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Nurses' Attitudes toward Family Importance in Heart Failure Care

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Abstract

Background: Support from the family positively affects self-management, patient outcomes and the incidence of hospitalizations among patients with heart failure (HF). To involve family members in HF care is thus valuable for the patients. Registered nurses (RNs) frequently meet family members to patients with HF and the quality of these encounters are likely to be influenced by the attitudes RNs hold toward families. **Aims:** To explore RNs' attitudes toward the importance of families' involvement in HF nursing care and to identify factors that predict the most supportive attitudes. **Methods:** Cross-sectional, multicentre web-survey study. A sample of 303 RNs from 47 hospitals and 30 primary health care centres (PHCC) completed the instrument Families' Importance in Nursing Care - Nurses' Attitudes. **Results:** Overall, RNs were supportive of families' involvement. Nonetheless, attitudes toward inviting families to actively take part in HF nursing care and involve families in planning of care were less supportive. Factors predicting the most supportive attitudes were to work in a PHCC, a HF clinic, a workplace with a general approach toward families, to have a postgraduate specialization, education in cardiac and or HF nursing care, and a competence to work with families. **Conclusions:** Experienced RNs in HF nursing care can be encouraged to mentor their younger and less experienced colleagues to strengthen their supportive attitudes toward families. RNs who have designated consultation time with patients and families, as in a nurse-led HF clinic, may have the most favourable condition for implementing a more supportive approach to families.

Keywords

Attitudes, family, heart failure, involvement, nursing, support, survey

Introduction

The majority of support for patients with heart failure (HF) is provided by family members [1]. Increasing evidence confirms how support from the family positively affects self-management, patient outcomes, patients' and family members' quality of life, and the incidence of hospitalizations among patients with HF [2,3,4]. To involve family members in HF care is thus valuable for the patients, while there is also a need to recognize the challenges HF poses on the family members, family function and relationships within the family [5,6].

To have a cardiovascular disease such as HF requires all those involved to adjust to and cope with the patient's new lifestyle and support the treatment regimen [4,5,6]. A recent systematic review by Clark et al. [7] investigated the main HF management mechanisms and identified families' involvement as one effective intervention to improve self-management. The guidelines for the management of HF from American College of Cardiology Foundation/American Heart Association Task Force on Practice Guidelines and the European Society of Cardiology (ESC) recommend to involve family members in education, in the provision of psychosocial support and in the planning of care at discharge [8,9]. The advantages of families' and registered nurses' (RNs) collaboration and joint care planning at discharge from hospital are well documented, both in patients with HF and in the general medical populations [10,11]. Furthermore, family members who report more involvement in discharge care planning also report better health and greater acceptance of the caregiving role [12].

RNs frequently meet family members to patients with HF in hospital-settings and in primary health care centres (PHCCs) and have a key role in meeting the needs of family members [13]. The quality of these encounters are likely to be influenced by the attitudes RNs hold toward families' role and the importance of their involvement in nursing care [14,15]. Family involvement in HF nursing care has shown to alleviate the family's suffering, strengthen family bonds and be an opportunity for RNs to develop a closer and more constructive relationship with the patient and family members [16,17]. Nevertheless, in practice HF nursing interventions primarily focus on patients to improve outpatient self-management [4,7]. Whilst RNs may have ambivalent attitudes toward families' involvement in nursing care, RNs have also been found not to acknowledge families' need for involvement [18]. To hold positive and supportive attitudes toward families' involvement is essential for inviting and involving families in nursing care while negative attitudes lead RNs to minimize family

involvement [14,15,19,20].

RNs' attitudes toward the importance of families' involvement have previously been studied in various context-specific settings and populations such as paediatric care in Italy and Canada [21,22], surgical and psychiatric care in Iceland [23,24], critical and emergency care in Scotland, Iceland, Saudi Arabia and Sweden [25,26,27], general nursing care in Sweden and USA [14,28], nursing students in Sweden [29] and lastly cardiovascular care in various Scandinavian countries and Belgium [30]. These studies show overall supportive attitudes toward the importance of families' involvement in nursing care with differences for demographic variables such as age, gender, length of experience and educational level.

To date, there is a scarcity of research available exploring RNs' attitudes toward the importance of families' involvement in the specific field of HF nursing care in Sweden. Family members have a central role in health outcomes and self-management but experience caregiver burden. Since increased family involvement has shown to reduce this burden, it seems conclusive to explore the prerequisites for RNs to involve families in HF nursing care. Consequently, the aims of the present study are to explore RNs' attitudes toward the importance of families' involvement in HF nursing care and to identify factors that predict the most supportive attitudes.

Methods

Study population and procedure

A cross-sectional, multicentre design was used. Swedish hospitals (*n*=64) and PHCCs (*n*=111) that during the past six months had registered patient data in The Swedish Heart Failure Registry [31,32] were eligible for inclusion. Managers in each eligible health care unit were contacted by email, informed about the study and asked to provide contact information for RNs working with patients with HF. The single inclusion criterion for RNs was that they should work with patients with HF on a daily basis, irrespective of whether their workplace was a hospital ward, a nurse-led HF clinic, a PHCC or a patient's home. A total of 100 managers from 54 hospitals and 58 PHCCs replied with contact information for 540 RNs. These RNs were sent an information email which contained the embedded link to the survey, administered by the Netigate® software (http://www.netigate.net). Three reminders, the first two via email and the third via telephone, were given to non-responders. Data were collected

from May to September 2015 and the response rate was 59% (*n*=317). A total of 14 responses only contained demographic data and were excluded from the analyses. Thus, the analyses were performed on responses from 303 RNs from 47 hospitals and 30 PHCCs.

Data collection

Demographic data of the respondents was collected and consisted of age, gender, workplace, years since graduation, postgraduate specialization, education in cardiac and or HF nursing care, experience in HF nursing care, HF clinic in workplace, working in HF clinic, general approach to the care of families in the workplace, competence (i.e. possessing the skill and knowledge) in working with families and experience of serious illness, in need of professional health care, in their own family. The demographic questions were all closed-ended except for the three last questions which had spaces for free text responses. RNs also received the instrument Families' Importance in Nursing Care - Nurses' Attitudes (FINC-NA) [33]. The FINC-NA consists of 26 items and two generic questions. For the 26 items a five-point Likert scale is used for responses, where 1 corresponds to *totally disagree* and 5 corresponds to *totally agree*. The first generic question concerns RNs' overall attitude toward the importance of families' involvement in nursing care. A four-point Likert scale is used for responses, where 1 corresponds to *very negative* and 4 corresponds to *very positive*. The second generic question concerns RNs' eventual change in attitude during the previous month. A three-point Likert scale is used for responses, where 1 corresponds to *become more negative* and 3 corresponds to *become more positive*.

FINC-NA has four subscales: *Family as a Resource in Nursing Care* (Fam-RNC), *Family as a Conversational Partner* (Fam-CP), *Family as a Burden* (Fam-B) and *Family as its Own Resource* (Fam-OR). Scores for subscale Fam-B were reversed before analysis. The FINC-NA has been found to be reliable and valid [50]. In the present study, internal consistency was Cronbach's alpha .86 for Total scale, .87 for Fam-RNC, .79 for Fam-CP, .71 for Fam-B and .79 for Fam-OR.

Data analyses

Descriptive statistics of demographic data for RNs were calculated. One-sample Kolmogorov-Smirnov test was used to compare means. Mann-Whitney *U* test was used to analyse differences between two subgroups and Kruskal-Wallis test was used to analyse differences between three or more subgroups. A list view deletion of 14 cases who did not respond to any

of the FINC-NA items was carried out (from 317 cases to 303 cases). Other missing values for scores in FINC-NA were 2% and imputation of item mean score was used [34].

Binary logistic regression analyses [35] were conducted to identify factors that predicted the most supportive attitudes to families. To identify RNs with the highest scores the third quartiles were used as cut-offs (Total scale ≥110, Fam-RNC ≥46, Fam-CP ≥27, Fam-B ≥18 and Fam-OR ≥16). Highest scores were coded as 1 and others as 0. Six predictor factors were entered into the logistic regression analyses. These were derived from the demographic data for RNs and were considered modifiable through targeted interventions on individual and or organizational levels. The predictor factors were: type of workplace, postgraduate specialization, education in cardiac and or HF nursing care, working in a HF clinic, general approach in the workplace and competence in working with families. Nagelkerke R^2 was used to explain the predictor factors' contribution to the variance in the outcome, and Hosmer-Lemeshow goodness-of-fit was used to assess the fit between the model and the data.

Overall significance level was set at $p \leq .05$. Statistical analyses were performed using IBM SPSS Statistics version 22.0 for Windows.

Ethical considerations

The study was provided with an advisory opinion by the Regional Ethical Review Board in Uppsala (Dno. 2015/014) as, according to current Swedish ethics legislation, formal ethical approval was not required for this study. The study conforms with the principles outlined in the Declaration of Helsinki [36]. In the information email to RNs, containing the embedded link to the survey, they were informed of the voluntary nature of their participation and could decline participation by not responding to the survey. RNs were also informed that their individual responses would be treated with confidentiality and would not be traceable to them or their health care unit.

Results

Demographic data for RNs

Table 1 shows the demographic data for the RNs (*n*=303) working with patients with HF who participated in this web-survey study. A majority of the RNs was female (*n*=280; 92%) and 262 RNs (86%) worked in a hospital setting. A total of 159 RNs (52%) had education in cardiac and or HF nursing care, of these were 129 (81%) working in hospitals and 30 (19%) in PHCCs. A total of 111 RNs (37%) worked in a HF clinic, of these were 74 RNs (67%) working in hospitals and 37 RNs (33%) in PHCCs.

In the demographic data with free text responses, 26 of the RNs (*n*=37) with a general approach to the care of families in their workplace described how they invited and informed family members in patients' health visits. They also provided group education on a regular basis to patients and families and tried to be attentive to their needs. The RNs (*n*=114) who reported that they lacked competence in working with families were asked about the reasons behind this. A total of 64 RNs said they lacked formal education on care for families and or lacked a unified approach in the workplace. RNs also described lack of time and routine as hindrances to competence development while structured and supportive teamwork, reflective discussions and ethical guidance in complex care situations were facilitators for competence development. Lastly, 58 of the RNs (*n*=160) who had experience of serious illness, in need of professional health care, in their own family, described feelings of loneliness, powerlessness and helplessness in relation to health care but also satisfaction with home care and basic and advanced home health care. RNs stressed the importance of receiving adequate information and of being offered involvement in the patient's health care.

RNs' attitudes toward the importance of families' involvement in HF nursing care

The median score of the total FINC-NA scale was 101 (q1-q3 = 90-110), indicating RNs' overall supportive attitudes to families' involvement in HF nursing care (Table 2). The scores had a skewed distribution. Of the instrument's 26 items, 20 items had a median score of ≥ 4 while the remaining six items (items 7, 12, 14, 15, 16 and 17) (Figure 1) had a median score of 3. As per the two generic questions, RNs had an overall positive attitude (55%) or an overall very positive attitude (44%) toward families' involvement in nursing care, and this attitude had remained unchanged (89%) during the last month.

On a single-item level, there was a significant difference between RNs' cognition and their self-reported behaviour regarding the same matters. RNs were supportive of families' involvement in item 1 (Fam-CP): "It is important to find out what family members a patient has" (*md*=4) versus less supportive in item 12 (Fam-CP): "I always find out what family members a patient has" (*md*=3). Similarly, RNs were supportive of families' involvement in item 4 (Fam-RNC): "Family members should be invited to actively take part in the patient's nursing care" (*md*=4) versus less supportive in item 15 (Fam-CP) "I invite family members to actively take part in the patient's care" (*md*=3), which had the second lowest score of all items in FINC-NA.

Significant differences in subgroups comparison for the four subscales

The median score for the subscale Fam-RNC was 41 (q1-q3=37-46). Viewing families as a resource implies valuing families' presence in nursing care, inviting them to take part in the care of their family member, creating a good family-nurse relationship and seeing family members as cooperating partners. RNs <35 years, male RNs, RNs without postgraduate specialization and RNs with 1-10 years of experience in HF nursing care held significantly less supportive attitudes when compared to others within the subgroups.

The median score for the subscale Fam-CP was 24 (q1-q3=21-27). Viewing families as a conversational partner implies inviting families to actively take part in nursing care, discuss changes in HF condition and involve families in the planning of care. This subscale included the two items that scored the lowest of all items in FINC-NA: "14. I invite family members to have a conversation at the end of the care period" and "15. I invite family members to actively take part in the patient's care". RNs with no general approach to the care of families in the workplace and RNs without competence to work with families held significantly less supportive attitudes when compared to others within the subgroups.

The median score for the subscale Fam-B was 16 (q1-q3=13-18). Viewing families as a burden implies having no time to acknowledge and taking care of families and considering families as undesirable in nursing care. RNs <35 years, RNs working in hospital, RNs with ≤20 years since graduation, RNs without education in cardiac and or HF nursing care, RNs with 1-4 years of experience in HF nursing care, RNs not working in HF clinic and lastly RNs without competence in working with families held significantly less supportive attitudes when compared to others within the subgroups.

The median score for the subscale Fam-OR was 14 (q1-q3=11-16). Viewing families as a resource implies supporting families in acknowledging and using their own resources to handle their situation. RNs <35 years, RNs working in hospital, RNs without postgraduate specialization, RNs without education in cardiac and or HF nursing care, RNs with 1-10 years of experience in HF nursing care, RNs not working in a HF clinic, RNs with no general approach to the care of families in the workplace, RNs without competence to work with families, and lastly RNs without experience of serious illness, in need of professional health care, in their own family had significantly less supportive attitudes when compared to others within the subgroups.

Factors predicting the most supportive attitudes toward the importance of families' involvement in HF nursing care

The binary logistic regression analyses (Table 3) suggest that the most supportive attitudes toward families as a resource in nursing care are 2.53 times more likely to be held among RNs with a postgraduate specialization (district nurse specialization). The most supportive attitudes toward families as conversational partners are 2.44 times more likely among RNs with a general approach to the care of families at workplace and 1.87 times more likely among RNs having competence to work with families. The most supportive attitudes toward not viewing families as a burden were predicted by being a RN working in a PHCC (OR=4.19), having a postgraduate specialization (district nurse specialization) (OR=2.08), having education in cardiac and or HF nursing care (OR=2.65), working in a HF clinic (OR=2.51) and having competence to work with families (OR=1.92). The most supportive attitudes toward families as their own resource were predicted by all included factors (OR ranging between 2.31 and 3.31).

Discussion

This study provides new knowledge about RNs' attitudes toward the importance of families' involvement in HF nursing care. Overall, RNs working with patients with HF were supportive of families' involvement, which is consistent with previous research among RNs in other nursing settings [14,21,22,23,24,25,26,27,28,29,30]. However, significant differences in attitudes were found for age, type and level of education, competence, personal and professional experience, and workplace. Also, a discrepancy on a single-items level prevailed between RNs' cognition and their self-reported behaviour on the same matters, which has also

been reported by Caty et al. [22] and Luttik et al. [30]. Reasons behind the discrepancy may be the constraints on an organizational level that prevent RNs from involving families in their clinical practice. The difficulties of implementing a family-focused nursing approach are earlier described by several researchers in the area of family nursing and reported as multifactorial on both individual and organizational levels [14,15,16,17,20,37].

There are three major concerns in the results that are of particular interest for HF nursing care. Firstly, the RNs who viewed families as a burden had no education in cardiac and or HF nursing care (48%), had 1-4 years of experience in HF nursing care (33%), did not work in a HF clinic (63%) and had no competence in working with families (38%). Earlier research describes how RNs feel challenged when confronted with families due to RNs' lack of family nursing competence, their workload and time constraints. Clearly, this affects RNs' motivation to include families and the family perspective in their daily nursing care [15,20]. Duhamel et al. [16] and Voltelen et al. [17] found several advantages for both RNs and families when using a structured HF family nursing approach in RNs' daily practice. Voltelen et al. [17] describe how RNs experienced a changed relationship with the family and believed they were supporting the families to live with HF within the meeting time available. Both studies underscore that in addition to being an experienced RN who feels secure in one's professional capacity, it is important for RNs to acquire expert knowledge in HF and nursing skills in family nursing in order to work successfully with families [16,17]. These studies confirm the presents study's associations between supportive attitudes toward families' involvement and long experience, education in cardiac and or HF nursing care and having competence to work with families.

Secondly, RNs who held significantly less supportive attitudes toward families as conversational partners were RNs with no general approach to the care of families in the workplace and RNs without competence to work with families. One item in this subscale "I invite family members to have a conversation at the end of the care period", scored the lowest of all items in FINC-NA, which is troubling as RNs have to depend considerably on family members in care planning and decision-making. Bauer et al. [10] found in their review that discharge planning is improved if family inclusion and education, communication between health care professionals and family and ongoing support after discharge are addressed. A direct correlation between the quality of discharge planning and readmission to hospital was also found [10], which is of particular importance in the HF field. Furthermore, effective communication with patients and families is critical during the transition from hospital to

home as patients and families often have conflicting feelings of relief, anxiety and wariness when attention from health care professionals is suddenly removed [11]. To initiate and pursue good communication with families is presumably more difficult if one does not possess the competence to work with families and or works in an environment without a general approach to the care of families. The major challenges in using a family-focused approach are the absence of role models and lack of coaching in family nursing at the workplace, together with RNs' low level of confidence in their competence to work with families [17,37]. To overcome these challenges, family nursing implementation research agrees on the value of managerial support, which has shown to influence decisions on the approach and the distribution of educational resources at the workplace [17,37]. Also, the more RNs apply their family nursing training, the more they tend to acknowledge the usefulness and reward of family nursing, which enhances their confidence in their competence [37].

The third major concern in our results is the overall significant associations between less supportive attitudes toward families and less experienced, young RNs without postgraduate specialization. These results are in line with earlier research [14,23,30] and can be expected as young and inexperienced RNs are in the process of learning and gaining new skills and thus are presumably more task-oriented and primarily focused on the physical care and safety of the patients. One way to address these less supportive attitudes and the previously mentioned absence of role models and lack of coaching in family nursing, is to emphasize the importance of mentorship in the clinical workplace. The logistic regression analyses showed that RNs who worked in PHCCs, in HF clinics, in workplaces with a general approach toward families, had postgraduate specialization, education in cardiac and or HF nursing care, and competence to work with families were more than twice as likely to have the most supportive attitudes toward families. These RNs are in an ideal position to share their expertise and experience with their younger, less experienced and presumably less confident colleagues. More supportive attitudes among RNs in the PHCCs are in line with the findings of Benzein et al. [14]. They may be related to the fact that RNs in PHCCs have a long history of working in home health care in which establishing collaborative relationships with families are essential. There is a risk that this competence in the PHCCs may be lost, unless replaced with for example nurse-led HF clinics, as the responsibility for home health care has recently undergone a shift from the county councils' PHCCs to the municipalities' elder care in all but one county in Sweden [38].

The ESC guidelines advocate the implementation of nurse-led HF programs to achieve optimal management of HF [9], which has shown to reduce mortality, the number of readmissions and days in hospital [8,9]. RNs who have designated consultation time with a specific group of patients, as in a HF clinic in hospital or PHCC, may have the most favourable condition for implementing a more supportive approach to the care of families [15]. Furthermore, in view of the central role families play in HF care and self-management to improve health outcomes [2,3] it seems essential to prepare RNs for the challenges and opportunities of caring for families. To date, there are few family nursing interventions in HF nursing care [16,17,39] and the empirical research evidence on family nursing interventions in HF nursing care needs to be considerably expanded and strengthened.

Strengths and limitations

Since web-based surveys compared to postal surveys typically generate considerably lower response rates [40], this study's response rate of 59% is satisfactory. Web-based surveys also attract male users [40], which is of interest as our study population is female-dominated. The response rate may have been higher with a mixed web- and paper-based data collection, although more expensive. Of the eligible 111 PHCCs, only 30 were included in the study. There were several explanations for this: managers in PHCCs responded with contact information to RNs to a lesser degree than did managers in hospitals; RNs in the PHCCs did not meet HF patients although physicians reported data to The Swedish Heart Failure Registry; PHCCs did not have a nurse-led HF clinic, and there were proportionally fewer RNs per PHCC to represent each PHCC in comparison with RNs in hospital. The nature of the topic might have induced a social desirability bias; however, the assurance of confidentiality when publishing the results presumably limited that risk. The limitations of the study include the innate negative skew of the FINC-NA instrument, as also pointed out by the authors of the instrument [33] but it still had the sensitivity and responsiveness to identify differences within and between subgroups. The subscale Fam-B has inverted items, which may explain the comparatively lower Cronbach’s alpha of .71, which has also been seen previously in studies using the FINC-NA instrument [14,21,23,24,25,27,29,30].

Conclusion and recommendations

RNs working with patients with HF generally viewed families as important to involve in HF nursing care. However, young RNs without education in cardiac and or HF nursing care, without postgraduate specialization and who did not work in a HF clinic had less supportive

attitudes toward families' involvement. These results are consistent with previous research in other nursing fields. Factors predicting RNs' most supportive attitudes, i.e. working in PHCCs, in HF clinics, in workplaces with a general approach toward families, and RNs with postgraduate specializations, education in cardiac and or HF nursing care, and competence to work with families are all modifiable on individual and organizational levels. If these modifiable factors are valued and strengthened in the clinical setting, a more family-focused approach may be induced. RNs with the aforementioned factors can be encouraged to guide and mentor their younger and less experienced colleagues to strengthen their supportive attitudes toward families. Furthermore, RNs who have designated consultation time with patients and families, as in a nurse-led HF clinic in hospital or PHCC, may have the most favourable condition for implementing a more supportive approach to the care of families. In addition, more research with an experimental and quasi-experimental design is needed to strengthen the evidence base for family nursing and its implementation in clinical settings.

Implications for practice

- RNs who have designated consultation time with patients and families, as in a nurse-led HF clinic in hospital or PHCC, may have the most favourable condition for implementing a more supportive approach to the care of families.
- Factors predicting RNs' most supportive attitudes, i.e. working in PHCCs, in HF clinics, in workplaces with a general approach toward families, and RNs with postgraduate specializations, education in cardiac and or HF nursing care, and competence to work with families are all modifiable on individual and organizational levels. If these modifiable factors are valued and strengthened in the clinical setting, a more family-focused approach may be induced.
- Experienced RNs in HF nursing care can be encouraged to mentor their younger and less experienced colleagues to strengthen their supportive attitudes toward families.

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Conflict of interest

The authors declare that there are no conflicts of interest.

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Figures and tables

Family as a resource in nursing care (Fam-RNC)

3. A good relationship with family members gives me job satisfaction
4. Family members should be invited to actively take part in the patient's nursing care
5. The presence of family members is important to me as a nurse
7. The presence of family members gives me a feeling of security
10. The presence of family members eases my workload
11. Family members should be invited to actively take part in planning patient care
13. The presence of family members is important for the family members themselves
20. Getting involved with families gives me a feeling of being useful
21. I gain a lot of worthwhile knowledge from families which I can use in my work
22. It is important to spend time with families

Family as conversational partner (Fam-CP)

1. It is important to find out what family members a patient has
6. I ask family members to take part in discussions from the very first contact, when a patient comes into my care
9. Discussion with family members during the first care contact saves time in my future work
12. I always find out what family members a patient has
14. I invite family members to have a conversation at the end of the care period
15. I invite family members to actively take part in the patient's care
19. I invite family members to speak about changes in the patient's condition
24. I invite family members to speak when planning care

Family as a burden (Fam-B)

2. The presence of family members holds me back in my work
8. I don't have time to take care of families
23. The presence of family members makes me feel that they are checking up on me
26. The presence of family members makes me feel stressed

Family as its own resource (Fam-OR)

16. I ask families how I can support them
18. I consider family members as cooperating partners
17. I encourage families to use their own resources so that they have the optimal possibilities to cope with situations by themselves
25. I see myself as a resource for families so that they can cope as well as possible with their situation

Figure 1. Items sorted by subscales of Families' Importance in Nursing Care - Nurses' Attitudes (FINC-NA) [33]

Table 1. Demographic data for registered nurses (RNs) (*n* = 303)

Age, *md* (q_1-q_3)	45 (34-53)
Gender	
Female, *n* (%)	280 (92)
Male, *n* (%)	23 (8)
Workplace	
Hospital, *n* (%)	262 (86)
Primary health care centre, *n* (%)	41 (14)
Years since graduation as RN, *md* (q_1-q_3)	13 (5-24)
< 10, *n* (%)	114 (38)
10-20, *n* (%)	86 (28)
> 20, *n* (%)	101 (33)
Missing, *n* (%)	2 (1)
Postgraduate specialization	
Yes, *n* (%)	66 (22)
No, *n* (%)	237 (78)
Education in cardiac and or HF nursing care	
Yes, *n* (%)	159 (52)
No, *n* (%)	144 (48)
Experience in HF nursing care	
< 1 years, *n* (%)	22 (7)
1-4 years, *n* (%)	100 (33)
5-10 years, *n* (%)	62 (20)
> 10 years, *n* (%)	117 (39)
Missing, *n* (%)	2 (1)
Working in HF clinic	
Yes, *n* (%)	111 (37)
No, *n* (%)	190 (63)
Missing, *n* (%)	2 (1)
General approach to the care of families in the workplace	
Yes, *n* (%)	37 (12)
No, *n* (%)	261 (86)
Missing, *n* (%)	5 (2)
Competence in working with families	
Yes, *n* (%)	180 (59)
No, *n* (%)	114 (38)
Missing, *n* (%)	9 (3)
Experience of serious illness, in need of professional health care, in own family	
Yes, *n* (%)	160 (53)
No, *n* (%)	143 (47)

Note: *n* = number, *md* = median, q1-q3 = the 25th and 75th percentile, HF = heart failure

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Table 2. Subgroups comparison of registered nurses' (RNs) (*n* = 303) attitudes toward the importance of families' involvement - scores for total scale and subscales

FINC-NA Possible range	Total scale 26-130	Fam-RNC 10-50	Fam-CP 8-40	Fam-B[a] 4-20	Fam-OR 4-20
All RNs	101 (90-110) *md* (q_1-q_3)	41 (37-46) *md* (q_1-q_3)	24 (21-27) *md* (q_1-q_3)	16 (13-18) *md* (q_1-q_3)	14 (11-16) *md* (q_1-q_3)
Age					
< 35 (*n* = 78)	93 (84-104)	40 (35-43)	23 (21-27)	13 (12-16)	12 (10-15)
35-50 (*n* = 126)	101 (89-109)	41 (36-45)	25 (21-28)	16 (13-18)	14 (11-16)
> 50 (*n* = 99)	104 (94-116)	43 (39-48)	25 (22-28)	17 (15-19)	15 (13-17)
p value[c]	.000	.006	.276	.000	.000
X^2 (df)	23.761 (2)	10.404 (2)	2.574 (2)	57.073 (2)	32.177 (2)
Gender					
Female (*n* = 280)	101 (91-111)	42 (37-46)	25 (21-28)	16 (13-18)	14 (11-16)
Male (*n* = 23)	93 (88-102)	37 (34-43)	23 (20-26)	15 (13-16)	13 (12-16)
p value[b]	.021	.004	.075	.099	.854
U	2287.000	2057.500	2503.000	2557.000	3146.000
Type of workplace					
Hospital (*n* = 262)	101 (90-108)	41 (37-45)	24 (21-27)	16 (13-18)	14 (11-16)
PHCC (*n* = 41)	105 (92-117)	42 (37-47)	24 (21-27)	18 (16-19)	16 (14-17)
p value[b]	.069	.255	.798	.000	.002
U	4423.000	4778.00	5237.500	3260.500	3792.500
Years since graduation as RN[1]					
< 10 (*n* = 114)	106 (96-114)	43 (40-47)	26 (24-28)	16 (12-17)	16 (11-17)
10-20 (*n* = 86)	107 (95-115)	44 (40-47)	25 (21-28)	16 (14-19)	16 (14-18)
> 20 (*n* = 101)	106 (101-119)	46 (39-48)	26 (24-29)	18 (15-20)	16 (14-18)
p value[c]	.003	.134	.834	.000	.000
X^2 (df)	11.947 (2)	4.023 (2)	.365 (2)	40.522 (2)	25.103 (2)
Postgraduate specialization					
Yes (*n* = 66)	105 (92-116)	44 (37-47)	25 (22-28)	16 (15-18)	16 (14-18)
No (*n* = 237)	100 (89-107)	41 (36-45)	24 (21-27)	16 (13-18)	13 (11-16)
p value[b]	.006	.032	.163	.007	.000
U	6048.500	6472.500	6945.500	6137.500	5475.500
Education in cardiac and or HF nursing care					
Yes (*n* = 159)	102 (93-113)	42 (38-46)	25 (21-28)	16 (14-19)	15 (12-17)
No (*n* = 144)	98 (88-107)	41 (36-45)	24 (21-27)	15 (12-17)	13 (10-15)
p value[b]	.002	.064	.221	.000	.000
U	9088.500	10038.000	10517.500	8536.000	8622.000
Years of experience in HF nursing care[2]					
< 1 (*n* = 22)	103 (94-115)	45 (39-47)	24 (22-28)	16 (13-16)	16 (15-16)
1-4 (*n* = 100)	99 (87-107)	41 (35-45)	23 (21-26)	15 (12-17)	13 (11-15)
5-10 (*n* = 62)	95 (88-106)	40 (36-44)	24 (21-27)	16 (13-18)	13 (11-15)

> 10 (*n* = 117)	103 (94-116)	43 (39-47)	25 (21-28)	17 (15-19)	15 (13-17)
p value[c]	.001	.015	.215	.000	.000
X^2 (df)	17.307 (3)	10.507 (3)	4.470 (3)	22.482 (3)	23.817 (3)
Working in HF clinic[3]					
Yes (*n* = 111)	103 (93-115)	42 (37-47)	25 (21-27)	17 (15-18)	15 (13-17)
No (*n* = 190)	98 (88-107)	41 (36-45)	24 (21-27)	15 (12-17)	13 (11-15)
p value[b]	.009	.110	.775	.000	.000
U	8653.500	9382.000	10337.500	7349.000	7394.000
General approach to the care of families in the workplace[4]					
Yes (*n* = 37)	106 (92-119)	43 (35-46)	26 (24-29)	16 (15-18)	15 (12-18)
No (*n* = 261)	101 (90-108)	41 (37-46)	24 (21-27)	16 (13-18)	14 (11-16)
p value[b]	.019	.717	.002	.205	.006
U	3675.500	4651.000	3294.500	4209.500	3489.500
Competence in working with families[5]					
Yes (*n* = 180)	102 (91-113)	42 (37-46)	25 (21-28)	16 (14-18)	15 (12-16)
No (*n* = 114)	97 (87-104)	41 (36-45)	23 (21-26)	15 (12-17)	13 (10-15)
p value[b]	.003	.101	.018	.003	.001
U	8177.000	9096.000	8578.000	8129.500	7884.000
Experience of serious illness, in need of professional health care, in own family					
Yes (*n* = 160)	102 (91-112)	42 (37-46)	25 (21-28)	16 (13-18)	14 (12-16)
No (*n* = 143)	98 (88-107)	40 (36-45)	23 (21-27)	16 (13-18)	13 (11-16)
p value[b]	.033	.106	.095	.370	.017
U	9818.000	10211.000	10171.500	10761.500	9631.000

Note: FINC-NA = Families' Importance in Nursing Care-Nurses' Attitudes, Total scale = Total score of FINC-NA, Fam-RNC = Family as a Resource in Nursing Care, Fam-CP = Family as a Conversational Partner, Fam-B = Family as a Burden, Fam-OR = Family as its Own Resource, *md* = median (Tukey's Hinges), q1-q3 = the 25th and 75th percentile, *n* = number, PHCC = Primary health care centre, HF = heart failure

a. Reversed scores 1=5, 2=4, 3=3, 4=3, 5=1; the higher the score the lesser burden the family is perceived to be

b. Mann-Whitney U test, Asymp. Sig. (2-tailed)

c. Kruskal-Wallis test, Asymp. Sig.

1. and 2. Missing (*n* = 2), 3. Missing values (*n* = 2) in relation to those RNs (*n* = 275) who had a heart failure clinic or unit with designated time for patients with heart failure in their workplace, 4. Missing (*n* = 5), 5. Missing (*n* = 9)

Table 3. Logistic regression analyses of registered nurses' (*n*=303) factors predicting the most supportive attitudes toward the importance of families' involvement in heart failure (HF) nursing care

FINC-NA	Total scale	Fam-RNC	Fam-CP	Fam-B[a]	Fam-OR
Variables	OR (95% CI)	OR (95% CI)	OR (95% CI)	OR (95% CI)	OR (95% CI)
Type of workplace (PHCC)	2.30 (1.15-4.60)* #	1.83 (.91-3.65)	.81 (.39-1.69)	4.19 (2.12-8.28)*** ###	3.31 (1.69-6.49)*** ###
Postgraduate specialization (yes)	2.63 (1.46-4.73)** ##	2.55 (1.41-4.51)** ##	1.28 (.72-2.28)	2.08 (1.18-3.67)* #	3.26 (1.85-5.73)*** ###
Education in cardiac and or HF nursing care (yes)	1.76 (1.03-3.03)* #	1.33 (.79-2.23)	1.30 (.80-2.13)	2.65 (1.57-4.46)*** ###	2.36 (1.42-3.91)** ##
Working in HF clinic (yes)	1.84 (1.08-3.15)* #	1.47 (.87-2.48)	.92 (.55-1.53)	2.51 (1.51-4.17)*** ###	2.92 (1.77-4.83)*** ###
Approach at workplace[b] (yes)	1.90 (.91-3.96)	1.07 (.49-2.33)	2.44 (1.21-4.90)* #	1.51 (.74-3.10)	2.31 (1.15-4.63)* #
Competence[c] (yes)	2.39 (1.30-4.37)** ##	1.61 (.92-2.81)	1.87 (1.10-3.16)* #	1.92 (1.12-3.87)* #	2.33 (1.36-4.01)** ##

Note: * $p < .05$, ** $p < .01$, *** $p < .001$, # Nagelkirke R^2 .02 - .03, ## Nagelkirke R^2 .04 - .05, ### Nagelkirke R^2 .06 - .08

Total scale = Total score of FINC-NA = Families' Importance in Nursing Care - Nurses' Attitudes, Fam-RNC = Family as a Resource in Nursing Care, Fam-CP = Family as a Conversational Partner, Fam-B = Family as a Burden, Fam-OR = Family as its Own Resource

PHCC = Primary health care center

a. Reversed scores 1=5, 2=4, 3=3, 4=3, 5=1; the higher the score the lesser burden the family is perceived to be

b. General approach to the care of families in the workplace

c. Competence in working with families