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The effectiveness of group visits for patients with heart failure on knowledge, quality of life, self-care, and readmissions: a systematic review

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Executive summary

Background

Heart failure is a major health burden worldwide. Patient education is the primary process used to increase knowledge of self-care practices for patients with heart failure. Most education occurs during one-on-one visits between a patient and a health care provider. Group visits with a health care provider and a small group of patients provide an alternative method for providing patient education. The goal of group visits for patients with heart failure would be to increase patient knowledge and self-care abilities, while improving self-efficacy.

Objective

The objective of this review is to identify the effectiveness of group visits for patients with heart failure on knowledge, quality of life, self-care behaviors, and hospital readmissions.

Inclusion criteria

Types of participants

Community-living adult patients (18 years and above) of all races and ethnicities with a diagnosis of heart failure.

Types of interventions

Group visits for adult patients with heart failure compared to one-on-one provider visits.

Types of outcomes

Patient knowledge about heart failure, quality of life, self-care behaviors, unplanned readmissions, and emergency room visits.

Types of studies

Randomized controlled trials, non-randomized controlled trials, and quasi-experimental trials were considered for inclusion. In their absence other qualitative studied designs were considered.

Search strategy

Published and unpublished studies in the English language were sought from the inception of the included databases through September 2012. The databases searched included: PubMed, CINAHL. Embase, and Health Source: Nursing/Academic edition. A search for gray literature and hand searching of reference lists were also performed.

Methodological quality

Two reviewers evaluated the included studies for methodological quality using standardized critical appraisal instruments from the Joanna Briggs Institute.

Data collection and synthesis

Data were extracted using standardized data extraction instruments from the Joanna Briggs Institute. Due to heterogeneity between included studies, statistical pooling was not possible. Results are presented in a narrative form.

Results

Two pilot studies were included in this review. One study demonstrated an improvement in heart failure knowledge and a trend toward improvement in self-care behaviors. The other study showed improvements in self-care behaviors and depression while reducing the number of hospitalizations.

Conclusions

The group visit model has the potential for improving knowledge and self-care behaviors, while increasing quality of life and decreasing hospitalizations for patients with heart failure.

Implications for practice

Clinicians should consider group visits as an alternative method of providing patient-centered care that allows the clinician to see a large number of patients in a short time period while providing education and health management.

Implications for research

Randomized control trials should be conducted to determine the most effective format and the most effective health care provider team for the group visit model on larger samples of culturally diverse populations across multiple settings. Future research should also seek to determine the most appropriate duration for the group visit appointment.

Keywords

group visit; group medical visit; shared medical appointment; shared medical visit; cluster visit; chronic care clinic; group outpatient visit; heart failure; cardiomyopathy; myocardial disease

Background

Heart failure (HF) continues to be a major health burden throughout the world. There are currently over 5.7 million Americans,[1] 15 million Europeans,[2] and 277,800 Australians[3] living with HF. These numbers are expected to double by 2040.[4] Patients and caregivers perform the majority of HF care in the home.[5] Patients with HF need to learn to be successful in self-managing their condition to lessen the burden of symptoms such as fatigue, dyspnea, and edema.

Patient education is the primary process used to increase knowledge of self-care practices for patients with HF. Patients with HF need to follow a complex medical regimen while adhering to a low sodium diet and prescribed fluid restrictions, and monitor themselves daily for exacerbation of symptoms or signs of fluid overload. Education, behavior modification, and skill development are necessary so that patients with HF can be successful in self-managing their condition.

Most HF education occurs during one-on-one visits between the patient and the health care provider in an examination room during a regular clinic visit. However, there is usually limited time to address all of the needed education topics in an in-depth, meaningful manner with information the patient can take home and utilize in their daily routines.

Group visits may serve as an alternative venue for health care providers to provide care for patients with HF. A group visit is an interactive process between a health care provider and a small group of patients and their caregivers who usually share a common medical concern. The participants of group visits can benefit from the knowledge and experiences of the other participants while providing mutual support and encouragement as they learn to cope with living with a chronic condition.

Patients with chronic illnesses such as HF will often express feelings of isolation, failure, helplessness, and hopelessness with regard to their overall disease management, which contributes to the 6 to 10% of chronically ill patients acquiring depression and depressive states.[6-9] In addition, untreated depression has been correlated with higher morbidity and mortality rates among patients with chronic disease, specifically patients with cardiac disease, resulting in increased hospital readmission.[6] The value of peer support gained from group interactions is well documented.[10,11] Peer support has demonstrated positive outcomes with regard to changes in behavior, increased self-awareness, self-efficacy, and feelings of belonging, empowerment, and control over their health.[10] Peer support can be achieved in many ways though telephone, internet, or web based media, as well as face-to-face and group meetings; although, group interaction and face-to-face group processes have been found to be the preferred method of engagement for patients.[10]

The concept of group visits was first developed in 1991 by Dr John C Scott at the Kaiser Permanente system in Colorado, United States of America (USA).[12] Dr Scott and a nurse held monthly group visits lasting 60 minutes with a group of 15 to 20 chronically ill patients to manage their complex medical conditions. The group visit model can vary across settings, including from six-20 patients, usually with a common condition, over a one to two hour period with varying times devoted to education and discussion of health concerns. The group visit typically incorporates a one-on-one physical examination with a physician or nurse practitioner in conjunction with an interactive group discussion and medical management. It is this one-on-one examination that differentiates a group visit from an education session or support group. Group visits expand upon the traditional one-on-one office visit where general health needs are managed to provide time for enhanced education and a forum where social and psychological needs can be addressed. Group visits have shown to be beneficial in improving patient outcomes for conditions such as diabetes, hypertension, and other chronic illness while enhancing satisfaction and quality of life.[13-17]

A typical group visit begins with introductions of the health care team and the patients present. A specific topic for discussion is usually identified for each group visit such as medication management, nutrition, exercise, or psychosocial concerns. The health care team should make this discussion as interactive as possible, inviting patients to ask questions and share personal experiences related to the topic. Time is then spent collecting data (ie checking vital signs, reconciling medications, taking subjective histories). Patients may be pulled out of the group session to meet one-on-one with the health care provider to address individual needs. While one-on-one visits are occurring in a separate area, another member of the health care team continues to facilitate the interactive discussion addressing patients' questions and concerns while providing education, reinforcing patients' self-efficacy, and empowering them to enhance self-management. The group visit model allows for more time to be spent with patients than a traditional one-on-one visit model.

The goal of group visits for patients with HF is to enhance patient knowledge and self-care abilities, while improving self-efficacy. Self-care incorporates the decision making process a patient undergoes when deciding on a course of action to maintain stability as a result of a change in symptoms.[18] Improved self-care can improve symptoms, which will likely result in an increase in quality of life and a reduction in hospitalizations related to decompensation. Self-care abilities can be measured using instruments such as the Self-Care Heart Failure Index (SCHFI).[18] HF knowledge can be measured with instruments such as the Atlanta Heart Failure Knowledge Test (AHFKT).[19] Quality of life refers to a patient's perception of the impact of a health condition and treatment on his health status[20] and can be measured with valid and reliable tools such as the Minnesota Living with Heart Failure Questionnaire (MLHFQ)[21] or the Kansas City Cardiomyopathy Questionnaire (KCCQ).[22] Hospital readmissions are a tally of the number of unplanned readmissions for a patient to the same hospital or another acute care facility for the same condition or a different health condition over a prespecified period of time. Group visits can be used to continue to optimize medication therapy while providing a forum for knowledge acquisition and fostering support.

A search of the Cochrane Library of Systematic Reviews, the Joanna Briggs Library of Systematic Reviews, MEDLINE, and CINAHL did not identify any previously conducted systematic reviews on the effectiveness of group visits on outcomes for patients with HF. Therefore, this review seeks to identify studies evaluating the effectiveness of group visits for patients with HF on patient knowledge, quality of life, self-care behaviors, and hospital readmissions.

Review objective

The objective of this review is to identify the effectiveness of group visits for patients with HF on knowledge, quality of life, self-care behaviors, and hospital readmissions.

Research questions:

1. What is the impact of group visits for patients with HF on knowledge related to HF compared to standard one-on-one medical care?
2. What is the impact of group visits for patients with HF on quality of life compared to standard one-on-one medical care?
3. What is the impact of group visits for patients with HF on self-care behaviors compared to standard one-on-one medical care?
4. What is the impact of group visits for patients with HF on emergency room visits and unplanned hospital readmissions compared to standard one-on-one medical care?

Inclusion criteria

Types of participants

This review considered studies that include community-living adult patients (18 years and above) of all races and ethnicities with a diagnosis of HF.

Types of interventions

This review considered studies that evaluate the effectiveness of group visits for adult patients with HF.

Comparator

This review considered studies that compared group visits to standard one-on-one patient-provider visits, which is considered to be usual care.

Types of studies

This review considered experimental study designs including randomized controlled trials (RCTs), non-randomized controlled trials, and quasi-experimental trials. In the absence of those studies, other epidemiological research designs such as before and after studies, prospective and retrospective cohort studies, case control studies, analytical cross-sectional studies, and descriptive studies were considered for inclusion.

Types of outcome measures

This review considered studies that include the following outcome measures:

- Patient knowledge about HF
- Quality of life
- Self-care behaviors
- Unplanned readmissions for any cause occurring up to one year following a hospitalization for HF
- Emergency room visits for a HF exacerbation.

Search strategy

The purpose of the search strategy was to capture both published and unpublished studies. A three-step search strategy was utilized in this review. An initial limited search of MEDLINE and CINAHL was undertaken followed by an analysis of the text words contained in the title and abstract, and of the index terms used to describe article. A second search using all identified keywords and index terms was then undertaken across all included databases. Thirdly, the reference list of all identified reports and articles were searched for additional studies. Studies published in the English language were considered for inclusion in this review. Studies published from the onset of the database through September 2012 were considered for inclusion in this review.

The databases searched include:

PubMed, Cumulative Index to Nursing and Allied Health Literature (CINAHL), Excerpta Medica Database (EMBASE), Health Source: Nursing/Academic edition

The search for unpublished studies included:

ProQuest Dissertation & Theses, Mednar, Virginia Henderson International Nursing Library, New York Academy of Medicine

Full list of keywords used were:

group visit(s), group medical visit(s), shared medical appointment(s), shared medical visit(s), cluster visit(s), chronic care clinic(s), group outpatient visit(s), heart failure, cardiomyopathy, myocardial disease

A detailed search strategy for all indexed databases searched can be found in Appendix I. All non-indexed databases were searched using all terms as keywords.

Methods of the review

Assessment of methodological quality

Papers selected for retrieval were assessed by two independent reviewers for methodological validity prior to inclusion in the review using standardized critical appraisal instruments from the Joanna Briggs Institute Meta Analysis of Statistics Assessment and Review Instrument (JBI-MAStARI) (Appendix II). Any disagreements that arose between the reviewers were resolved through discussion, or with a third reviewer.

Data extraction

Data was extracted from papers included in the review using the standardized data extraction tool from JBI-MAStARI (Appendix III). The data extracted included specific details about the interventions, populations, study methods and outcomes of significance to the review question and specific objectives.

Data synthesis

Due to the clinical and methodological heterogeneity of the included studies' participants, interventions, and outcome measures, statistical pooling via meta-analysis was not possible. The results are presented in narrative form.

Review results

Description of studies

A total of 121 citations were identified by the comprehensive search of the literature. After a review of the titles and keywords 114 citations were excluded. Seven full text papers were retrieved for further review, as additional information beyond the abstracts was needed to determine if the paper met the inclusion criteria for this review. After reviewing the full text articles, four were excluded for not meeting the inclusion criteria. Two papers focused on the same intervention, one[23] was a dissertation and the other[24] a subsequent published manuscript. The dissertation[23] reported outcomes at eight-weeks and 16-weeks post intervention while the subsequently published article[24] only discussed the eight-weeks post intervention outcomes. Therefore, the article[24] was excluded from the final analysis as the outcomes reported within this article are contained within the dissertation.[23] Two articles were appraised for methodological quality and both were included in the review. Figure 1 outlines the stages of identification and retrieval of studies for inclusion. See Appendix IV for the list of the full text studies reviewed and the reasons for exclusion. See Appendix V for details of the included studies.

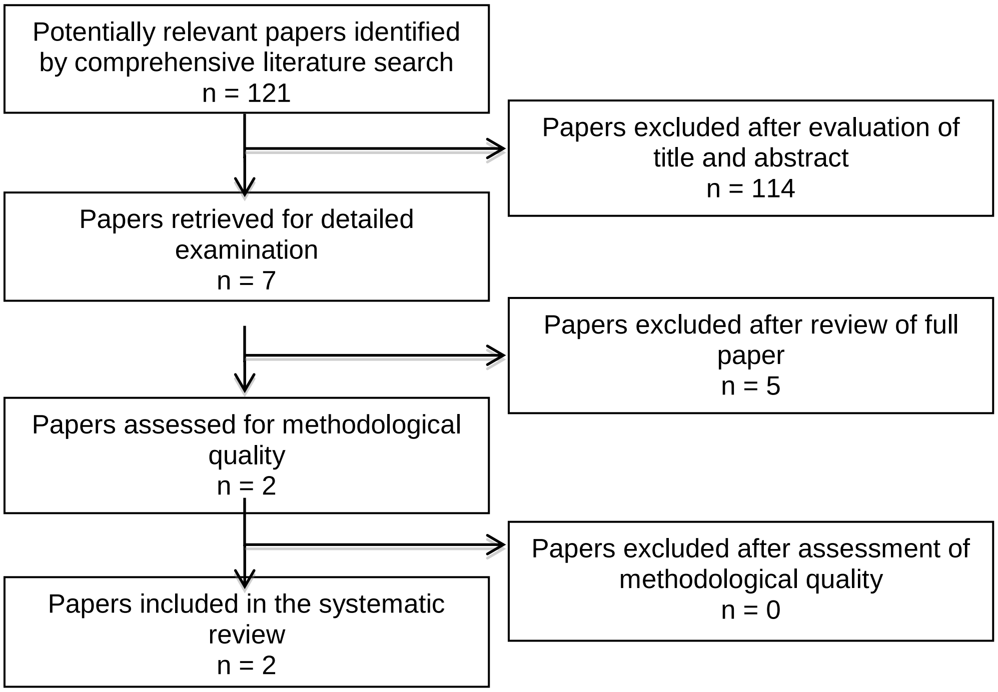

Figure 1: Search retrieval flowchart

Methodological quality

One dissertation detailing the findings of a RTC and one longitudinal cohort study were assessed for methodological quality using the appropriate JBI-MAStARI Critical Appraisal Tool (Table 1). The Yehle study,[23] a RTC, had 6/10 questions answered positively. It was unclear from the methods if blinding of the participants, the allocator, or those assessing outcomes occurred. The authors of this study did not include the outcomes of those who withdrew in the analysis. The Lin study[25], a longitudinal cohort study, had 5/9 questions answered positively. Only patients who were interested in participating in the group visit model were enrolled which may bias the findings. Cofounding factors were not identified in the article. The outcomes of those who withdrew were not included in the analysis. The reviewers were unable to evaluate the appropriateness of the statistical analysis of this study due to the lack of detail in the reported methods. Given the limited findings from the comprehensive literature search both studies were included in the review.

Table 1: Methodological quality

Number of studies included and excluded

Number of studies included	Number of studies excluded
2	0

Randomized control trial/pseudo randomized trial

Citation	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10
Yehle, 2007[23]	Y	U	U	N	U	Y	Y	Y	Y	Y
%	100.00	0.00	0.00	0.00	0.00	100.00	100.00	100.00	100.00	100.00

Comparable cohort/case control studies

Citation	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9
Lin, et al., 2008[25]	Y	Y	N	N	Y	Y	N	Y	U
%	100.00	100.00	0.00	0.00	100.00	100.00	0.00	100.00	0.00

Note: Y = yes; indicates a clear statement appears in the paper which directly answers the question. N = no, indicates the question has been directly answered in the negative in the paper. U = unclear, indicates there is no clear statement in the paper that answers the question or there is ambiguous information presented in the paper.

Results

Two papers were identified from the comprehensive literature search that met the inclusion criteria for this review. Of the two included studies, one study[23] was a RCT that evaluated the effects of group visits on HF knowledge, self-care behaviors, and quality of life for patients with HF and the other study[25] was a longitudinal cohort study that evaluated the effects of group visits on hospital admissions, self-care behaviors, and depression. No studies were identified that measured emergency room visits after a group visit intervention for patients with HF.

Yehle[23] is a dissertation of a pilot study that randomized a sample of 52 patients with HF from a cardiology practice in Lafayette, Indiana, USA, to group visits or one-on-one visits. The intervention group participated in group visits consisting of a one-hour semi-structured session of education and support activities for up to six patients plus family or friends lead by a nurse practitioner. In addition, each patient received a 10-minute private physical exam by the nurse practitioner. The control group received a standard 30-minute one-on-one visit with the nurse practitioner. Attrition occurred in both groups. There was no difference between the groups in terms of attrition. Study authors used a repeated-measures analysis of variance to test each hypothesis. Outcome data was collected at baseline, eight-weeks, and 16-weeks.

HF knowledge, as measured by the Heart Failure Knowledge Test (HFKT) improved significantly from baseline to eight-weeks for the intervention group compared to the control group (F = 4.90, *df* = 1,21; p = 0.038). This improvement was not maintained to 16-weeks (F = 2.09, *df* = 2,15; p = 0.158).

While self-care, as measured by the Self-Care Heart Failure Index (SCHFI), increased in both groups, there was no significant difference in self-care between groups at eight-weeks (F = 0.004, *df* = 1,21; p = 0.95) or 16-weeks (F = 2.59, *df* = 2,16; p = 0.106). The management subscale showed a trend toward improvement for the intervention group while the control groups score declined; however, these changes were not statistically significant (F = 1.47, *df* = 1,21; p = 0.239 at eight-weeks and F = 1.53, *df* = 2,16; p = 0.247 at 16-weeks). The confidence subscale showed a trend toward improvement in the intervention group at eight-weeks while the control group’s score changed minimally; however, these changes were not statistically significant (F = 4.90, *df* = 1,23; p = 0.938 at eight-weeks and F = 2.81, *df* = 2,18; p = 0.087 at 16-weeks). The maintenance subscale showed a significant improvement in the control group compared to the intervention group at eight-weeks (F = 4.60, *df = 1,23;* p = 0.042), but this did not remain significant at 16-weeks (F = 1.95, *df = 2,18;* p = 0.171).

Health related quality of life was measured by the Chronic Heart Disease Index Questionnaire Self-Administer Individual format (CHQ-SAI). While a positive trend toward improvement was seen in the intervention group, there was no difference between groups on the dyspnea subscale (F = 0.003, *df* = 1,21; p = 0.955 at 8-weeks and F = 0.098, *df = 2,15;* p = 0.907 at 16-weeks), the fatigue subscale (F = 0.545, *df* = 1,22; p = 0.468 at eight-weeks and F = 0.226, *df = 2,16;* p = 0.800 at 16-weeks), the emotional function subscale (F = 0.048, *df* = 1,22; p = 0.829 at eight-weeks and F = 0.36, *df* = 2,16; p = 0.703 at 16-weeks), and the mastery subscale (F = 1.08, *df* = 1,22; p = 0.311 at eight-weeks and F = 0.86, *df* = 2,16; p = 0.441 at 16-weeks). While the authors state that hospital readmission was a secondary outcome, data on this outcome was not reported.

Lin[25] reports on a pilot study of a performance improvement initiative of a cohort of 56 patients from a HF clinic at the Naval Medical Center in San Diego, California, USA, participating in group visits. The group visit included a two-hour session for six to eight patients and family members. The first half was lead by a multi-disciplinary team that included a dietician, a psychologist, nurses, and a pharmacist who provided education, reviewed medication, and discussed self-care behaviors. Patients were pulled out of the group to receive a private, focused, physical exam conducted by a physician. The second half of the group visit was lead by the physician who addressed individual patient's assessments and plan. Patients were given the Self-Care Management Index and the Beck Depression Inventory at the initial visit and again after six months. Study authors used the McNemar's test for statistical analysis of the data.

Thirty-three patients completed the follow up at six-months. Comparing the six-month period prior to enrolling in the group visit to the six--months follow up after enrolling in the group visit, all-cause hospital admissions decreased from 11 to eight. HF specific hospital admissions decreased from four to two.

Scores on the Self-Care Management Index improved post intervention with statistically significant improvements seen in daily weight monitoring (pre-intervention = 55%, post-intervention = 80%; p = 0.03), low sodium diet (pre-intervention = 70%, post-intervention = 90%; p = 0.03), exercising three times a week (pre-intervention = 47%, post-intervention = 70%; p = 0.04), and the ability to recognize symptoms of worsening HF (pre-intervention = 27%, post-intervention = 59%; p = 0.01). The study authors did not report the statistical test results; p values were reported in isolation.

While quality of life was not measured directly, depression, measured with the Beck Depression Inventory, could be considered a surrogate for quality of life. Results showed an improvement in hope for the future, interest in sex, and feelings of sadness (statistic test results or p value were not reported) at 6-months follow up. There was a significant decrease in the number of patients diagnosed and/or treated for depression post intervention (pre-intervention = 23%, post-intervention = 52%; p = 0.01). The study authors did not report the statistical test results; p values were reported in isolation.

Discussion

The group visit model for patient care combines group education and peer support with an individual health evaluation and exam in place of a traditional one-on-one office visit. The group format allows patients to gain support from others living with similar conditions while receiving important health knowledge aimed at increasing self-efficacy and self-care behaviors.

A comprehensive search of the literature results in only two pilot studies on small samples evaluating the effectiveness of group visits for patients with HF, one a RCT and the other a cohort study. One study demonstrated a short-term improvement in HF knowledge and a trend toward improvement in self-care behaviors. The other study showed improvements in self-care behaviors and depression while reducing the number of hospitalizations.

Prior studies have been done on the effectiveness of group visits on other patient populations.[26-28] Kirsh[26] showed significant improvements in physiological measures for patients with diabetes after participating in group visits. Sadur[27] demonstrated significant improvements in self-care and self-efficacy while decrease hospitalizations for patients with poorly controlled diabetes. Scott[28] demonstrated the effectiveness of the group visit model in chronically ill older adults on reducing hospitalizations and emergency room visits while significantly improving patient satisfaction and quality of life. Two systematic reviews, one with 15 studies[14] and one with 12 studies[29] evaluating the effectiveness of group visits on patients with diabetes, concluded the group visits result in increased patient satisfaction with care and may reduce costs while improving physiological outcomes. Another systematic review[17] of 18 heterogeneous RCTs and observational studies on group visits concluded that the group visit model can improve patient and provider satisfaction, quality of care, quality of life, and decrease emergency visits.

The two group visit interventions for patients with HF included in this review, although conducted with small samples, demonstrate that it is feasible to utilize the group visit model on patients with HF and achieve favorable outcomes. However, given the difference in structure, content covered, group dynamics, and length/frequency in the group visit models utilized in these two studies, it is impossible to determine if specific components of the intervention or the combination of all components of a specific model may have led to the results seen.

Limitations of the review

This systematic review has some limitations. The search was limited to the English language. It is unknown if studies have been published in other languages. A comprehensive search identified only two small pilot studies. Consequently the reliability of their results is limited. Methodological heterogeneity between the two studies limits the generalizability of the review findings to other populations and settings.

Conclusions

Two group visit models were outlined in this review, one facilitated by a nurse practitioner and the other by an interprofessional team. Both models included group education and support for patients with HF and their families coupled with a one-on-one provider visit. The two pilot studies suggest that the group visit model for patient care has the potential for improving knowledge and self care behaviors, while increasing quality of life and decreasing hospitalizations for patients with HF (JBI Level of evidence = 3).

Implications for practice

Clinicians should consider group visits as an alternative method of providing patient centered care that allows the clinician to see a large number of patients in a short time period while providing education and health management (JBI level of evidence = 3). The goals of patient centered care are to increase communication, patient engagement, and patient activation. Achieving these goals in a culturally competent approach will increase the level of patient engagement and overall patient self-care management.[30] Patients are empowered when they take control over their disease management through shared decision-making, collaboration, and improved communication. The group process and group visit model assists in this aspect of patient-centered care especially when peers lead specific aspects of the group process.[10]

The group visit model provides patients with regular scheduled appointments to interact with their health care provider. Providers are given the opportunity to monitor adherence with the care plan, assess for worsening symptoms or adverse outcomes, and promote self-care behaviors. The group dynamics offers support and acceptance. Group visits facilitated by an interprofessional team may further benefit patients by providing patients access to the resources of other disciplines. Planning and preparation on the part of the health care provider is necessary to successfully implement group visits.

Implications for research

There is limited evidence on the effectiveness of group visits for patients with HF, put positive outcomes have been demonstrated for other chronic conditions. Additional research is needed on the effectiveness of group visits on patients with HF. Additional research should be conducted to determine the most effective format and the most effective interprofessional team for the group visit model on larger samples of culturally diverse populations across multiple settings. Future research should also seek to determine the most appropriate length for the group visit appointment to prevent patient fatigue while still maintaining the positive effects of the group visit format.

While the RCT is the gold standard for the determination of causality, this research method may not be the ideal choice to test the effects of group visit interventions. For patients to benefit from the group visit model of care they must be highly motivated to actively participate in the group. A RCT could be conducted if the inclusion criteria had selected patients who were motivated to participate in the group visit model and then randomized these patients to the intervention or control arms.[17] Blinding, however, would not be possible, introducing a source of bias into the study.

Conflicts of interest

None

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Appendix I: Search strategy

CINAHL search (conducted October 7, 2012):
1. “group visit*”
2. “group medical visit*”
3. “shared medical appointment*”
4. “shared medical visit*”
5. “cluster visit*”
6. “chronic care clinic*”
7. “group outpatient visit*”
8. (1 OR 2 OR 3 OR 4 OR 5 OR 6 OR 7)
9. (MH “Heart Failure”) OR “heart failure”
10. (MH “Cardiomyopathy, Dilated”) OR “cardiomyopathy” OR (MH “Myocardial Diseases”)
11. (9 OR 10)
12. (10 AND 11)

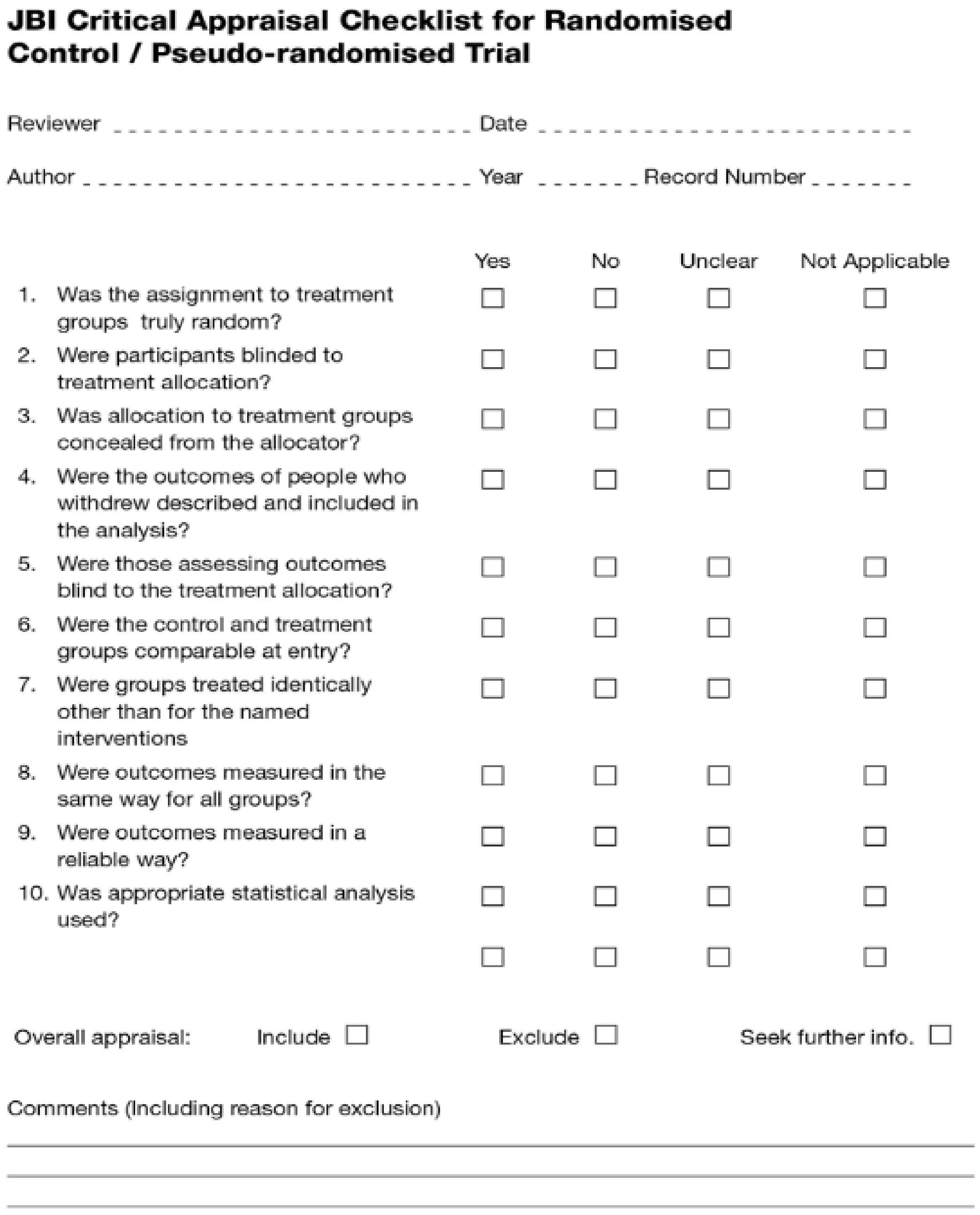
PubMed search (conducted October 7, 2012):
1. “group visit*”
2. “group medical visit*”
3. “shared medical appointment*”
4. “shared medical visit*”
5. “cluster visit*”
6. “chronic care clinic*”
7. “group outpatient visit*”
8. (1 OR 2 OR 3 OR 4 OR 5 OR 6 OR 7)
9. “Heart Failure” (MeSH) OR “heart failure”
10. “cardiomyopathies” (MeSH) OR “cardiomyopathies” OR “cardiomyopathy”
11. “myocardial disease”
12. (9 OR 10 OR 11)
13. (8 AND 12)

EMBASE search (conducted October 6, 2012):
1. “group visit” OR “group visits”
2. “group medical visit” OR “group medical visits”
3. “shared medical appointment” OR “shared medical appointments”
4. “shared medical visit” OR “shared medical visits”
5. “cluster visit” OR “cluster visits”
6. “chronic care clinic”
7. “group outpatient visit” OR “group outpatient visits”
8. (1 OR 2 OR 3 OR 4 OR 5 OR 6 OR 7)
9. “heart failure”/exp OR “heart failure”
10. “cardiomyopathy”/exp OR cardiomyopathy OR cardiomyopathies
11. “myocardial disease”/exp OR “myocardial disease”
12. (9 OR 10 OR 11)
13. (8 AND 12)

Non-indexed databases were searched using all terms as keywords as follows:

1. “group visit” OR “group visits”
2. “group medical visit” OR “group medical visits”
3. “shared medical appointment” OR “shared medical appointments”
4. “shared medical visit” OR “shared medical visits”
5. “cluster visit” OR “cluster visits”
6. “chronic care clinic”
7. “group outpatient visit” OR “group outpatient visits”
8. (1 OR 2 OR 3 OR 4 OR 5 OR 6 OR 7)
9. “heart failure”
10. cardiomyopathy
11. “myocardial disease”
12. (9 OR 10 OR 11)
13. (8 AND 12)

Appendix II: Joanna Briggs Institute critical appraisal instruments



JBI Critical Appraisal Checklist for Randomised Control / Pseudo-randomised Trial

Reviewer _ Date _

Author _ Year _ _ _ _ _ _ Record Number _ _ _ _ _ _

	Yes	No	Unclear	Not Applicable
1. Was the assignment to treatment groups truly random?	☐	☐	☐	☐
2. Were participants blinded to treatment allocation?	☐	☐	☐	☐
3. Was allocation to treatment groups concealed from the allocator?	☐	☐	☐	☐
4. Were the outcomes of people who withdrew described and included in the analysis?	☐	☐	☐	☐
5. Were those assessing outcomes blind to the treatment allocation?	☐	☐	☐	☐
6. Were the control and treatment groups comparable at entry?	☐	☐	☐	☐
7. Were groups treated identically other than for the named interventions	☐	☐	☐	☐
8. Were outcomes measured in the same way for all groups?	☐	☐	☐	☐
9. Were outcomes measured in a reliable way?	☐	☐	☐	☐
10. Was appropriate statistical analysis used?	☐	☐	☐	☐
	☐	☐	☐	☐

Overall appraisal: Include ☐ Exclude ☐ Seek further info. ☐

Comments (Including reason for exclusion)

JBI Critical Appraisal Checklist for Comparable Cohort/ Case Control

Reviewer _ Date _

Author _ Year _ _ _ _ _ _ _ Record Number _ _ _ _ _ _ _

	Yes	No	Unclear	Not Applicable
1. Is sample representative of patients in the population as a whole?	☐	☐	☐	☐
2. Are the patients at a similar point in the course of their condition/illness?	☐	☐	☐	☐
3. Has bias been minimised in relation to selection of cases and of controls?	☐	☐	☐	☐
4. Are confounding factors identified and strategies to deal with them stated?	☐	☐	☐	☐
5. Are outcomes assessed using objective criteria?	☐	☐	☐	☐
6. Was follow up carried out over a sufficient time period?	☐	☐	☐	☐
7. Were the outcomes of people who withdrew described and included in the analysis?	☐	☐	☐	☐
8. Were outcomes measured in a reliable way?	☐	☐	☐	☐
9. Was appropriate statistical analysis used?	☐	☐	☐	☐

Overall appraisal: Include ☐ Exclude ☐ Seek further info. ☐

Comments (Including reason for exclusion)

Appendix III: Joanna Briggs Institute data extraction instrument

JBI Data Extraction Form for
Experimental / Observational Studies

Reviewer _ Date _

Author _ Year _

Journal_ Record Number_ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _

Study Method

RCT ☐ Quasi-RCT ☐ Longitudinal ☐

Retrospective ☐ Observational ☐ Other ☐

Participants

Setting ____

Population ____

Sample size

Group A ____________________ Group B ____________________

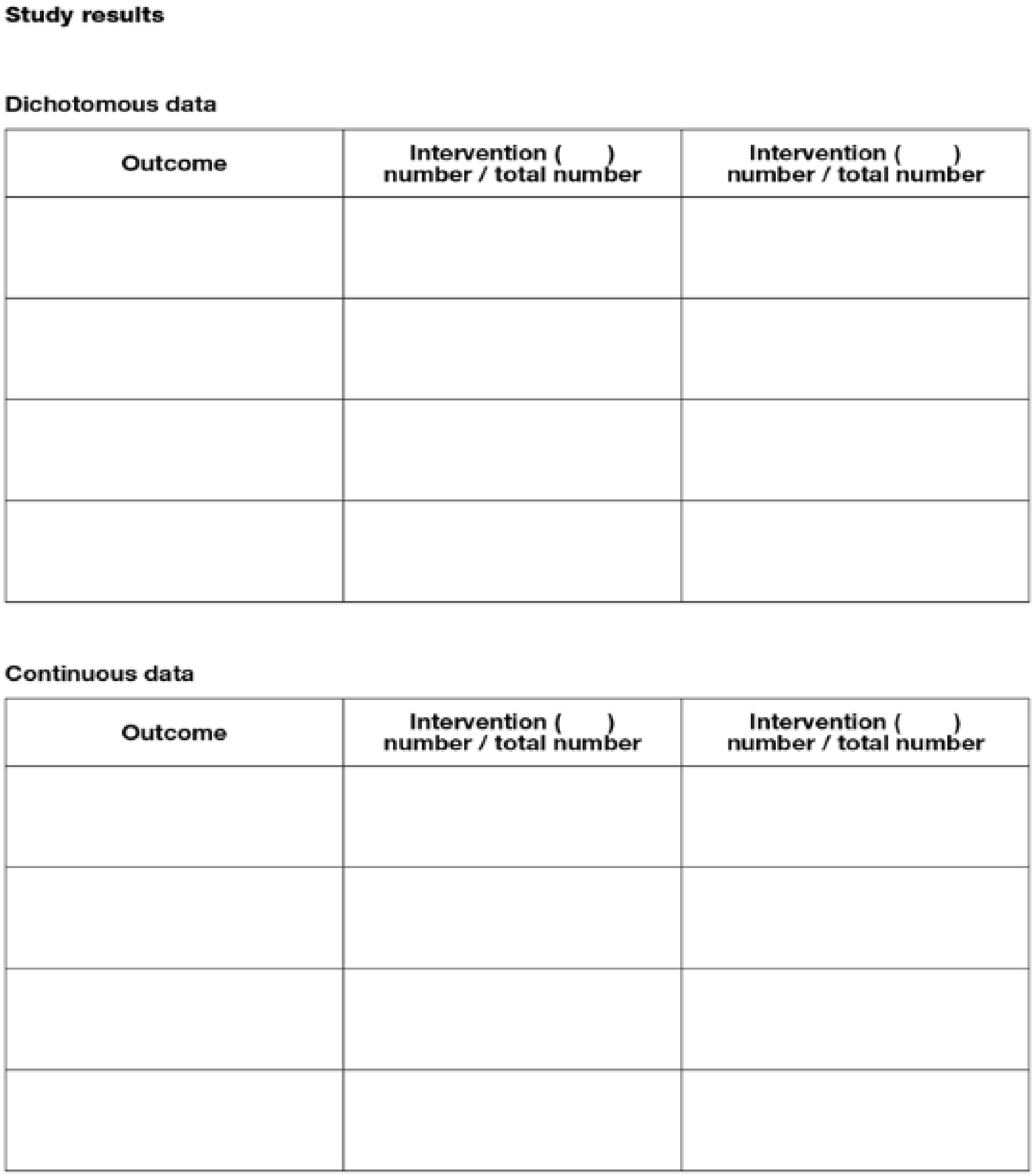
Interventions

Intervention A ____

Intervention B ____

Authors Conclusions: ____

Reviewers Conclusions: ____



Study results

Dichotomous data

Outcome	Intervention ( ) number / total number	Intervention ( ) number / total number

Continuous data

Outcome	Intervention ( ) number / total number	Intervention ( ) number / total number

Appendix IV: Table of excluded studies

1. Bartley KB, Haney R. Shared medical appointments: Improving access, outcomes, and satisfaction for patients with chronic cardiac diseases. J Cardiovasc Nurs. 2010; 25(1):13–19.
Reason for exclusion: Not a research study.

2. Beck A, Scott J, Williams P, Robertson B, Jackson D, Gade G, Cowan P. A randomized trial of group outpatient visits for chronically ill older HMO members: The Cooperative health care clinic. J Am Geriatr Soc. 1997;45:543–49.
Reason for exclusion: Not a heart failure specific population.

3. Scott JC, Conner DA, Venohr I, Gade G, McKenzie M, Kramer AM, Bryant L, et al. Effectiveness of a group outpatient visit model for chronically ill older health maintenance organization members: a 2-year randomized trial of the cooperative health care clinic. J Am Geriatr Soc. 2004;52(9):1463–70.
Reason for exclusion: Not a heart failure specific population. Study authors were unable to provide raw data for the heart failure subpopulation.

4. Watts SA, Gee J, O’Day ME, Schaub K, Lawrence R, Aron D, Kirsh S. Nurse practitioner-led multidisciplinary teams to improve chronic illness care: The unique strengths of nurse practitioners applied to shared medical appointments/group visits. J Am Acad Nurse Pract. 2009;21(3):167–172.
Reason for exclusion: Not a research study.

5. Yehle KS, Sands LP, Rhynders PA, Newton GD. The effect of shared medical visits on knowledge and self-care in patients with heart failure: A pilot study. Heart Lung. 2009;38:25-33.
Reason for exclusion: Dissertation. Contains outcome thes ame data on same patient sample as Yehle[22] article.

Appendix V: Table of included studies

	Lin, et al., 2008[25]
Methods	Longitudinal cohort study
Participants	Patients with New York Heart Association class III or IV systolic or diastolic heart failure at the initial presentation to a heart failure clinical at the Naval Medical Center in San Diego, California, USA. Participants had multiple readmissions for heart failure or were undergoing aggressive titration of medications.
Intervention	A group visits with 6 to 8 patients and family lasting 2 hours that included a private, focused, physical exam by a physician and a group meeting led by a multidisciplinary team, including a dietician, a psychologist, a pharmacist, nurses, and the physician moderator.
Control	No control group
Notes	Using the group visit model for patients with heart failure increases patient satisfaction, improves quality of life, and reduces the number of hospitalizations. Limitations of this pilot study include the small sample size (only 33 patients completed 6 months) and the lack of a control group. A depression scale was used as a surrogate for quality of life.

	Yehle, et al., 2009[23]
Methods	Randomized controlled trial
Participants	Convenience sample of 52 adult patients with systolic or diastolic heart failure from a cardiology group practice in Lafayette, Indiana, USA. 18 participants did not participate after signing consent. 24 participants completed the baseline assessment.
Intervention	Group visits consisting of a 10-minute private physical examination with a nurse practitioner and a 1-hour semi-structured education and support group led by a nurse practitioner for up to 6 patients and their family/friends.
Control	One-on-one 30-minute visits with a nurse practitioner
Notes	Conducting group visits for patients with heart failure is feasible. Group visits were associated with an improvement in heart failure knowledge. Although there was no significant improvement in self-care in this pilot study there was a trend demonstrating improvement in self-care management in the intervention group. Limitations of this pilot study include the small sample size and poor compliance with completion of instruments in both groups. The results of the secondary outcome (readmission) were not reported.