Published in final edited form as:

Patient Educ Couns. 2017 February ; 100(2): 250–258. doi:10.1016/j.pec.2016.09.001.

Family presence and participation during medical visits of heart failure patients: an analysis of survey and audiotaped communication data

Crystal W. Cené^{a,b}, Beth Haymore^b, Jeffrey P Laux^c, Feng-Chang Lin^c, Dana Carthron^d, Debra Roter^e, Lisa A. Cooper^f, Patricia P. Chang^g, Brian C. Jensen^g, Paula F. Miller^g, and Giselle Corbie-Smith^{a,h,i}

^aDepartment of Medicine, Division of General Internal Medicine, University of North Carolina at Chapel Hill, Chapel Hill School of Medicine, NC, USA

^bCecil G. Sheps Center for Health Services Research, University of North Carolina at Chapel Hill School of Medicine, Chapel Hill, NC, USA

^cNorth Carolina Translational & Clinical Sciences Institute, University of North Carolina at Chapel Hill School, Chapel Hill, NC, USA

^dSchool of Nursing, University of North Carolina at Greensboro, Greensboro, NC, USA

^eDepartment of Health Behavior and Society, Johns Hopkins University Bloomberg School of Public Health, Baltimore, MD, USA

^fDepartment of Medicine, Johns Hopkins University School of Medicine, Baltimore, MD, USA

^gDepartment of Medicine, Division of Cardiology, University of North Carolina at Chapel Hill School of Medicine, Chapel Hill, NC, USA

^hDepartment of Social Medicine, University of North Carolina at Chapel Hill School of Medicine, Chapel Hill, NC, USA

ⁱCenter for Health Equity Research, University of North Carolina at Chapel Hill School of Medicine, Chapel Hill, NC, USA

Abstract

Corresponding author at: Crystal W. Cené, MD, MPH Division of General Internal Medicine, 5034 Old Clinic Building, CB#7110, Chapel Hill, NC, USA, Telephone: (919) 966-2276 ext 224, Fax: (919) 966-2274, crystal_cene@med.unc.edu.

Publisher's Disclaimer: This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final citable form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

No authors have relevant conflicts of interest.

Author contributions

CWC designed the study, developed the analysis plan, and wrote the manuscript; BH helped design the study, helped with data collection, and reviewed/edited the manuscript; JL analyzed the data and reviewed/edited the manuscript; FL helped design the study and develop the analysis plan. DC assisted with data collection and reviewed/edited the manuscript; DR helped design the study, helped with the analysis plan, and reviewed/edited the manuscript; LC helped design the study and reviewed/edited the manuscript; PC helped with data collection and reviewed/edited the manuscript; BJ helped with data collection and reviewed/edited the manuscript, PM helped with data collection and reviewed/edited the manuscript; GC-S helped design the study and reviewed/edited the manuscript.

Objective—To describe the frequency, roles, and utility of family companion involvement in the care of patients with Heart Failure (HF) care and to examine the association between audiotaped patient, companion, and provider communication behaviors.

Methods—We collected survey data and audiotaped a single medical visit for 93 HF patients (36 brought a companion into the examination room) and their cardiology provider. Communication data was analyzed using the Roter Interaction Analysis System.

Results—There were 32% more positive rapport-building statements ($p<.01$) and almost three times as many social rapport-building statements ($p<0.01$) from patients and companions in accompanied visits versus unaccompanied patient visits. There were less psychosocial information giving statements in accompanied visits compared to unaccompanied patient visits ($p<0.01$.) Providers made 25% more biomedical information giving statements ($p=0.04$) and almost three times more social rapport-building statements ($p<0.01$) in accompanied visits. Providers asked fewer biomedical and psychosocial questions in accompanied versus unaccompanied visits. Providers made 16% fewer partnership-building statements in accompanied versus unaccompanied visits ($p=0.01$).

Conclusions—Our findings are mixed regarding the benefits of accompaniment for facilitating patient-provider communication based on survey and audiotaped data.

Practice Implications—Strategies to enhance engagement during visits, such as pre-visit question prompt lists, may be beneficial.

Keywords

Patient-provider communication; visit companions; family; social support; heart failure

Introduction

Effective patient-provider communication is essential for managing heart failure (HF) and other chronic illnesses. [1, 2] Family member presence in the examination room during visits can facilitate patient-provider communication and patient engagement in decision-making [3–5] and it may also influence the visit length. [5–8] On average, about 40% of adult patients are accompanied to medical visits by a family member. [6] According to Wolff and Roter's conceptual framework of family involvement in interpersonal health care processes, [6] patient, provider, and family factors influence the communication processes (i.e., relationship rapport, information exchange, decision-making) that occur during the medical visit and the quality of communication in triadic visits (i.e. patient, companion, and provider present) spans time and health care settings to influence patient outcomes.

Extant literature on the influence of visit companions (primarily family members) on communication processes during medical visits is mostly drawn from geriatric and oncology patient populations.[5] However, communication behaviors and the roles and influence of companions during the visit differs in different patient populations. HF patients tend to be older, have multiple comorbidities, complex treatment regimens, and a highly variable illness trajectory-factors that have important implications for family engagement in care. In our prior study, about 36% of HF patients reported being accompanied to most or every visit

by a family member. [9] Yet, no studies conducted exclusively in HF patients have examined how audiotaped communication behaviors and medical visit processes differ in accompanied versus unaccompanied visits. To address this gap, we sought to: 1) examine the association between audiotaped patient and provider communication behaviors in accompanied versus unaccompanied visits; 2) describe the frequency, roles, and perceived utility of family involvement in medical care from the patients' and companions' perspectives; and 3) describe providers' perspectives on companions' behaviors, influence, and perceived helpfulness during the visit.

Methods

We conducted a cross-sectional study in the adult cardiology outpatient clinic at the University of North Carolina at Chapel Hill School of Medicine, a large academic teaching institution. A trained research assistant (RA) administered the surveys to HF patients and companions immediately prior to a scheduled clinic visit. We audiotaped one visit per enrolled HF patient. In addition to a short socio-demographic questionnaire, providers also completed a post-visit survey for each enrolled patient.

Our study consisted of HF patients, companions who accompanied the patient into the examination room, and cardiology providers. Participants were identified as part of a recruitment screening process using a HF clinic registry and the Carolina Data Warehouse for Health (CDW-H) - a central repository containing clinical, research, and administrative data from over 3 million patient records of individuals who have received care in the UNC Health Care System. After initial screening, we compiled a list of potentially eligible participants and also reviewed daily clinic schedules and the electronic health record for additional potential participants. To identify patients who were "likely to be accompanied" (i.e. accompanied to most or every visit) we queried the patient's provider regarding how often the patient usually has a family member enter the examination room with them (none of the time, rarely, some visits, most visits, every visit). This method was used as the initial screen; actual accompaniment status was confirmed immediately before the visit.

Patients were potentially eligible if they were 21 to 85 years old; had a clinical diagnosis of HF (preserved or reduced ejection fraction) based on ICD-9 codes and confirmed by radiographic procedures, cardiac tests, or blood work; were currently taking a loop diuretic; and spoke English. Patients were excluded if they had significant cognitive or psychiatric impairment; could not perform activities of daily living; or resided in a nursing home or care facility. An RA approached patients at the time of a regularly scheduled medical visit, verified eligibility, and obtained informed consent. Family members, defined as "someone who is related in any way- biologically, legally, or emotionally," [10] were eligible if they were 21 years or older, spoke English, and would be present in the examination room at the time of the medical visit. Cardiology providers were eligible if they were an attending physician, nurse practitioner, physician assistant, or fellow who practiced at the UNC-CH cardiology clinic. The study was approved by the Institutional Review Board at UNC.

We used the CDW-H and/or participant self-report to obtain the following: age, gender, self-identified race (black vs. white), highest educational level, health literacy (assessed with a

single item question, “how confident are you with filling out forms by yourself”) [14] employment status, marital status, overall self-rated physical health (single item) [15] and mental health (single item) [16], New York Heart Association (NYHA) functional class, and ejection fraction (EF). NYHA class was assessed by asking the patient to describe how their heart condition affects them based on severity of symptoms (fatigue shortness of breath or chest pain) with usual physical activity: no difficulties (Class I), some difficulty (Class II), great difficulty (Class III), or symptoms present at rest (Class IV). [17] EF was assessed based on data from the most recent echocardiogram report. Providers were asked to provide an overall rating of the HF patient’s medical and social complexity using 2 separate questions, “how would you rate the (medical or social) complexity of this patient” (simple, straight forward, average, somewhat complex, very complex), based on questions from a prior publication. [18] Visits were deemed “accompanied” if a companion was present in the examination room during the visit. Companions who remained in the waiting area were excluded from this study since they were unlikely to directly influence communication during the visit.

We queried both patients and companions on family roles, utility, and influence on the medical visit using questions that had been developed and pilot tested by Schilling and colleagues (obtained with Dr. Shilling’s written permission) [11] and in our prior study. [9] We used single item survey questions to assess how often a family member accompanied the patient to provider visits, using a 5-point response options ranging from “never” to “all the time.” We also asked whether the same family member generally accompanies the patient to medical visits (yes/no). We asked how often family members communicated with health care provider via phone, email, or mail in the past year (none, 1–2 times, 3–4 times, >4 times), as well as the perceived helpfulness of having a family member communicate with the health care provider. Finally, we asked a series of questions to assess the perceived utility of having a family member help with: a) facilitating communication and information exchange between different health care providers; b) understanding and remembering treatment instructions when transitioning between different settings (e.g., hospital to home); c) accessing recommended health services; and d) identifying information or resources needed to make medical decisions. We dichotomized the original 5-point Likert response format for these questions as “useful” (very useful/fairly useful/useful) versus “not useful” (not that useful/not useful at all). We also asked providers to report on the companion’s influence on the medical encounter from a list of 7 items. Providers also indicated companions’ behaviors during the medical visit from a 9-item list (select all that apply) and rated the companion’s helpfulness during the visit (single item with a 5 point response format ranging from “very unhelpful” to “very helpful”).

We used the Roter Interaction Analysis System (RIAS) - a widely used coding system that is applied directly to audio or video recordings of medical visits without transcription- to analyze communication behaviors. [12] It has high levels of reliability and predictive validity. Each speaker statement is defined as a complete thought and assigned to one of 38 mutually exclusive and exhaustive codes by trained RIAS coders. In this study, we examined several summary categories of communication. (Table 1) For each category, we compare the frequency of statements contributed by the patient, companion, and health care provider. A patient directed statement or question to a companion is coded as a patient statement in the

appropriate communication category. Providers' statements to a companion are coded separately from providers' statements to the patient. We also examined patient-centered communication (i.e., patient centeredness)- a composite calculated by summing statements that encompass psychosocial and socio-emotional elements of communication divided by the sum of statements that reflect a more biomedical and disease focused perspective. A value greater than 1 denotes a more patient-centered encounter. Since the patient-centeredness ratio is a composite measure, we could miss conceptually important components of patient-centered communication by only looking at this composite. Therefore, we separately examined the following components of the patient-centeredness ratio: 1) patient activation and engagement- the sum of codes related to patient/companion's asking for service, asking for reassurance, asking for understanding, and checking for the provider's understanding; and 2) provider facilitation- the sum codes related to provider's asking for the patient/companion's opinion, checking for understanding, and cues of interest (e.g., "yes," "right," "go on"). These two components reflect "partnership building." We assessed two measures reflective of visit processes: 1) visit length (in minutes) [13, 14] comparing accompanied and unaccompanied visits; and 2) verbal activity, which reflects the total number of statements by a speaker (i.e., patient, companion, provider) divided by the total number of statements made by all participants during the visit. [15, 16]

A random 10% sample of audiotapes was double coded to establish inter-coder reliability. Using the RIAS, coding of the visits is done directly from the audiotapes; the audio-recordings are not first transcribed. Inter-coder reliability is assessed in terms of the congruence of identification and categorization of utterances. Correlation coefficients averaged .973 across provider categories and .951 for patient categories (categories with means > 1.0 per encounter). Reliability for the ratings of emotional tone was calculated as agreement within 1 scale point and these averaged 96.1% (range 81.8 – 100%) for both patient and provider.

Statistical Analyses

We performed analyses using SAS 9.2. (SAS Institute Inc., Cary, North Carolina) and R 3.0.0 (R Core Team, Vienna, Austria). [17] We calculated means and frequencies to describe the distribution of the data by patient accompaniment status (accompanied vs. unaccompanied) and for companions. We used t-tests and Mann-Whitney U-tests, respectively, for normally and non-normally distributed interval data. We used chi-squared tests to compare frequencies. For the audiotaped communication data, each patient visit was the unit of analysis.

We constructed a series of regression models to evaluate the association between accompaniment and categories of communication behaviors and between accompaniment and visit processes (i.e., visit length and verbal activity). We used quasi-Poisson regression models to analyze count responses. Relationships between counts are multiplicative not additive. Exponentiated regression coefficients ($\exp(\beta)$) from these models represent the multiplicative increase in the number of statements contributed by patients and companions together relative to unaccompanied patients or by providers in accompanied versus unaccompanied visits, for any given category of communication. We present the model's

mean number of statements for patients in unaccompanied visits, as well as statements for patients and companions separately in accompanied visits. In multivariate analyses, we adjusted for patient age, race, gender, educational level, overall self-rated health, health care provider, and visit length. As this is largely a descriptive study, we do not adjust our p-values for multiple comparisons. Sample size estimates for this study were powered to detect an effect size (Cohen's d) of 0.7 for the difference in $\log_{10}$ transformed patient-centered communication ratio between accompanied and unaccompanied visits.

We also augmented the above primary analysis with an analysis of percentage of statements in a particular category out of the total number of statements, using logistic regression models. We fit separate models for each speaker type and compared the percentages in accompanied versus unaccompanied visits. Because logistic regression models have access to more data than simply using the mean numbers of statements by virtue of their including the total number of statements in a given category in the denominator, these analyses tend to be more robust than the primary analysis which is based only on the numerator (i.e., the mean number of statements in a category).

RESULTS

Table 2 describes participant characteristics by accompaniment status. The mean age of our 93 patients was 60.7 years (range 25–84), 45% were female, and 34% were African American. Overall, 22% of patients reported “never/sometimes” being confident filling out forms (a proxy for health literacy). More accompanied patients were currently employed compared to unaccompanied patients (39% vs. 12%; $p<0.01$). Over half of the patients self-rated their physical health as poor/fair, while the majority reported good/excellent self-rated mental health. About half the patient sample had a NYHA functional class of II and 41% had an EF of $<40\%$. African Americans make up a smaller proportion of accompanied than unaccompanied patients (17% vs. 46%; $p=0.01$).

Thirty six visit companions (61% spouses; 14% adult children; and 14% other relatives) participated in the study. Their mean age was 55 years (range 34–80) and most were female. Nine percent of companions reported confidence in filling out forms as “never/sometimes.” Over half of the companions self-rated their physical health as very good/excellent. Six HF providers participated in the study (4 women and 2 men); 4 were cardiologists and 2 were cardiology nurse practitioners. The mean number of years in clinical practice for the providers was 9.5 years. On average, each provider saw 15.5 patients (range 9–25 patients).

Accompanied and unaccompanied visits were similar in length (23.1 versus 24.7 minutes; $p=0.44$). In accompanied visits, the verbal activity of patients and companions was 32% and 13%, respectively, and 55% for providers. In unaccompanied visits, verbal activity of patients was 43% and 56% for providers. These difference in verbal activity comparing patients in accompanied versus unaccompanied visits was statistically significant ($p=0.04$). We did not find differences in the median patient-centered communication ratio comparing accompanied versus unaccompanied visits in unadjusted [-0.07 ; $p=0.21$] or adjusted [-0.08 ; $p=0.23$] analyses.

Table 3 is a description of patients' and companions' perceptions of family roles, utility, and influence during visits. Most patients reported that the same companion generally accompanies them to their provider visits. There were significant differences by accompaniment status in perceived utility of having a family member help facilitate patient-provider communication, understand and remember treatment instructions, access recommended services, and identify information/resources. (Figure 1 and Table 3) and there was excellent agreement between patients and companions on the utility of family members helping with these behaviors. Out of 144 pairs of ratings (36 dyads by 4 questions), 141 agreed that family assistance was valuable. A higher percentage of accompanied (89%) than unaccompanied patients (61%) stated that it would be helpful to have a family member communicate with their health care provider ($p<0.01$).

Table 4 presents unadjusted and adjusted differences in mean number of statements and the percentage of statements (relative to all of the statements made) for each communication category by providers, patients, and companions in accompanied and unaccompanied visits. For each communication category, the absolute frequency of patient statements was lower in accompanied versus unaccompanied visits. Figure 2 presents this data graphically for the adjusted comparisons. There were significantly fewer biomedical and psychosocial questions asked by providers in accompanied versus unaccompanied visits ($p<0.01$ for both categories). There was a trend towards fewer psychosocial questions asked by patients and companions in accompanied visits than by patients in unaccompanied visits ($p=0.06$). Providers made 25% more biomedical information giving statements in accompanied versus unaccompanied visits ($p=0.03$). There were less psychosocial information giving statements by patients and companions in accompanied visits compared with patients in unaccompanied visits ($p<0.01$). There were 32% more positive rapport-building statements from patients and companions in accompanied visits than from unaccompanied patients in adjusted analyses ($p<0.01$). There was almost three times more social rapport-building statements from patients in accompanied visits compared to unaccompanied visits in both unadjusted ($\text{exp } \beta=2.83$; $p<0.01$) and adjusted analyses ($\text{exp } \beta=2.92$; $p<0.01$). In addition, providers engaged in more than twice the social rapport-building in accompanied versus unaccompanied visits in adjusted ($\text{exp } \beta=2.77$; $p<0.01$) analyses. Finally, providers made 16% fewer partnership-building statements (which is reflective of patient-centeredness) in accompanied compared to unaccompanied visits ($p<0.01$; Figure 2).

Table 5 displays the providers' reports of the companions' influence on the medical visit. Providers perceived companions to have the greatest influence on communication. Providers noted that the presence of a companion increased their satisfaction in most of accompanied visits. Table 6 shows the providers' reports of the companion's behaviors and helpfulness. Providers felt that companions were helpful/very in most visits and that the companions engaged in active behaviors that facilitated communication.

Discussion

This study yielded several key findings. First, accompaniment to outpatient cardiology visits among HF patients is common and persistent across provider visits (i.e. accompanied patients tend to be accompanied to all visits), as has been demonstrated previously. [5–7]

Second, companion presence is generally perceived as helpful for facilitating patient-provider communication and is associated with increased provider satisfaction. Third, the audiotaped communication data found providers made fewer partnership building statements, asked fewer biomedical and psychosocial questions, but gave more biomedical information in accompanied versus unaccompanied visits. Providers also engaged in more social rapport-building and trended towards more emotional rapport-building in accompanied visits. On the other hand, patients and companions in accompanied visits provided less psychosocial information and trended towards asking fewer psychosocial questions; however, they engaged in more positive and social rapport-building.

Our survey data which suggests that family presence during visits may be beneficial for facilitating patient-provider communication. Consistent with other studies [5, 11, 18], we found that companion presence increases provider satisfaction with the visit. Providers noted a high frequency of companions' engagement in "active behaviors" that are deemed helpful to patient-provider communication and a low frequency of engagement in "distractive behaviors," consistent with findings by Clayman and colleagues. [4] Findings from our audiotape data, however, are mixed. Similar to findings from a meta-analysis, [6] we found that providers engaged in more biomedical information giving when a companion was present. This may be appropriate given the complexity of HF care and noted deficits in HF knowledge by HF patients and family members.[19, 20] However, an alternate explanation may be that the presence of a companion facilitates providers' ability to enact the role that is be most comfortable to them; namely, focusing on the "technical" aspects of care (i.e. providing biomedical information), as seen in other studies.[6, 18]

Our finding that providers asked fewer biomedical and psychosocial questions in accompanied (versus unaccompanied) visits has at least two plausible explanations. Providers may fear that asking questions could lengthen the visit, particularly when a companion is present. Alternatively, providers may assume that companions will provide and/or supplement information not provided by the patients, thereby obviating the need for provider-driven questions. Moreover, due to the reciprocal nature of communication, providers' failure to ask psychosocial questions for whatever reason may explain our findings of less psychosocial information giving and a tendency towards less psychosocial question asking among patients and companions in accompanied visits versus patients in unaccompanied visits.

Our findings related to rapport-building are interesting. Our finding that providers engage in more social talk (e.g. chit chat) in accompanied (versus unaccompanied) visits could be positive or negative. Moreover, due to the reciprocal nature of communication, providers' failure to ask psychosocial questions for whatever reason (e.g. they didn't feel it would be appropriate to do so with a companion present), may make patients and companions less likely to voluntarily provide such information. At least one prior study has shown that patients are more satisfied when a greater proportion of the visit is spent chatting. [21] However, more social rapport-building could result in less exploration of patient concerns, particularly in a time-pressured clinical situation. Our findings which demonstrate that providers make more social and emotional rapport building statements, but less partnership building statements in accompanied (versus unaccompanied) visits suggests that providers

acknowledge and reciprocate the social and supportive communication role functions played by family members, yet they do not necessarily consider the family companion to be a member of the patient's health care "team."

We found that providers make fewer partnership-building statements in accompanied compared to unaccompanied visits; a finding that has been noted in at least one other study. [22] This finding may suggest that providers may not feel that they need to ask the patient's opinion or check for understanding when a companion is present because they assume that the companion will help facilitate the patient's understanding. This hypothesis is supported by our survey data on providers' perceptions of the behaviors exhibited by companions. Alternatively, this finding may suggest that the presence of a companion could divert attention away from the patient. However, it does not appear that companions actively detract from the visit given that companions in our sample did not make any negative rapport-building statements.

Based on audiotape data, we did not find that communication during accompanied visits was more patient-centered. This finding is consistent with those noted by Shields and colleagues [8] using a different measure of patient-centered communication. Wolff and colleagues, using the RIAS, found that the association between accompaniment and patient-centered communication was moderated by the patient's mental health status. [23]

We did not find any difference in visit length by accompaniment status, which is consistent with findings from a review by Laidsaar-Powell and colleagues [5] although inconsistent with findings from a meta-analysis. [6] Visit length structures the amount of time available for information exchange and medical decision-making. [24] Given concerns that the presence of companions may lengthen medical visits and interfere with clinic flow, [25] our results are reassuring. However, it is unclear whether longer visits are undesirable, given that they are correlated with more patient-centered communication behaviors, more participatory decision-making, and greater patient satisfaction.[21, 26–28]

Our finding of less verbal activity among patients in accompanied, versus unaccompanied, visits is similar to other studies. [6, 22, 29] Verbal activity is considered a proxy for participation and engagement in the care process. Taken together, our findings of less verbal activity by patients in accompanied (versus unaccompanied) visit but no difference in visit length by accompaniment status suggests that the verbal activity of the companion was offset by decreased verbal activity of the patient. These findings have positive and negative implications. They suggest that companions may usurp the patient's place in the visit and undermine patient autonomy and confidentiality. There may be cause for genuine concern in shorter visits when a companion is present that this will detract from the patients "talk time." [29] However, companions may also provide important supplemental information that the provider needs for clinical decision-making.

Our study has limitations. First, the data are cross-sectional so we cannot assess the directionality of the associations. Second, our study is observational and therefore subject to selection bias, as patients who choose to bring family members to their visits differ in meaningful ways from those who do not. Randomizing patients by accompaniment would be

an ideal study design; however, it is likely not feasible based on findings from another study which attempted to randomize patients to accompaniment or not. [8] About 40% of patients approached for that study declined because they did not want to change their usual pattern of accompaniment. Third, our findings may not be generalized to the wider population of HF patients since most patients in our sample had Class II–III HF severity and all were seen in an academic medical center. Last, frequencies of statements for each communication behavior are not necessarily indicative of the quality of the communication.

Conclusion

As the population continues to age and HF prevalence increases, the presence of companions in medical visits of HF patients will likely become more commonplace. Our study provides an important starting point for understanding patient and family engagement in the medical dialogue. These data provide insight into the design of interventions to enhance patient-companion-provider interactions, with the ultimate goal of improving HF outcomes.

Acknowledgments

Funding: Dr. Crystal Cené's work on this study was supported by the National Heart, Lung, and Blood Institute's (NHLBI) Patient-Oriented Mentored Career Development Award (K23HL107614). Dr. Laux is supported by the National Center for Advancing Translational Sciences (NCATS), National Institutes of Health, through grant award number UL1TR001111. Dr. Cooper is supported by a grant from the NHLBI (K24HL83113). Dr. Corbie-Smith is supported by a grant from the NHLBI (K24HL105493). The funders had no role in the design and conduct of the study; collection, management, analysis, and interpretation of the data; or preparation, review, or approval of the manuscript.

References

1. Fowler FJ Jr, Levin CA, Sepucha KR. Informing and involving patients to improve the quality of medical decisions. *Health affairs (Project Hope)*. 2011; 30(4):699–706. [PubMed: 21471491]
2. Committee on Quality of Health Care in America, I.o.M.. *Crossing the Quality Chasm: A New Health System for the 21st Century*. National Academy Press; Washington, DC: 2001.
3. Wolff JL, Roter DL. Hidden in plain sight: medical visit companions as a resource for vulnerable older adults. *Archives of Internal Medicine*. 2008; 168(13):1409–1415. [PubMed: 18625921]
4. Clayman ML, et al. Autonomy-related behaviors of patient companions and their effect on decision-making activity in geriatric primary care visits. *Social science & medicine (1982)*. 2005; 60(7): 1583–1591. [PubMed: 15652689]
5. Laidsaar-Powell RC, et al. Physician-patient-companion communication and decision-making: a systematic review of triadic medical consultations. *Patient education and counseling*. 2013; 91(1):3–13. [PubMed: 23332193]
6. Wolff JL, Roter DL. Family presence in routine medical visits: a meta-analytical review. *Social science & medicine (1982)*. 2011; 72(6):823–831. [PubMed: 21353358]
7. Wolff JL, et al. Going it together: persistence of older adults' accompaniment to physician visits by a family companion. *Journal of the American Geriatrics Society*. 2012; 60(1):106–112. [PubMed: 22211465]
8. Shields CG, et al. Influence of accompanied encounters on patient-centeredness with older patients. *The Journal of the American Board of Family Practice/American Board of Family Practice*. 2005; 18(5):344–354.
9. Cene CW, et al. Family accompaniment to routine medical visits is associated with better self-care in heart failure patients. *J Gen Intern Med*. 2012; 27:195.
10. Institute for, P. and C. Family-Centered.

11. Schilling LM, et al. The third person in the room: frequency, role, and influence of companions during primary care medical encounters. *The Journal of family practice*. 2002; 51(8):685–690. [PubMed: 12184964]
12. Roter D, Larson S. The Roter interaction analysis system (RIAS): utility and flexibility for analysis of medical interactions. *Patient education and counseling*. 2002; 46(4):243–251. [PubMed: 11932123]
13. Chen LM, Farwell WR, Jha AK. Primary care visit duration and quality: does good care take longer? *Archives of Internal Medicine*. 2009; 169(20):1866–1872. [PubMed: 19901138]
14. Levinson W, Pizzo PA. Patient-physician communication: it's about time. *JAMA*. 2011; 305(17):1802–1803. [PubMed: 21540424]
15. Cooper LA, et al. Patient-centered communication, ratings of care, and concordance of patient and physician race. *Annals of Internal Medicine*. 2003; 139(11):907–915. [PubMed: 14644893]
16. Cegala DJ, Post DM. The impact of patients' participation on physicians' patient-centered communication. *Patient education and counseling*. 2009; 77(2):202–208. [PubMed: 19395225]
17. The, R.D.C.T.. R: A language and environment for statistical computing. Foundation for Statistical Computing; Vienna, Austria:
18. Wolff JL, et al. An exploration of patient and family engagement in routine primary care visits. *Health Expectations*. 2015; 18(2):188–198. [PubMed: 23107095]
19. Clark AM, et al. Patient and informal caregivers' knowledge of heart failure: necessary but insufficient for effective self-care. *European journal of heart failure*. 2009; 11(6):617–621. [PubMed: 19414477]
20. Spaling MA, et al. Improving support for heart failure patients: a systematic review to understand patients' perspectives on self-care. *J Adv Nurs*. 2015; 71(11):2478–89. [PubMed: 26084885]
21. Gross DA, et al. Patient satisfaction with time spent with their physician. *The Journal of family practice*. 1998; 47(2):133–137. [PubMed: 9722801]
22. Ishikawa H, et al. Physician-elderly patient-companion communication and roles of companions in Japanese geriatric encounters. *Social science & medicine* (1982). 2005; 60(10):2307–2320. [PubMed: 15748678]
23. Wolff JL, Roter DL. Older adults' mental health function and patient-centered care: does the presence of a family companion help or hinder communication? *Journal of general internal medicine*. 2012; 27(6):661–668. [PubMed: 22180197]
24. Stewart MA. Effective physician-patient communication and health outcomes: a review. *CMAJ: Canadian Medical Association journal = journal de l'Association medicale canadienne*. 1995; 152(9):1423–1433.
25. Rosland AM, et al. Family and friend participation in primary care visits of patients with diabetes or heart failure: patient and physician determinants and experiences. *Medical care*. 2011; 49(1):37–45. [PubMed: 21102357]
26. Howie JG, et al. Long to short consultation ratio: a proxy measure of quality of care for general practice. *The British journal of general practice: the journal of the Royal College of General Practitioners*. 1991; 41(343):48–54. [PubMed: 2031735]
27. Kaplan SH, et al. Patient and visit characteristics related to physicians' participatory decision-making style. Results from the Medical Outcomes Study. *Medical care*. 1995; 33(12):1176–1187. [PubMed: 7500658]
28. Tai-Seale M, et al. Understanding primary care physicians' propensity to assess elderly patients for depression using interaction and survey data. *Medical care*. 2005; 43(12):1217–1224.
29. Ishikawa H, et al. Patient contribution to the medical dialogue and perceived patient-centeredness. An observational study in Japanese geriatric consultations. *J Gen Intern Med*. 2005; 20(10):906–10. [PubMed: 16191136]
30. Street RL, Gordon HS. Companion participation in cancer consultations. *Psycho-oncology*. 2008; 17(3):244–251. [PubMed: 17534881]
31. Sansoni JE, Grootemaat P, Duncan C. Question Prompt Lists in health consultations: A review. *Patient education and counseling*. 2015

32. Wolff JL, et al. A Tool to Strengthen the Older Patient–Companion Partnership in Primary Care: Results from a Pilot Study. *Journal of the American Geriatrics Society*. 2014; 62(2):312–319. [PubMed: 24417565]
33. Clayton JM, et al. Randomized controlled trial of a prompt list to help advanced cancer patients and their caregivers to ask questions about prognosis and end-of-life care. *Journal of clinical oncology: official journal of the American Society of Clinical Oncology*. 2007; 25(6):715–723. [PubMed: 17308275]

Author Manuscript

Author Manuscript

Author Manuscript

Author Manuscript

Practice Implications

Our study provides insight into how family presence and participation in visits influences HF care. Although companions' contribution to the overall communication was relatively small in our study, it has important implications for interpersonal quality of care given that companion communication behaviors have been associated with more question asking by patients, more biomedical information giving by providers, and greater patient satisfaction with their usual care provider. [3, 18, 30] Our findings suggest the need for activation and communication skills training for companions to maximize their effectiveness during the visit. Strategies such as pre-visit question prompt lists, which help facilitate patient and family engagement in care have shown evidence of effectiveness [31–33], particularly if encouraged/endorsed by providers.

Highlights

- Family member accompaniment to medical visits is common in heart failure patients
- More research is needed on how communication differs based on accompaniment status
- Providers give more biomedical information in accompanied versus unaccompanied visits
- More positive and social rapport-building statements are made in accompanied visits
- Companions are helpful for facilitating patient-provider communication

Figure 1.

The proportion of patients (or companions) that agreed a companion would be helpful for: Facilitating communication with providers; Understanding and remembering treatment instructions; Accessing recommended services; Identifying resources to support medical decision-making.

Figure 2.

The percent increase (decrease) in the number of statements of each type when a companion is present (i.e., accompanied visits) compared to absent (i.e., unaccompanied visits). That is, a bar extending to the right of zero implies that there were more statements of that type when patients were accompanied than when patients were alone. The numbers represent exponentiated coefficients from regression models for count data. The error bars are the exponentiated endpoints of a 95% confidence interval around the coefficient. Variables whose error bars do not include 0 are significant at the .05 level. The underlying models are adjusted for age, sex, race, education, overall self-rated physical health, health care provider, and visit length. Note that provider and patient statements can have different baseline values, so a larger patient bar does not necessarily mean that patients made more such statements than providers, only that the percent increase from unaccompanied to accompanied was larger.

Table 1

Categories of RIAS Exchange

Major category	Sub-category	Examples
Question-asking	Biomedical Lifestyle/Psychosocial	Open- and closed- ended biomedical questions Open- and closed- ended psychosocial questions
Information-giving	Biomedical Lifestyle/Psychosocial	Gives biomedical and therapeutic information Gives lifestyle and psychosocial information
Socio-emotional communication	Emotional rapport-building Positive rapport-building Negative rapport-building Social rapport-building	Empathy, legitimation, concern/worry, partnership Laughter, approval, compliments, agreement Criticism, disagreements, concern Chit-chat

Table 2

Sample characteristics of Patients, Companions, and Providers

	Unaccompanied	Accompanied		p- value (A vs. B)
	Patients (A)	Patients (B)	Companions	
Total N	57	36	36	
Mean age, yrs (SD)	59.2 (12.7)	63.1 (13.8)	55.0 (11.1)	0.16
Female, N (%)	29 (51%)	13 (36%)	30 (83%)	0.24
Race, N (%)				
African American	26 (46%)	6 (17%)	5 (13%)	0.01
White	30 (53%)	30 (83%)	30 (83%)	
Asian	1 (2%)	0 (0%)	1 (2.8)	
Educational level, N (%)				
High school	20 (35%)	10 (28%)	4 (11%)	0.61
Confidence with filling out forms, N (%)				
Never/sometimes	12 (24%)	6 (18%)	3 (9%)	0.76
Mostly/always	39 (77%)	27 (82%)	30 (91%)	
Employment, N (%)				
Currently employed	7 (12%)	14 (39%)	20 (56%)	<0.01
Other	50 (88%)	22 (61%)	16 (44%)	
Currently married, N (%)	34 (60%)	25 (70%)	31 (89%)	0.46
Overall self-rated physical health, N (%)				
Poor/fair	33 (58%)	15 (42%)	5 (15%)	0.30
Good	15 (26%)	14 (39 %)	12 (33%)	
Very good/excellent	9 (16%)	7 (20%)	19 (53%)	
Overall self-rated mental health, N (%)				
Poor/fair	8 (14%)	1 (3%)	3 (9%)	0.18
Good	15 (26%)	9 (25%)	4 (12%)	
Very good/excellent	34 (60%)	26 (72%)	27 (79%)	
New York Heart Association Class, N (%)				
I	11(20%)	9(26%)	N/A	0.25
II	33 (59%)	14 (40%)		
III	10 (18%)	8 (23%)		
IV	2 (4%)	4 (11%)		
Ejection Fraction				
EF<40%	25 (43.9)	16 (44.4)	N/A	0.28
EF 40–54%	9 (15.8)	10 (27.8)		

	Unaccompanied	Accompanied		p- value (A vs. B)
	Patients (A)	Patients (B)	Companions	
Total N	57	36	36	
EF 55–70%	23 (40.4)	10 (27.8)		
Medical complexity (Provider rating), N (%)	2 (4%)	2 (6%)		0.60
Simple/straightforward	23 (40%)	11 (31%)		
Average	32 (56%)	23 (64%)		
Somewhat/very complex				
Provider satisfaction with the visit, N (%)				0.69
Very unsatisfied/Unsatisfied	2 (4%)	1 (3%)		
Neutral	6 (11%)	2 (6%)		
Satisfied/Very satisfied	49 (86%)	33 (92%)		

Table 3

Description of Frequency, Roles, and Utility of Companions

	Unaccompanied	Accompanied		p-value
	Patients (A)	Patients (B)	Companions	
Frequency of accompaniment to this provider, N (%)				
Never/Rarely	23 (40%)	1 (3%)	1 (3%)	<0.001
Sometimes	12 (21%)	0 (0%)	3 (8%)	
Most/All of the time	22 (39%)	35 (97%)	32 (89%)	
Frequency of accompaniment to other providers, N (%)				
Never/Rarely	23 (40%)	3 (8%)	3 (8%)	<0.001
Sometimes	17 (30%)	3 (8%)	5 (14%)	
Most/All of the time	17 (30%)	30 (83%)	28 (79%)	
Same companion for all visits, N (%)	38 (72%)	35 (97%)	N/A	<0.01
Frequency of family communication with provider in past year, N (%)				<0.01
None	28 (49%)	8 (22%)	13 (36%)	
1–2 times	12 (21%)	6 (17%)	7 (19%)	
3–4 times	8 (14%)	5 (14%)	4 (11%)	
>4 times	9 (16%)	17 (47%)	12 (33%)	
Patient thought it would be useful to have family help...				
Facilitate communication/information exchange between providers	36 (63%)	36 (100%)	35 (97%)	<0.001
Understand and remember treatment instructions	45 (79)	35 (97%)	36 (100%)	<0.01
Access recommended services	49 (86%)	35 (97%)	35 (97%)	0.15
Identify information/resources to support medical decision-making	48 (84%)	36 (100%)	35 (100%)	0.03
Perceived helpful to have family communicate with health care provider (yes/no), %	35 (61%)	32 (89%)	34 (94%)	<0.01
Providers' perceived helpfulness of communicating with a family member occasionally, %	41 (72%)	30 (83%)	0.31	N/A

Table 4

Mean number of statements and percentages of total utterances by communication category for each participant in unaccompanied (dyads) and accompanied (triads) visits

Communication categories	Dyads (N=57)				Triads (N=36)			
	Provider		Patient		Provider		Patient	
	Mean # of statements (95% CI)	%	Mean # of statements (95% CI)	%	Mean # of statements (95% CI)	%	Mean # of statements (95% CI)	%
Biomedical question asking								
Unadjusted	30.5 (25.2, 36.8) *	9.1	6.2 (4.8, 8.1)	2.5	27.8 (21.7, 35.7)	7.8	4.7 (3.3, 6.7)	2.9
Adjusted	27.3 (23.4, 31.8) *	8.3	5.4 (4.2, 7.1)	2.4	23 (18.5, 28.5)	6.8	3.9 (2.6, 5.7)	2.7
Psychosocial question asking								
Unadjusted	7.6 (6.3, 9.1) *	2.4	0.8 (0.5, 1.1) †	0.3	6 (4.6, 7.8)	1.8	0.4 (0.2, 0.7)	0.2
Adjusted	7.3 (5.9, 9) *	2.4	0.6 (0.4, 1) †	0.3	5.5 (4, 7.4)	1.7	0.2 (0.1, 0.5)	0.1
Biomedical information giving								
Unadjusted	81.1 (69.7, 94.4) *	21.0	88.2 (73, 106.5)	27.9	100.2 (84.4, 119)	23.2	78.5 (61.4, 100.5)	27.8
Adjusted	80.1 (70, 91.6) *	20.9	78 (69.8, 87.2)	25.6	99.5 (83.8, 118.1)	0.24	58 (48.6, 69.3)	23.9
Psychosocial information giving								
Unadjusted	11.6 (8.5, 16.1)	3.7	42.5 (32.7, 55.2) *	15.0	11.6 (7.7, 17.3)	3.4	28.8 (19.5, 42.7)	12.2
Adjusted	9.5 (6.5, 13.8)	3.1	37.8 (29.2, 48.9) *	14.4	9.7 (5.9, 15.8)	3.0	20.3 (13.6, 30.4)	10.8
Emotional rapport-building								
Unadjusted	31.5 (27.7, 35.7) †	9.3	23.2 (19.3, 27.8)	8.8	36.6 (31.5, 42.5)	10.0	20.4 (15.9, 26.2)	8.7

Communication categories	Dyads (N= 57)		Triads (N=36)			
	Provider		Patient		Companion	
	Mean # of statements (95% CI)	%	Mean # of statements (95% CI)	%	Mean # of statements (95% CI)	%
Adjusted	30.9 (27.3, 34.8) †	9.3	20.9 (17.7, 24.6)	8.4	35.4 (30.2, 41.3)	10.0
Positive rapport-building						
Unadjusted	57 (50.5, 64.4)	15.7	38 (32.7, 44.1) *	13.7	60.2 (51.8, 69.8)	15.4
Adjusted	57.3 (52.1, 63) †	16.0	35.7 (31.4, 40.6) *	13.4	56.2 (49.3, 64.2)	15.1
Social rapport-building						
Unadjusted	6.3 (3.8, 10.5) *	2.0	4.9 (2.9, 8.4) *	2.0	14.7 (9.6, 22.5)	4.3
Adjusted	4.7 (2.7, 8.1) *	1.6	3.9 (2.1, 7) *	1.7	13 (7.8, 21.6)	4.0
Negative rapport-building						
Unadjusted	0.7 (0.5, 1)	0.2	3.4 (2.3, 5)	1.4	0.7 (0.4, 1.1)	0.2
Adjusted	0.6 (0.4, 0.9)	0.2	2.4 (1.5, 3.9) *	1.1	0.4 (0.2, 0.9)	0.1
Orientation						
Unadjusted	23.1 (20.2, 26.4) *	7.0	3.4 (2.7, 4.3)	1.4	21.1 (17.8, 25.2)	6.0
Adjusted	21.7 (19.5, 24.1) *	6.7	3.3 (2.7, 4.1)	1.5	19.6 (17, 22.7)	5.8
Partnership Building						
Unadjusted	56 (48.1, 65.3) *	15.5	28.1 (23.1, 34.2) *	10.5	51.5 (42.1, 63)	13.5
Adjusted	53.9 (49.2, 59.2) *	15.1	29 (24, 34.9)	11.3	44.9 (39.2, 51.4)	12.5

The percentage score is the mean percentage ratio of utterances classified in each category over total utterances made by participant

P-values reflect the comparison between providers in unaccompanied (i.e. dyadic) and accompanied (i.e. triadic) visits or between patients in unaccompanied visits vs. patients and companions in accompanied visits.

$P=0.05-0.06$

$P<0.01$

*

Author Manuscript

Author Manuscript

Author Manuscript

Author Manuscript

Table 5

Health Care Providers' Report of Companion's Influence on Medical Visit (N=36)

	Decreased	No Influence	Increased
Communication			
Provider's understanding	–	19 (53%)	17 (47%)
Patient's understanding	–	21 (58%)	15 (42%)
Resource use			
Time spent explaining/counseling	1 (3%)	26 (72%)	9 (25%)
Treatment recommended	–	34 (94%)	2 (6%)
Number of test ordered	–	35 (97%)	1 (3%)
Number of referrals	–	35 (100)	–
Length of visit	–	29 (81%)	7 (19%)
Satisfaction			
Presence of family companion	1 (3%)	11 (31%)	24 (67%)

Table 6

Providers' Assessment of Behaviors Exhibited by Companions and Perceived Helpfulness

Behavior	N (%)
Active behaviors	
Clarified or expanded history	28 (78%)
Supportive/encouraging toward patient	28 (78%)
Asked questions/requested explanations	21 (58%)
Discussed concerns about patient's symptoms/problems	16 (44%)
Took notes	8 (22%)
Made evaluation or treatment requests	3 (8%)
Distractive behaviors	
Discussed their own problems/symptoms	2 (6%)
Discouraging/Controlling toward patient	1 (3%)
Passive behaviors	
Passive observer	8 (22%)
Overall helpfulness of companion	
Very unhelpful/unhelpful	1 (3%)
Neither unhelpful or helpful	7 (19%)
Helpful/Very helpful	28 (78%)
Among patients without a companion (N=55), how helpful would it have been to have one	
Very unhelpful/unhelpful	1 (2%)
Neither unhelpful or helpful	19 (37%)
Helpful/Very helpful	32 (62%)