for variability across families in the proportion of relationships characterized by screening encouragement, risk communications, or social support exchange. Because respondents may exhibit individual differences in their propensity to be encouraged, discuss genetic information, or receive social support resources (outstars) and respondents from the same family may engage the same people in these social processes (instars),

analyses controlled for these network structures. *Outstars* control for variability across respondents in the number of network members they report as encouragers, communication partners, or social support providers, whereas *instars* control for variability in the number of respondents who select the same alters as family encouragers, communicators, or social support providers (Anderson, Waserman, & Crouch, 1999).

Analyses

HLM 6.08 (Raudenbush, Bryk, & Congdon, 2007) was used to fit two-level logistic regression models using a random intercept to account for the nested nature of the data (relationships within families; Snijders, Spreen, & Zwaagstra, 1995). The Level 1 model considers dyadic characteristics of the relational outcome, and the Level 2 model considers family level characteristics; thus, all analyses were performed at the family level, rather than at the respondent level, in order to capture the structure of the family network system. The first set of analyses (seven models) evaluated whether relational dyads that involved older members (*Ro - Ay*, *Ry - Ao*, and *Ro - Ao*) were associated with each of the social relationship outcomes (presence of encouragement, communication, and five types of social support) significantly more compared with relational dyads composed of two younger members (*Ry - Ay*), which represented the referent group. The last model evaluated the associations between the main outcome of interest, presence of encouragement to screen among family members, and predictor variables, such as age composition and other relational exchanges (communication and social support variables). All models included, as Level 1 (dyad-level) covariates, compositional characteristics of the relational dyad (i.e., respondent gender, alter gender, and kinship relation), and the density, instars, and outstars, which control for relational dependencies within the data. Level 2 (family-level) covariates included each family's network size. Models were fitted using maximum pseudo-likelihood estimation; statistical significance of parameters was assessed using Wald statistics based on robust standard errors, using a Type I error rate of 0.05.

Results

There were 2,051 dyads enumerated by 206 respondents. The characteristics of the respondents

Table 1. Characteristics of the Respondents and Their Network Members

	Mean (SD)	Range
Respondent characteristics (N = 206)		
Social network size	9.95 (5.35)	2–36
Age	43.83 (14.64)	18–83
60 years or older	18.9%	
Female	59.7%	
Married ^a	68.9%	
High-school diploma or lower ^b	16.2%	
Vocational school/some college ^b	20.4%	
College degree ^b	33.1%	
Graduate degree ^b	30.3%	
Employed full time ^b	61.3%	
Have health insurance ^b	91.5%	
Have cancer history ^b	27.9%	
Risk level: have mutation	24.8%	
Risk level: no mutation	34.5%	
Risk level: at risk (not tested)	16.0%	
Risk level: not at risk	24.7%	
Alter characteristics (N = 2,051)		
Age	43.39 (20.87)	<1–94
60 years or older	24.9%	
Female	53.5%	
Risk level: have mutation	14.3%	
Risk level: no mutation	10.6%	
Risk level: at risk (not tested)	18.4%	
Risk level: not at risk	56.7%	
Spouse/significant others	8.1%	
Biological family	72.5%	
Nonbiological family	14.3%	
Nonfamily	5.0%	

Notes: ^aInformation available for 180 respondents.

^bInformation available for 142 respondents.

and their network members (alters) are provided in Table 1. On average, respondents listed 10 alters, ranging from 2 to 36. The majority of enumerated alters were biological (73%) and nonbiological (14%) family members followed by nonfamily members (5%). Nineteen percent of the respondents and 25% of alters were ages 60 years or older, respectively. Among the older alters, 71% were listed as biological kin, followed by nonbiological family (18%) and social kin/friends (11%).

Social Network Characteristics of the Respondents

The characteristics of the respondents' social networks are presented in Table 2. The majority of the relationships (64%) were identified to be between younger network members where both respondent and alter were younger than 60 years of age (*Ry - Ay*). Only 6% of the relationships were between older respondents and alters (*Ro - Ao*). The remaining relationships were between

Table 2. Characteristics of the Respondents' Social Networks

	Mean proportion (SD)
Age characteristics of the respondent–alter dyads	
Younger respondent – Younger alter ($R_y - A_y$)	63.7%
Younger respondent – Older alter ($R_y - A_o$)	18.8%
Older respondent – Younger alter ($R_o - A_y$)	11.4%
Older respondent – Older alter ($R_o - A_o$)	6.1%
Encouragement	
1. Alters who encouraged colon screening	22.7% (27.4)
Communication	
2. Alters to whom respondents told about genetic counseling and testing	59.2% (34.0)
Social support	
3. Instrumental support: alters who provide help (e.g., meal, labor, ride)	66.6% (31.3)
4. Support in crisis situation: alters who help in a crisis situation	63.9% (30.9)
5. Emotional support: alters who provide emotional support	65.3% (31.3)
6. Dependable: alters whom respondent can count on to be dependable when needed	53.5% (32.1)
7. Advice support: alters whose advice respondent takes	48.7% (35.3)

older and younger network members: 19% between younger respondent and older alter ($R_y - A_o$) and 11% between older respondent and younger alter ($R_o - A_y$). On average, respondents indicated that 23% of their alters encouraged them to undergo colon cancer screening. Respondents reported that they talked about genetic counseling and testing to 59% of the alters in their networks. Between 64% and 67% of the alters were identified as providers of various types of support (instrumental, emotional, and in crisis situation) and 54% and 49% were identified as alters who respondents can count on to be dependable or take advice from, respectively.

Age Characteristics of the Respondent–Alter Dyads and Exchange of Social Resources

Results of the seven hierarchical logistic regression models evaluating the associations between age characteristics of the respondent–alter dyads and each of the social relationships considered are presented in Table 3. Compared with the relationships between younger network members ($R_y - A_y$), respondents were more likely to be encouraged to undergo colon cancer screening within the relationships that involved older individuals: $R_y - A_o$ (odds ratio [OR] = 3.77), $R_o - A_y$ (OR = 1.80), and $R_o - A_o$ (OR = 2.09). In terms of communication, respondents were more likely to talk about

Table 3. Social Relationships and Age Characteristics of the Dyad ($N = 2,051$)

	$R_y - A_o$	$R_o - A_y$	$R_o - A_o$
	OR (95% CI)	OR (95% CI)	OR (95% CI)
Encouragement			
Who encouraged colon screening?	3.77*** (2.45–5.83)	1.80* (1.09–2.95)	2.09* (1.10–3.98)
Communication			
Who did you tell about genetic counseling and testing?	1.32* (1.02–1.71)	1.78* (1.27–2.49)	
Social support			
Instrumental support	1.68* (1.05–2.67)		
Support in crisis situation	2.04*** (1.57–2.66)		1.98* (1.03–3.82)
Emotional support	1.71*** (1.28–2.28)		
Dependable	2.15*** (1.44–3.22)		
Advice support	3.42*** (2.45–4.78)	2.35** (1.35–4.12)	

Notes: Reference category: Younger – Younger ($R_y - A_y$). Covariates: respondent gender, alter gender, relationship (biological family, significant others, nonfamily, and nonbiological family [reference]), instar, and outstar. CI = confidence interval; OR = odds ratio.

* $p < .05$. ** $p < .01$. *** $p < .001$.

Table 4. Factors Associated With Social Relationships That Involve Screening Encouragement (N = 2,051)

	OR (95% CI)
Age composition	
Ry – Ao	3.401*** (2.369–4.883)
Ro – Ay	1.242 (0.793–1.946)
Ro – Ao	1.904* (1.122–3.229)
Gender effects	
Respondent female	1.428* (1.064–1.918)
Alter female	1.985** (1.478–2.666)
Kinship tie	
Alter significant others	9.807*** (5.010–19.20)
Alter biological family	4.716*** (2.743–8.111)
Alter nonfamily	0.568 (0.181–1.775)
Communication and social support exchanges	
Communication	8.484*** (5.742–12.536)
Instrumental support	1.534** (1.062–2.215)
Support in crisis situation	2.195*** (1.473–3.272)
Advice support	1.904** (1.375–2.636)

Notes: Reference categories: Younger – Younger (Ry – Ay), alter nonbiological family. Covariates: network size (number of respondents and number of alters in family), instar, and outstar. CI = confidence interval; OR = odds ratio.
* $p < .05$. ** $p < .01$. *** $p < .001$.

genetic counseling and testing within relationships that involved older individuals: Ry – Ao (OR = 1.32) and Ro – Ay (OR = 1.78). Compared with younger alters, older alters were significantly more likely to be listed as providers of various types of social resources by younger respondents (Ry – Ao): instrumental support (OR = 1.68), help in crisis situation (OR = 2.04), emotional support (OR = 1.71), and dependability when needed (OR = 2.15). Social relationships between older respondents and alters (Ro – Ao) were more likely to involve support provision in a crisis situation compared with relationships between younger individuals (OR = 1.98). Finally, respondents were more likely to take advice from alters within relationships that involved older members compared with relationships between younger members: Ry – Ao (OR = 3.42) and Ro – Ay (OR = 2.35).

Factors Associated With Screening Encouragement

Both younger (Ry – Ao: OR = 3.40) and older (Ro – Ao: OR = 1.90) respondents were more likely to be encouraged to undergo colon cancer screening by older alters than by younger alters, independent of whether the relationship involved support exchanges (Table 4). Encouragement was also more likely to occur when the relationship involved communication about genetic testing and

counseling (OR = 8.48) and when relationships involved social support exchanges: instrumental (OR = 1.53), crisis situation (OR = 2.20), and take advice (OR = 1.90). Female alters were more likely to be listed as encouragers of colon cancer screening (OR = 1.99). In addition, alters who are significant others (OR = 9.81) or biological family members (OR = 4.72) were more likely to be listed as screening encouragers compared with those who are nonbiological family members.

Discussion

The results of this study showed an importance of older individuals as providers of social resources in familial network systems affected by LS. To our knowledge, this is the first study to evaluate the roles of older individuals as providers of social resources from the perspectives of other network members in families affected by a genetic illness. Older family members were consistently more likely to be listed as providers of health information, social support, and social influence especially by younger network members. Because social network members in the current study did not necessarily live in the same household as the respondents, our findings suggest the importance of older individuals in the context of extended family. This provides support to an earlier report that social resources frequently flow from older to younger generations within the family (Bengtson, 2001). Individuals gain experiences and develop expertise in the pragmatics of life situations as they age (Baltes & Smith, 1990). In families affected by HBOC, parents were shown to be important health information gatherers (Koehly et al., 2009). In families affected by LS, older members are more likely to know about this inherited condition and how to cope with the challenges associated with it. Thus, facilitating provision of social resources from older members may be especially beneficial for younger family members.

Our results showed that respondents were more likely to list their older family members than younger as screening encouragers independent of whether other support exchanges occurred in the relationship. A previous study showed that encouragement from older-generation family members, compared with same or younger generation, may be particularly important in motivating heart disease and diabetes screening participation (Ashida et al., 2010). Considering a previous report showing the importance of encouragement from family

members on colonoscopy participation within families affected by LS (Ersig et al., 2009), our findings suggest a likely benefit from targeting older family members as lay health advisors to facilitate communal coping processes and to increase colonoscopy participation within these families. Older family members were likely to be selected as members who are dependable and provide advice and emotional support. Thus, it is likely that social influence from them will be perceived as positive, allowing family members to develop cooperative actions and support each other.

The importance of social engagement in facilitating successful aging has been well recognized (Rowe & Kahn, 1998). Involving older individuals in health promotion activities to facilitate the well-being of the people they deeply care about, their family, may help enhance their self-concept or strengthen meaning in their lives. The findings of the current study can be used to inform and empower older individuals about their important social roles and how their family members may benefit from their actions. Older individuals may not always be aware that they are viewed by their family members as helpful and/or resourceful. At the same time, younger members can be informed of the resourcefulness of their older family members. Further research to determine the best ways to engage older individuals as well as their family members in such efforts will be beneficial.

The findings that older family members are more likely to provide social resources within the family suggest that older members may be especially vested in the health and well-being of their family members. They may be more able to provide social resources than younger members (Gilleard & Higgs, 2002) or more willing to set their own interests aside to help others (Baltes & Smith, 1990). In the current study, whether older members are more interested in the well-being of their family members compared with younger members was not directly assessed. Evaluating such differences in individuals' motivation to improve family members' health may be beneficial in developing future intergenerational interventions. It may be that older individuals are more aware of the importance of health in general through their experiences with illness. If that is the case, interventions aiming to mobilize older individuals to encourage healthy behaviors could be used in other disease contexts. Provision of family health history-based risk information for heart disease and diabetes and

receipt of encouragement from family members was shown to motivate individuals to improve dietary intake (Ashida, Wilkinson, & Koehly, *in press*). Older family members play a critical role in disseminating family health history to younger generations. Future studies may seek to understand roles of older network members as providers of social resources in families affected by other health conditions, including heart disease and diabetes, as a previous study showed an importance of social influence from older individuals in these contexts (Ashida et al., 2010).

It should be noted that, in the current study, the proportion of social network members who encouraged colon cancer screening was much smaller (23% of the network members) compared with members who provide other types of social resources, such as communication and social support (49%–67% of the members). This suggests a need to identify more network members who may be effective in motivating family members to engage in health-promoting behaviors. Because the number of older family members is rather small, about 25% of listed network members in this current study, it may become necessary to mobilize other network members to act as encouragers in some families. Our findings suggest that efforts to identify new screening encouragers may target social relationships that involve support exchanges, female members, and significant others or biological family members. Future research may seek to understand why the development of a particular and perhaps most desirable cooperative process within these families, encouragement to screen, occurred to a lesser extent compared with other cooperative processes such as exchange of support.

In the context of LS, family members believe that everyone (i.e., both biological and nonbiological family) should know about the presence of a LS causing mutation (Pentz et al., 2005). Because privacy regulations prevent health care professionals from disclosing genetic risk information to family members of patients identified to carry a mutation, information on risk and preventive strategies need to come from family members who undergo genetic testing. Concern about privacy may have also contributed to the smaller proportion of family members encouraging screening participation within families. Mutation carriers can be made aware that genetic information does not need to be disclosed in order to persuade their family members to engage in preventive strategies. Such family encouragement may be particularly

effective from family members who are perceived as supportive (e.g., older members).

The cross-sectional nature of the data limits our ability to evaluate the causal associations between encouragement and other interpersonal processes, such as communication and social support. Respondents were mostly Caucasian and upper middle class; thus, the findings are not likely to be generalized to other populations or individuals with different social and cultural backgrounds. Limited information exists regarding families affected by LS; thus, it is not known how representative these participating families are compared with all families affected by this illness. Findings may not be generalizable to families affected by other diseases. Furthermore, not everyone from each family system was interviewed, and those who decided not to participate may have different views about the communal coping processes examined in this report. However, we interviewed a large number of family members, an average of six respondents yielding information about an average of 36 network members per family, allowing us to obtain a considerably better representation of these familial social contexts compared with studies that interviewed only one or a few network members.

The findings of this study provide a basis for a potentially new way to approach health promotion and disease prevention efforts in families affected by a hereditary cancer syndrome—to mobilize older individuals who are able to provide valuable social resources to their family members. Future studies should explore strategies to identify the most effective ways to use social relationships to facilitate the health and well-being of all family members in the contexts of both rare and common diseases.

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