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Effect of the Early Introduction of Mild Mobilization Performed by Nurses on the Recovery of Patients in the Intensive Care Unit

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Abstract

Rationale: Recent studies have reported the effectiveness of the early introduction of rehabilitation for preventing muscle weakness in patients in the intensive care unit (ICU). The early introduction of full-scale rehabilitation by a physical therapist is difficult in some cases because of disease severity and/or patient conditions. However, mild mobilization by a nurse (MMN), as a part of standard care performed, may have a positive effect on patient recovery. We examined the effect of the early introduction of MMN on the recovery of patients in the ICU. **Methods:** We retrospectively examined patients admitted to Niigata University Hospital's ICU during between April 2014 and March 2015 who were receiving mechanical ventilation for 7 days or more. Patients were divided into two groups according to the date of initiation of MMN: group L comprised patients for whom MMN was started after 72 hours and group E comprised patients for whom MMN was started within 72 hours after ICU admission. The data were analyzed using the Fisher test, Mann-Whitney U test, and Wilcoxon test. Statistical significance was defined as $P < 0.05$. **Results:** Sixty-three patients were included: 42 patients in group L and 21 in group E. There was no significant difference between the two groups in patients' background, including the type of illness, steroid use, presence of sepsis or diabetes, and sequential organ failure assessment (SOFA) score on ICU admission; however, the SOFA score at ICU discharge was significantly decreased in group E compared to that in group L (6.21 versus 4.30; $P = 0.034$). **Conclusion:** Our results indicate that MMN may reduce disease severity if started within 72 hours after ICU admission.

Keywords

Intensive Care Unit (ICU), Nurse, Mobilization,
Sequential Organ Failure Assessment (SOFA) Score

1. Introduction

Recent studies have demonstrated that supportive care can increase the survival rate of critically ill patients [1] [2] [3]. Patients in the intensive care unit (ICU) can rally from critical illness; subsequently, they return to daily life. Critically ill patients have a lower quality of life (QOL) because of a functional disorder of their body or mind [4] [5] [6]. Therefore, patients in the ICU after hospital discharge may have a worse QOL [4] [5]. In a previous study, improvement in the disease severity has not been shown as an effect of earlier ambulation on patients on artificial breathing [7]. The efficacy of early mobilization has been reported, and the effects of early mobilization on patients on artificial breathing include the following: improved functional independence, reduced ICU delirium, reduced duration of mechanical ventilation, reduced ICU length of stay, reduced hospital length of stay, improved 6-minute walk distance, improved QOL, and improved muscle strength. Recent studies have demonstrated that early mobility in the ICU is safe and feasible, with a potential reduction in short-term physical impairment by the intervention of a physical therapist. However, the effectiveness of early mobilization with an ICU nurse has not been reported until now [8] [9] [10]. Although a nurse is included in the early ambulation team, only the effect of intervention by a team has been shown [11] [12]. Therefore, the present study aimed to evaluate the effectiveness of enforcing early mobilization and nursing care for patients admitted in the ICU.

2. Method

2.1. Patients Selection

We retrospectively examined patients admitted to Niigata University Hospital's ICU between April 2014 and March 2015. Inclusion criteria were receiving mechanical ventilation for 7 days or more, and patients aged ≥ 20 years and ≤ 75 years who were diagnosed as having sepsis, pneumonia, acute respiration failure, or exacerbation of chronic respiratory failure were included in the present study. Exclusion criteria were as follows: patients aged ≥ 75 years or ≤ 20 years, those for whom the ICU nurse did not perform mobilization, and patients hospitalized more than twice in the ICU.

We defined mild mobilization by a nurse (MMN) when an ICU nurse performs an active range of motion or passive range of motion, passive sitting position, and breathing exercise more than once to a patient since ICU admission.

Ninety patients were selected for analysis. This study was approved by the research ethics committee of Niigata University Graduate School of Health Sciences (approval no.: 124). The histogram of the start of the intervention for MMN showed a bimodal distribution over 4 days (Figure 1). Patients were divided into two groups by the date

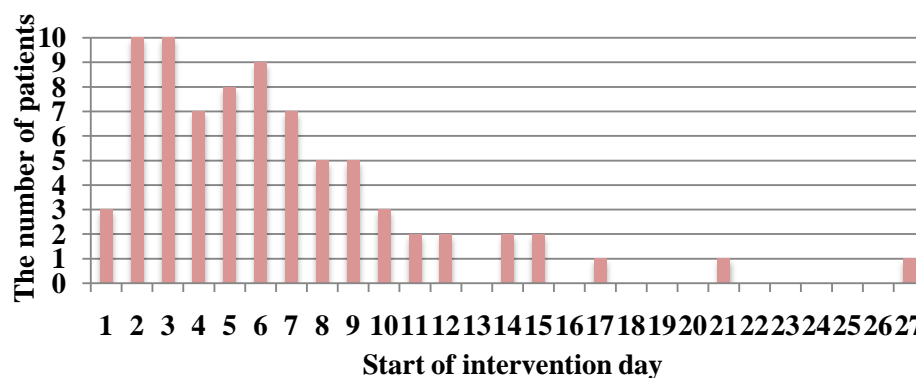


Figure 1. The start day of mild mobilization of a nurse. Mean \pm SD: 6.47 ± 4.69 days Median: 6 days.

of initiation of MMN: group L comprised patients with MMN starting after 72 hours, and group E comprised patients with MMN starting within a 72-hour period after ICU admission. We extracted data on patients' background (sex, basic disorder, and the presence of diabetes mellitus) from their medical charts. We also extracted the following clinical data on ICU admission from patients' medical charts: age, height, weight, body mass index (BMI), sequential organ failure assessment (SOFA) score, albumin level, blood urea nitrogen (BUN) level, creatinine (Cr) level, C-reactive protein (CRP) level, glucose level, glutamic oxaloacetic transaminase (GOT) level, glutamic pyruvic transaminase (GPT) level, total bilirubin level, and white blood cell (WBC) count. In addition, we extracted the following data on the features of nursing care during ICU admission from the medical charts: change in the body position, bed leaving, rehabilitation, and bed bath. Lastly, we extracted the following data on patients' clinical features on ICU discharge from the medical charts: age, height, weight, BMI, SOFA score, albumin level, BUN level, Cr level, CRP level, glucose level, GOT level, GPT level, total bilirubin level, WBC count, Glasgow Coma Scale (GCS) score, and ventilator days. There were no missing physiological data or data outliers.

2.2. Statistical Analysis

Data were analyzed using the Fisher test and Mann-Whitney U test. Statistical significance was defined as $P < 0.05$. All statistical analyses were performed using EZR (Saitama Medical Center, Jichi Medical University, Saitama, Japan), which is a graphical user interface for R (The R Foundation for Statistical Computing, Vienna, Austria). More precisely, it is a modified version of R commander designed to add statistical functions frequently used in biostatistics.

3. Results

3.1. Clinical Features and Background of the Patients

Of 63 enrolled patients, 42 were classified into group L, and 21 were classified into group E. Group L and group E were comparable in sex, basic disorder and the presence of diabetes mellitus (**Table 1**).

Table 1. Clinical features and background of patients.

| | <i>Group L, n = 42</i> | <i>Group E, n = 21</i> | <i>P-value</i> |
|------------------------------------|------------------------|------------------------|----------------|
| Average age (years) | 58.77 ± 13.25 | 58.00 ± 13.52 | 0.478 |
| Sex (%) | | | >0.999 |
| Female | 19 (67.8) | 9 (32.2) | |
| Male | 23 (65.7) | 12 (34.3) | |
| Basic disorder (%) | | | 0.187 |
| Pneumonia (lung disorder) | 22 (61.1) | 14 (38.9) | |
| Sepsis (serious bacterial disease) | 13 (86.6) | 2 (13.4) | |
| Atherosclerosis (heart disease) | 7 (58.3) | 5 (41.7) | |
| Diabetes mellitus (%) | | | 0.999 |
| Negative | 25 (65.7) | 13 (34.3) | |
| Positive | 17 (68.0) | 8 (32.0) | |

3.2. Clinical Features on ICU Admission

The BUN level was significantly lower in group L than in group E (39.97 mg/dL vs. 31.57 mg/dL, $P = 0.041$). All clinical data, except the BUN level, were not significantly different between groups L and E (**Table 2**).

3.3. Clinical Features at ICU Discharge

Group L and group E were comparable in frequency of changing the patients' body position, bed leaving, rehabilitation, and clean care (**Table 3**). We evaluated the effects of the features of nursing care, and we found that nursing care was performed the same way in both groups.

3.4. Features of Nursing Care during ICU Discharge

The SOFA score at discharge was significantly lower in group E than in group L (6.21 versus 4.30; $P = 0.034$). All nursing care data, except the SOFA score at discharge, was not significantly different between groups L and E. There was no significant difference in the ventilator days between the two groups (group L: 9.47 versus group E: 8.50; $P = 0.344$). Although not significant, the GCS score improved more in patients in group E than in those in group L (13.80 versus 11.86; $P = 0.113$) (**Table 4**).

4. Discussion

First, we will discuss the characteristics of nursing care during ICU admission. In general, changing the patient's body position prevents pressure sores, reduces pain due to bed rest, and facilitates postural drainage [13]. The complications reportedly associated with bed rest among patients in the ICU are as follows: pneumonia, atelectasis, orthostatic hypotension, atrophy of the muscles, pressure sores, and psychological stress [14] [15] [16] [17] [18]. Recent studies have demonstrated that early mobilization is effective

Table 2. Clinical features on ICU admission.

| | <i>Mean ± SD</i> | | <i>P-value</i> |
|---------------------------------|------------------------|------------------------|----------------|
| | <i>Group L, n = 42</i> | <i>Group E, n = 21</i> | |
| Height (cm) | 160.25 ± 9.89 | 163.10 ± 9.42 | 0.661 |
| Weight (kg) | 57.73 ± 14.13 | 55.96 ± 15.91 | 0.584 |
| BMI (kg/m ²) | 21.86 ± 5.47 | 20.84 ± 4.26 | 0.53 |
| SOFA score at admission | 10.10 ± 4.47 | 8.54 ± 4.06 | 0.29 |
| Albumin level (g/dL) | 2.41 ± 0.74 | 2.75 ± 0.88 | 0.118 |
| BUN level (mg/dL) | 39.97 ± 28.63 | 31.57 ± 32.02 | 0.041 |
| Cr level (mg/dL) | 1.5 ± 1.34 | 1.28 ± 1.30 | 0.41 |
| CRP level (mg/L) | 17.83 ± 13.95 | 10.59 ± 9.33 | 0.054 |
| Glucose level (mg/dL) | 170.78 ± 71.03 | 161.47 ± 63.74 | 0.726 |
| AST level (IU/L) | 151.64 ± 251.41 | 94.90 ± 178.27 | 0.243 |
| ALT level (IU/L) | 124.38 ± 256.42 | 59.00 ± 84.19 | 0.089 |
| T.bil level (mg/dL) | 3.08 ± 5.27 | 1.49 ± 1.77 | 0.305 |
| WBC count (10 ³ /μL) | 10,204.76 ± 9041.48 | 11,057.62 ± 5928.44 | 0.293 |

SD: Standard Deviation; BUN: Blood Urea Nitrogen; Cr: Creatinine; CRP: C-Reactive Protein; GOT: Glutamic Oxaloacetic Transaminase; GPT: Glutamic Pyruvic Transaminase; T. bil: Total bilirubin; WBC: White Blood Cell.

Table 3. Features of nursing care during ICU admission.

| | <i>Mean ± SD</i> | | <i>P-value</i> |
|------------------------|------------------------|------------------------|----------------|
| | <i>Group L, n = 42</i> | <i>Group E, n = 21</i> | |
| Changing body position | 9.77 ± 4.84 | 8.27 ± 5.84 | 0.163 |
| Bed leaving | 1.34 ± 0.68 | 1.12 ± 0.79 | 0.139 |
| Rehabilitation | 0.08 ± 0.25 | 0.103 ± 0.162 | 0.683 |
| Bed bath | 1.23 ± 0.74 | 1.36 ± 1.61 | 0.342 |

SD, standard deviation.

Table 4. Clinical features at ICU discharge.

| | <i>Mean ± SD</i> | | <i>P-value</i> |
|-------------------------|------------------------|------------------------|----------------|
| | <i>Group L, n = 42</i> | <i>Group E, n = 21</i> | |
| ICU stay (day) | 17.76 ± 12.19 | 15.80 ± 9.98 | 0.486 |
| SOFA score at discharge | 6.21 ± 3.40 | 4.30 ± 2.79 | 0.034* |
| Alb level (g/dL) | 2.51 ± 0.69 | 2.57 ± 0.66 | 0.731 |
| BUN level (mg/dL) | 35.69 ± 34.02 | 31.1 ± 32.29 | 0.226 |
| Cr level (mg/dL) | 1.20 ± 1.91 | 0.85 ± 0.86 | 0.569 |
| CRP level (mg/L) | 4.33 ± 4.07 | 4.69 ± 5.01 | 0.804 |
| Glucose level (mg/dL) | 135.59 ± 39.15 | 123.80 ± 40.07 | 0.117 |
| GOT level (IU/L) | 76.33 ± 126.04 | 36.80 ± 15.62 | 0.448 |
| GPT level (IU/L) | 120.02 ± 330.72 | 43.33 ± 24.73 | 0.089 |
| T.bil level (mg/dL) | 3.08 ± 5.27 | 1.49 ± 1.77 | 0.05 |
| WBC count (K/mcL) | 10,213.33 ± 5122.60 | 7818.57 ± 2611.78 | 0.073 |
| GCS score | 11.86 ± 3.77 | 13.80 ± 1.63 | 0.113 |
| Ventilator days | 9.47 ± 3.77 | 8.50 ± 6.92 | 0.344 |

BUN: Blood Urea Nitrogen; Cr: Creatinine; CRP: C-Reactive Protein; GOT: Glutamic Oxaloacetic Transaminase; GPT: Glutamic Pyruvic Transaminase; T. bil: Total bilirubin; WBC: White Blood Cell; GCS: Glasgow Coma Scale.

in patients in the ICU for preventing complications due to bed rest. Consequently, the first recommended intervention of early mobilization is changing the body position every 2 hours [11] [18]. The mobility protocol by Morris et al. proposed that patients in the ICU should be turned and repositioned every 2 hours [11]. However, in our study, the body position was changed every 3 hours. The SOFA score at discharge was significantly lower in group E than in group L ($P = 0.034$). Thus, our study's findings suggest that changing the body position every 3 hours is sufficiently effective.

The second point we will discuss is the relationship between MMN and the SOFA score. Our results showed no significant difference in the clinical features and background of patients in both groups. Thus, the clinical features and background of patients were comparable between group L and group E. In our study, the SOFA score was used to evaluate the disease severity of patients in the ICU. The SOFA score is composed of scores from six organ systems, graded from 0 (normal) to 4 (the most abnormal) according to the degree of dysfunction/failure, with a daily score of 0 - 24 points [19]. The results indicate that there was no significant difference in the SOFA score at admission. However, there was a significant difference in the SOFA score at discharge (Figure 2). Previous studies have shown mixed results regarding reduced mechanical ventilation and an improved level of consciousness as an effect of early mobilization in patients in the ICU [20]. The mean ventilator days were shorter in group E than in group L, and the mean GCS score at discharge improved more in group E than in group L; however, these findings were insignificant. Improvement in the SOFA score may be affected by shorter ventilation days and/or an improved GCS score by MMN.

5. Limitations

Several limitations of this study should be acknowledged. An inherent limitation of our study is that it was a retrospective chart review. Therefore, we cannot rule out the possibility of selection and survivor bias. Patients in both groups were recruited at different

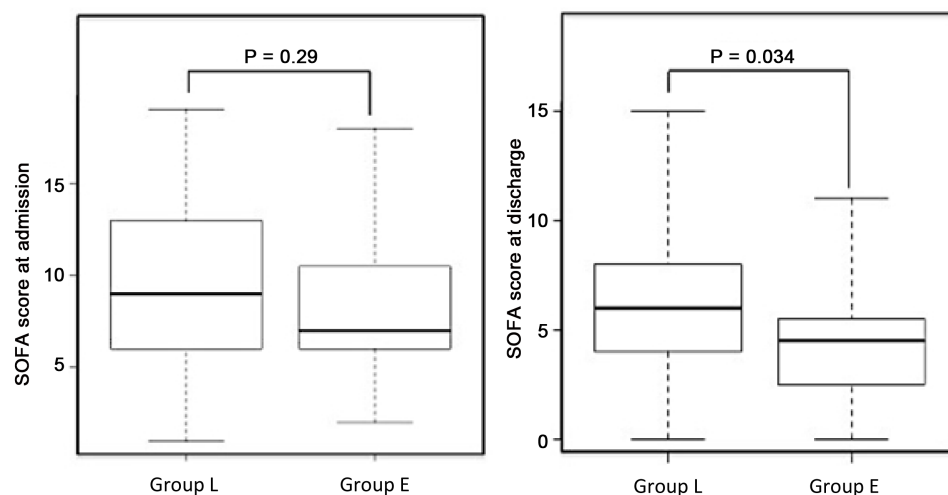


Figure 2. There was no significant difference between the groups in the SOFA score at admission. The SOFA score at discharge was significantly lower in Group E compared with Group L.

time points, and the decision to perform MMN was not randomized. Additionally, missing data precluded some patients from being included in the analysis. Accordingly, a prospective study will be necessary to elucidate the advantage of early mobilization by an ICU nurse, and we hope our present study's findings provide a cornerstone for such clinical research.

6. Conclusion

Our study's results indicate that MMN may reduce disease severity if started within 72 hours after ICU admission.

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Conflicts of Interest

The authors declare no conflicts of interest.

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Evidence-Based Practice and Job Satisfaction of Nurses in Long-Term Care

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Abstract

Purpose: The purpose of this study was to identify the relationship between evidence-based practice (EBP) and job satisfaction among nurses working in long-term care facilities. **Methods:** The study used a descriptive cross-sectional design. A total of 146 nurses working in 6 long-term care facilities in South Korea self-reported their perception of EBP implementation, barriers to research utilization, and job satisfaction. **Results:** The level of job satisfaction was higher in nurses who were single, older, more experienced, and had a higher income. Lower perceived barriers to research utilization were associated with greater job satisfaction. However, there was no significant relationship between a level of EBP implementation and job satisfaction. Factors influencing job satisfaction included lower barriers to the organization and communication domains of research utilization, being unmarried and older. **Conclusion:** Decreasing barriers to research utilization may improve the job satisfaction of nurses working in long-term care facilities.

Keywords

Evidence-Based Practice, Job Satisfaction, Long-Term Care, Nurse

1. Introduction

The rapid increase in the aging population has led to concern about the quality of nursing care in long-term care (LTC) facilities in South Korea. Nurses are key health-care professionals responsible for providing optimal care to older adults in LTC facilities. However, numerous studies have suggested that nurses working in LTC facilities had low job satisfaction, resulting in strong intentions to leave and high turnover rates [1].

Various factors reportedly influenced the job satisfaction of nurses working in LTC

facilities: demographic factors included age and education level [2], and work-related factors included job conflict, rewards, care quality, staffing, and promotional opportunities [3] [4]. Also, nurses working in LTC facilities have consistently reported that a lack of professional knowledge on gerontological nursing could lower the quality of care [5] [6]. In addition, nurses included in a qualitative study reported that they perceived higher job satisfaction when the health status of elderly patients improved due to the quality of care that they provided [5].

EBP is commonly defined as the integration of the best research findings, clinical expertise, and patients' preferences within a context of caring [7]. The utilization of research evidence is essential for implementing and sustaining EBP [8]. EBP implementation can ensure the quality of care because it uses guidelines or protocols based on clinical expertise and a considerable number of research findings that have been repeatedly found to be effective. EBP led to better health outcomes than traditional care [9], which has prompted considerable efforts to improve the quality of nursing care using EBP (mainly in hospitals), whereas the nurses' use of EBP in LTC facilities has received little attention. This discrepancy may be because EBP requires substantial effort and time from nursing staff, which are scarce resources in most LTC facilities. Indeed, many studies have reported that lack of resources, organizational culture supporting EBP, and EBP knowledge discouraged clinicians or nurses from using EBP [10] [11]. Older adults are less likely to be able to take care for themselves due to the presence of complex health problems such as dementia and other chronic diseases, and physical impairment, which exacerbates the problem of limited resources [12]. However, there are advantages of applying EBP in LTC, such as nurses being able to practice more effectively, and this can ensure the best use of the available resources [12].

The conceptual framework that guided the present study was the Nursing Organization and Outcomes Model [13]. This model posits that five dimensions of the nursing practice environment are strong predictors of job satisfaction of nurses: participation in facility organization, foundations for quality care, adequate resources, a supportive manager, and collaborative relationships between registered nurses (RNs) and physicians. This model was supported by the results obtained in studies performed in acute-care and LTC facilities [3] [14] [15]. The foundations for quality care can be achieved by the implementation of EBP.

The purpose of this study was to identify the relationships among EBP implementation, barriers to research utilization, and job satisfaction of nurses working in LTC facilities. Specific aims were to identify 1) the level of job satisfaction, the level of EBP implementation, and perceived barriers to research utilization, and 2) the factors influencing job satisfaction among nurses working in LTC facilities.

2. Methods

2.1. Study Design

This study used a cross-sectional descriptive design.

2.2. Sample and Setting

A total of 146 nurses participated in this study. The inclusion criteria were RNs who 1) had worked more than 2 month in the present facility and 2) were aged 20 years or older. Data were collected from six LTC facilities in D city in South Korea. The number of bed sizes in the participating facilities ranged from 99 - 269.

2.3. Measurement

Job Satisfaction. The job satisfaction of nurses was measured using the Index of Work Satisfaction that was originally developed by Slavitt and colleagues [16] and translated into Korean by Lee [17]. This Korean version of the index has been used in many Korean nursing studies [18] [19]. This instrument uses a 5-point Likert scale (from 5 = “strongly agree” to 1 “strongly disagree”) to score 40 items in 6 domains (autonomy, interaction, professional status, task requirement, payment, and organizational policies). The total score ranges from 40 to 200, with a higher score indicating greater job satisfaction. Cronbach’s alpha values for the instrument in previous studies were 0.91 [17] and 0.89 [18].

Evidence-Based Practice Implementation. Participants self-reported the level of EBP implementation in their present facility on a 4-point Likert scale (1 = none, 2 = a little, 3 = moderate, and 4 = a lot).

Barriers to Research Utilization. The BARRIERS scale [20] was used to measure the extent of barriers to research utilization by nurses. This instrument consists of 28 items in 4 domains: adopter, organization, research, and communication. Another item was subsequently added to measure the extent to which English becomes a barrier to research utilization when studies using this measurement were conducted in non-English-speaking countries. Each item is rated from 1 (“to no extent”) to 4 (“to a great extent”), with 0 for “no opinion”. Numerous research studies have found the BARRIERS scale to have sound psychometric properties [6]. A Korean version of the BARRIERS scale, developed and tested by Oh [21], was administered to the present participants. The internal consistency reliability in the present study ranged from 0.74 to 0.87 by domains.

Demographic Characteristics. The analyzed demographic characteristics included age, sex, marital status, education level, monthly wages, years of clinical experience, and position in the present facility.

2.4. Ethical Considerations

Before the study commenced, the author explained the purpose and procedure of the study to the participants and assured that their participation would be voluntary, and that they could withdraw from the study without any harm or disadvantage. The information for participants also included that personal identifiers would be disclosed only to members of the research team, they would be stored in a locked cabinet and the author’s personal computer protected by passwords, and code numbers would be generated and used in data analyses to ensure anonymity.

2.5. Data Collection

After obtaining approval from the Institutional Review Board of K university hospital, the author compiled a list of LTC facilities in K province of Korea, and made phone calls to the directors of nursing (DONs) of those facilities to initiate recruitment. The author visited DONs who agreed to be visited and wanted to hear about this study. Finally, DONs of 6 facilities agreed to participate in this study after the author explained its purpose and procedures. Nurses who agreed to participate signed and dated consent documents before they completed the study questionnaires. The author posted questionnaires in packages that included stamps for returning the completed questionnaires by mail for nurses who were off duty or on night duty.

2.6. Data Analysis

The collected data were entered into the Excel program and analyzed by SPSS version 16. Frequency, percentage, mean (M), and standard deviation (SD) values were generated to provide descriptive data of the demographic characteristics of the participants and other variables. ANOVA, t-tests, and Pearson's correlation coefficient analyses were conducted to identify correlations among demographic characteristics, levels of EBP implementation, barriers to research utilization, and job satisfaction. In the BARRIERS scale, responses of "no opinion" were excluded from the statistical analysis. Stepwise regression was used to identify factors that significantly influenced job satisfaction.

3. Results

Data collected from 146 nurses were analyzed. **Table 1** presents demographic characteristics and their relationships with job satisfaction. The overall mean job satisfaction score was 2.94 (SD = 0.43), while the score within domains was highest for the interaction domain (M = 3.43, SD = 0.52).

The autonomy domain had the second highest score (M = 3.28, SD = .54), followed by the task requirement (M = 3.01, SD = 0.43), professional status (M = 2.77, SD = 0.64), organizational policies (M = 2.49, SD = 0.59), and payment (M = 2.14, SD = 0.68) domains (**Table 2**).

Regarding EBP implementation, only 110 nurses responded the questionnaire. 46.0% (n = 64) of the nurses reported that they implemented EBP, while 33.1% (n = 46) of them were not aware whether or not they were implementing EBP in the facility where they worked.

Regarding barriers to research utilization, the participants reported that the communication domain was the greatest barrier, followed by the organization, research, and adopter subscales (in that order) (see **Table 2**). A rank order was generated based on the percentage of participants responding that there were "moderate" or "great" barriers to research utilization [6]. According to this rank order, "Research reports/articles being written in English constitutes a barrier" was the greatest barrier to research utilization, followed by "The nurse feels results are not generalizable to her/his own setting"

Table 1. Demographic characteristics and their relationships with job satisfaction (N = 146).

| Variable | Category | M (SD) or n (%) | Relationship with job satisfaction | |
|-----------------------------|-------------------------|-----------------|------------------------------------|-----------------|
| | | | M (SD) | t/F/r (p) |
| Age (years) | - | 33.32 (7.83) | - | 0.436 (<0.001) |
| Sex | Female | 146 (100) | - | - |
| Education | 3-year college graduate | 119 (81.5) | 107.14 (15.39) | 2.856 (0.061) |
| | Bachelor or over | 27 (18.5) | 115.19 (18.53) | - |
| Marital status | Single or separated | 81 (55.5) | 113.10 (16.69) | 5.862 (0.001) |
| | Married | 65 (44.5) | 102.62 (13.12) | - |
| Clinical experience (years) | - | 8.66 (5.09) | - | 0.180 (0.044) |
| Position | Staff nurse | 111 (77.1) | 106.56 (15.85) | 3.999 (0.009) |
| | Charge nurse | 14 (9.7) | 110.64 (12.27) | - |
| | Unit manager | 19 (13.2) | 117.05 (16.23) | - |
| Monthly wages (1000 won) | 100 - ≤200 | 123 (84.8) | 106.74 (1.33) | -3.621 (<0.001) |
| | >200 | 22 (15.2) | 119.64 (18.67) | - |

Table 2. Relationships among EBP implementation, barriers to research utilization and job satisfaction (N = 146).

| Variable | Category | M (SD) or n (%) | | |
|--|-----------------|-----------------|----------------|-----------------|
| Job satisfaction | Autonomy | 3.28 (0.54) | | |
| | Interaction | 3.43 (0.52) | | |
| | Professionalism | 2.77 (0.64) | | |
| | Organization | 2.49 (0.59) | | |
| | Task | 3.01 (0.43) | | |
| | Pay | 2.14 (0.68) | | |
| | Total | 2.94 (0.43) | | |
| Relationship with job satisfaction | | | M (SD) | t/F/r (p) |
| Level of EBP implementation ^a | Well | 16 (11.5) | 115.06 (19.63) | 0.708 (0.495) |
| | A little | 48 (34.5) | 109.90 (15.45) | |
| | None | 29 (20.9) | 109.69 (14.87) | |
| | Unknown | 46 (33.1) | 105.41 (16.56) | |
| Barriers to research utilization | Adopter | 2.11 (0.98) | - | -0.341 (<0.001) |
| | Organization | 2.49 (0.97) | - | -0.482 (<0.001) |
| | Research | 2.36 (0.91) | - | -0.117 (0.169) |
| | Communication | 2.51 (0.94) | - | -0.311 (<0.001) |

a. n = 110 (no response excluded).

(data not shown). Correlation analyses revealed that there were significant relationships between job satisfaction and age ($r = 0.436$, $p < 0.001$), marital status ($t = 5.862$, $p = 0.001$), clinical experience ($r = 0.180$, $p = 0.044$), position ($F = 3.999$, $p = 0.009$), monthly wages ($t = -3.621$, $p < 0.001$). Also, three domains of the BARRIERS scale had significant relationships with job satisfaction: adopter ($r = -0.341$, $p < 0.001$), organization ($r = -0.482$, $p < 0.001$), and communication ($r = -0.311$, $p < 0.001$) domains. However, the level of EBP implementation and the score for the research domain of the BARRIERS scale were not significantly related to job satisfaction (Table 2).

The stepwise regression model showed that age ($\beta = 0.220$, $p = 0.027$), marital status ($\beta = -0.207$, $p = 0.007$), and the organization ($\beta = -0.384$, $p < 0.001$) and communication ($\beta = -0.175$, $p = 0.034$) domains of the BARRIERS scale were significant predictors of job satisfaction. This model explained 39.5% of the total variance ($F = 19.734$, $p < 0.001$) (Table 3).

4. Discussion

This study has identified the relationships between EBP implementation, barriers to research utilization, and job satisfaction among nurses working in LTC facilities. As Table 2 indicates, the overall level of job satisfaction of the participants was 2.94 (SD = 0.43). This score is slightly lower than those found in previous studies that used the similar instrument. Among studies that investigated the job satisfaction of nurses working in LTC facilities, the score for job satisfaction was 3.11 (SD = 0.39) in the study of Park *et al.* [19] and 3.25 (SD = 0.33) in the study of Song [22]. This discrepancy might be due to the present study being conducted in rural areas, whereas the participants in other studies worked in urban areas [22] or in geographically diverse settings [19]. LTC facilities in rural areas are likely to have lower staffing and financial resources, which might result in high turnover rates or low wages and hence lower scores for job satisfaction.

Nurses perceived the greatest job satisfaction for the interaction domain, followed by the autonomy and task requirement domains, whereas they reported the lowest job satisfaction for the payment domain. These findings are consistent with previous studies finding that the job satisfaction of nurses working in LTC was highest for the interaction

Table 3. Factors influencing job satisfaction (N = 146).

| Variable | Variables | | | | |
|---|-----------|-------|---------|--------|--------|
| | B | SE | β | t | p |
| Organization domain of BARRIERS | -1.136 | 0.247 | -0.384 | -4.605 | <0.001 |
| Age | 0.472 | 0.211 | 0.220 | 2.238 | 0.027 |
| Marital status ^a | -6.990 | 3.286 | -0.207 | -2.127 | 0.007 |
| Communication domain of BARRIERS | -0.747 | 0.349 | -0.175 | -2.142 | 0.034 |
| Adjusted R ² = 0.395, F = 19.734 ($p < 0.001$) | | | | | |

a. 0 = single or separated, 1 = married.

domain but the lowest for the payment domain [19] [22]. Hospital nurses also reported that they were satisfied the most with their relationships with coworkers and satisfied the least with compensations and benefits, although their overall level of job satisfaction was higher than that of LTC nurses [23]. These results suggest the importance of interactions among colleagues and wage levels to the job satisfaction of nurses.

There was no significant association between the levels of EBP implementation and job satisfaction. However, barriers to research utilization, especially on the organization and communication domains of the BARRIERS were significantly but negatively related to job satisfaction.

The organization subscale refers to “the extent to which nurses perceive barriers and limitations in work settings” [20]. These findings are consistent with those of a previous study [24] that investigated relationships among the organizational culture for EBP, EBP beliefs, EBP implementation, and job satisfaction in a community hospital. Those authors also found no significant relationship between EBP implementation and job satisfaction. Other studies have repeatedly found that the organizational culture or work environment, such as having supportive manager or adequate resources, was strongly and positively related to job satisfaction [3] [24]. Therefore, these findings suggest that the job satisfaction of nurses is highly dependent on organizational support that may empower them in delivering high-quality care.

A possible explanation for the finding of no correlation between EBP implementation and job satisfaction is that implementing EBP might not directly influence job satisfaction; instead, the health outcome or quality of care of patients resulting from EBP adoption seems to be associated with job satisfaction. This result did not support the hypothesis of the Nursing Organization and Outcomes Model [13] that foundations of quality care was one of predictors of job satisfaction of nurses. However, further investigations are required into the relationship between these two variables, because few studies have examined how EBP implementation influences job satisfaction and most studies have used health outcomes of patients as dependent variables when EBP implementation was used as an independent variable.

The communication subscale of the BARRIERS scale, which refers to “the extent to which the nurses perceive the presentation and accessibility of the research as barriers to research utilization” [20], was significantly negatively related to job satisfaction. This suggests that nurses perceive a higher level of job satisfaction when they have a greater understanding of or access to work-related research or information. Indeed, previous studies have shown that nurses working in LTC facilities perceived a great need for in-depth and more-recent gerontological nursing knowledge. Since LTC facilities are less likely to have in-house physicians, many nurses working in LTC facilities frequently face critical situations in which they need to make clinical decisions in emergencies or to provide immediate help without physicians based on their own advanced medical or nursing knowledge as well as clinical experiences [5] [25]. However, it seems that nurses working in LTC facilities lack opportunities to receive education about recent and advanced knowledge on older adults. The content analysis involving short answers

on the additional barriers to research utilization revealed that most findings from nursing research were not applicable to older patients, and nurses needed continuous education about gerontological nursing. The nurses also emphasized the importance of the working environment to facilitating new ideas or knowledge regarding elderly care in the use of research findings [6]. Thus, nurses working in LTC facilities need to be provided with tailored education strategies including readily accessible and understandable information on a regular basis. Hines *et al.* [26] suggested that interactive and activity-based learning interventions seemed to be effective at improving the research knowledge of nurses and their ability to critically review the literature.

Among demographic characteristics, nurses who were older, unmarried, and had more clinical experience and higher income experienced greater job satisfaction. This is consistent with previous studies [27] suggesting that nurses with greater experience and higher wages would be more satisfied with their jobs.

This study was subject to two main limitations. First, data were collected in only one province of Korea, and combined with the use of a convenience sampling method this may limit the generalizability of the study findings. Second, although the participants put their completed questionnaires in opaque envelopes when returning them to the research team, the moderate response rate (67.3%) implies that the questions might have been uncomfortable for the nurses to answer, and so some of the responses might have biased in the direction of social desirability.

5. Conclusion

This study found that nurses working in LTC facilities perceived the greatest job satisfaction from their interactions with coworkers and managers, and the lowest job satisfaction from their wages. Overall, the level of job satisfaction of the participants in this study was lower than that found in previous studies. Perceived barriers to organizational support and the accessibility and understandability of research reports were factors lowering the job satisfaction of the included nurses. However, there was no significant relationship between the level of perceived EBP implementation and job satisfaction. Future studies need to investigate whether the long-term implementation of particular nursing interventions using EBP would improve the job satisfaction of nurses working in LTC facilities.

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Acting Front to Nursing Psychological Repercussions in Breast Cancer Patients

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Abstract

Breast cancer is a heterogeneous and complex disease with different situations of threat to their patients, which can cause psychological discomfort, anxiety and a depressed state in women. The aim of this study was to analyze the performance of nursing to psychological repercussions on living with breast cancer. This is a descriptive and cross-sectional study with qualitative characteristics. It was conducted with professional nurses in Basic Health Units (UBS) in the municipality of Juazeiro do Norte-CE, Northeast of Brazil, located in the region of Cariri. The study began to be developed after the approval of the Research Ethics Committee, CAAE: 50809315.8.0000.5624. Data collection occurred through a semi-structured interview. For the interpretation of the results, the technique of content analysis was used. The results showed that nurses realize that emotional support, care and assistance in coping, improve the construction of a good performance of the professional nurse. However, it is possible to realize the need for information and qualified assistance by multidisciplinary team to these patients and even their family members. It was identified as difficulty in assisting the denial of patient to start the treatment, but the facility is in the intimacy that the professional nurse can engage with the customer. It highlighted the care through dialogue and health education. And, finally, the nurse is aware of such importance of his/her role when supporting the patient. Thus, the improvement of professional assistance was evidenced as regards emotional support, reception, qualified listening, health education measures leading to self-knowledge, self-esteem and acceptance of the disease and the creation of bonds with the patients.

Keywords

Nursing Care, Breast Cancer, Women's Health

1. Introduction

Breast cancer is the second most common type of cancer in the world population and it is the most common among women, being one of the leading causes of death among them [1]. The National Cancer Institute (INCA) [2] confirms the heterogeneity of this pathology by its distinct behavior, being observed by the varied clinical manifestations, different genetic signatures and consequent differences in therapeutic responses.

Estimates for the year 2015 in Brazil amounted to 57,120 new cases (gross rate of incidence of 56.09 per 100,000 women). In 2013, there were 14,206 deaths by this cause (gross rate of mortality of 14.35 deaths per 100,000 women), being the average of the mortality gross rate for the period from 2009 to 2013 of 13.38 deaths per 100,000 women [3].

However, area scholars point out that the treatment of breast cancer, the surgery, radiotherapy and chemotherapy are the most therapeutic modalities used in its treatment. According to several national studies, all of them can entail important psychological repercussions, since the disease affects an organ that symbolizes femininity, sensuality, sexuality and motherhood [4].

Carvalho *et al.* [1] claim that the diagnosis of cancer is usually an emotional overload which can trigger reactions and emotional adjustment or even be the trigger for affective disorders (especially depression), anxiety or even psychological disorders. However, it is important to note that not all mood swings can be considered depression. Often, the patient has only emotional lability or mood light changes.

In this way, patient's emotional care is the responsibility of all health team, which needs to be in emotional conditions to work with patients, their families and the community [1].

The National Cancer Institute recognizes the role of the nurse in the multidisciplinary team in saying that his/her activities must pervade all support steps, so that it begins immediately after the diagnosis of the disease and accompanies the woman after the moment of medical discharge until her reinstatement to everyday life [5].

Therefore, it is expected that the nurse, faced with the problem, realizes the need of providing care not only theoretical-practical and technical, but with a specific perception of the problem of his patients, positioning and facing along with the patient and her family the diagnosis and treatment that will be done, since the family members, as much as the patient, are not ready to receive the diagnosis.

However, understanding, studying and knowing the breast cancer that affects these women and the effects generated in their lives become important not only for knowledge as a nursing professional, but also for a more effectively performance in caring

patients with breast cancer.

Thus, the aim of this study was to analyze the performance of nursing to psychological repercussions on living with breast cancer.

2. Method

This is a descriptive and cross-sectional study with qualitative characteristics. It was conducted with professional nurses in Basic Health Units (UBS) in the municipality of Juazeiro do Norte-CE, Northeast of Brazil, located in the region of Cariri, with a population of 266,022 inhabitants (IBGE, 2015). The study began to be developed after the approval of the Research Ethics Committee, CAAE: 50809315.8.0000.5624.

Nurses of the UBS were invited to participate in the study, in the said municipality. These were defined as inclusion criteria: being nurse in the Basic Health Unit with a minimum of six months of work, having specialization in Family Health or other specialization in the nursing area, and having already attended a patient with breast cancer at the Basic Health Unit.

A semi-structured interview was used as an instrument of data collection. The interview addressed specific questions to nurses on nursing activities in the psychological consequences of breast cancer patients. For the interpretation of the results, the technique of content analysis was used.

The research was held in accordance with the ethical and legal aspects of 466/12 Resolution. This Resolution includes, from the perspective of the individual and the communities, the four basic references of bioethics: autonomy; non maleficence; beneficence and justice, among others; and it aims to ensure the rights and duties concerning the scientific community, the research subjects and the State (BRAZIL, 2012).

3. Results and Discussion

Table 1 shows the sociodemographic characteristics of the research participants.

The following discusses nurses' practices on nursing performance regarding the psychological repercussions on breast cancer patients in UBS, based on testimonies of nurses, in which all were named with names relating from Enf1 to Enf10.

Categorization of Speech

After organizing the speeches, the following categories emerged, as the proposed objec-

Table 1. Sociodemographic characteristics.

| Age group of the participants | Female participants | Male participants | Graduation time of the interviewees | Capacitation level |
|-------------------------------|---------------------|-------------------|---|--|
| 25 - 40 years | 9 | 1 | Ranged from 6 months to 16 years of formation | Nurse specialists in Family Health; Medical-Surgical Clinic and MSc. |

tives and speech of the study subjects: Category 1—Nursing activities in patients with breast cancer; Category 2—Difficulties and facilities of taking care of these patients; Category 3—Technical care to be provided to patients; Category 4—How does the professional evaluate nursing actions regarding the support that the patient needs to face cancer and their possible consequences.

Category 1—Nursing activities in patients with breast cancer

Cancer still is understood by people, in general, as synonymous with pain, death and suffering. In this perspective, nurses must identify their own conceptions related to cancer and establish coping strategies, supported by COFEN 358/2009, 210/1998 and 211/1998 resolutions, thus aiming at an appropriate, humane and effective assistance that enables minimizing the suffering of all people involved [6].

In this context, to provide a satisfactory and effective nursing care, it is necessary for the nurse, as a member of the multidisciplinary team, to consider all these aspects in health care of this clientele, which will require, among other things, skills in interpersonal techniques, communication and therapeutic relationship [7].

Thus, it was evidenced that nurses realize that emotional support, nursing consultation, reception and assistance in coping, improve building a good performance of the professional nurse, as illustrated by the reports below:

“Nurses should help fighting the disease, exploring their feelings and life expectancies.” (Enf1)

“Attention, I think this is the main tool of a nurse [...]” (Enf2)

“We must be humanized, emphasizing aspects such as social, psychological [...]” (Enf4)

“The emotional support must permeate in all procedures and nursing queries [...]” (Enf8)

“Nursing should welcome and establish a qualified hearing, aiming to identify possible repercussions through the nursing process [...]” (Enf10)

In this sense, it is clear that the emotional support to these patients is as important as the care support, but there are still some professionals who prioritize only technical support, as shown in some reports:

“[...] psychologist offers more professional support; it is not the reality of the nurse caring for the mental state of these patients. (Enf7)”

Thus, it highlights the importance of providing comprehensive care to the woman facing the related prejudice to the disease and who covers several steps from diagnosis to the confirmation of the disease, treatment and later stage treatment constituting moments of challenges to be overcome [8].

Category 2—Difficulties and facilities of taking care of these patients

When a woman finds breast cancer, she lives a very painful process and therefore the way the diagnosis will be transmitted to her will determine how the disease process will be faced [8].

Thus, the publication of Guidelines for the Early Detection of Breast Cancer in Bra-

zil, launched in 2015 by the National Cancer Institute José Alencar Gomes da Silva (INCA) and the Ministry of Health, recommends that women and health professionals are informed about the importance of recognizing the signs and symptoms of breast cancer and the importance of quick and easy access to health services [3].

The long waiting time for carrying out the diagnostic tests and early treatment can have serious consequences for patients, such as the reduction of their chances of cure and survival time. In addition, a treatment performed later harms the quality of life; it requires more aggressive approaches, the need for use of multiple therapeutic approaches and results in the superposition of sequels. It is important to consider the increase of public expenditure as a result of more expensive and prolonged treatments, as well as social security costs arising from the removal of the work [9].

In this context, we see the need for information and assistance by qualified multidisciplinary team to these patients and even their families. However, nursing as a profession of caring, works more closely with the customer. We seek then to know the main difficulties and facilities by nurses in developed assistance to women with breast cancer. Thus, we have identified as major complaint about the denial of the patient to start treatment and lack of necessary and appropriate resources for assistance.

“The main difficulty is acceptance of the patient about the disease [...]” (Enf8)

“Lack of technical and hospital supplies for treatment.” (Enf2)

“The psychological aspect of the patient with breast cancer decreases adherence to treatment.” (En 5)

“Lack of resources and help from the health department.” (Enf4)

At this level of attention, there is the first assessment of women in RAS, being essential that teams are trained to recognize the needs of women throughout their life cycle (completeness). Specifically on the health of the breasts, the teams must be prepared to address both aspects of the trace of the cancer, according to the guidelines of the Ministry of Health, as complaints perceived by women. In any of the dimensions addressed, teams of basic attention should have dominion over built flows (regulation, reference and counter reference) to the levels of attention from medium and high complexity [3].

This implies the need for better resources to patient care as a measure of health education action by professionals, and to promote this form of prevention, resources are necessary for the entire population.

However, in order to easily, there is the intimacy that the nurse can exercise with the patient, as shown in the reports:

“It is easy to deal with this public when they are accessible and search the unit, creating a bond with the nurse [...]” (Enf1).

“Therapeutic relationship through trust bond with the patient.” (Enf2).

“Professional link with patient generates easy access to unit team [...]” (Enf7).

Insertion of the nursing staff in the care of the cancer patient requires knowledge, skills and responsibilities. In this sense, the goals must be clear and directed to the patient, her family and other significant people, covering aspects such as physical, emo-

tional, social and spiritual [6].

Category 3—Technical care that should be provided to patients

In Brazil, the diagnosis of breast cancer is still done, most of the time, when the disease is in an advanced stage and the most used therapeutic conduct has been the radical surgical treatment, represented by mastectomy, which demands a lot of care focused on physical, emotional and social recovery of women facing this process [10].

When there is a surgical process, the woman should receive information about the care after surgery, guidelines and information about the various stages of recovery, how the surgery will be performed, care of the ipsilateral arm, exercises to recover the functional capacity of the arm and shoulder, as well as information about other treatments such as chemotherapy, radiation therapy and hormone therapy [11].

According to the understanding, we tried to know what are the technical, practical and theoretical care that should be provided by the nurse to these patients. It highlighted the care through dialogue, health education, as shown by the reports below:

“Stimulating the self-knowledge, encouraging the fight against cancer and treatments [...]” (Enf10)

“Welcome, offer qualified listening, recognition of self-care changes, self-esteem [...]” (Enf2)

“Promotion of self-care, clarification about the disease and treatment, pain relief and emotional support.” (Enf8)

However, some nursing professionals prioritize specific care for the patient, leaving aside the bond and emotional support to the client, as illustrated in the reports below:

“When I find a lump in the breast during examination to prevent breast cancer, I forward the patient to the doctor. [...] If cancer is confirmed, the patient should be accompanied by a team of specific professionals.” (Enf1)

The cancer care does not differ from assistance in other areas, being applied from the primary, secondary, tertiary care attention to the postmortem. The nurse's primary and secondary care has the responsibility to apply in his/her care area the knowledge of risk factors for breast cancer, disease prevention measures, through mammography and breast self-examination. Provide advice on the signs and warning signs for cancer, which perceived quickly lead to an early diagnosis and a favorable prognosis healing. In addition, it operates in the preoperative period of patients who undergo mastectomy, whether conservative or not. But the nurse of tertiary care seeks to meet the needs of patients who undergo additional treatment such as chemo prevention, radiation and hormone therapy [6].

Category 4—How to evaluate the performance of the professional nurse in relation to the support that the patient needs to receive to cope with cancer and its possible consequences

The diagnosis of cancer generally has a devastating effect on a person's life, either for fear of mutilation and disfigurement that treatments can cause, either by fear of death or many losses, in the emotional, social, and material areas, which almost always occur.

Therefore, the attention to the emotional impact caused by the disease is essential in cancer patient care [7].

According to the above, it is possible to realize the importance of emotional support to those patients with breast cancer. However, we tried to find out how nurses evaluate the performance of nursing for the support that the patient needs to receive to cope with cancer and its possible consequences. We realized that the nurse is aware of the great importance of his/her role in the support to the patient, as shown in the reports below.

“Care is intrinsic to the profession of nurse; I see the humanization of the assistance in most nursing professionals.” (Enf10)

“The nurse has a fundamental role in the emotional support and clarification about the treatment of the disease.” (Enf8)

“I think it is primordial and essential the presence of nurses in the care of these patients, since he/she has the role to clarify the disease, listening to the patient and encouraging treatment [...]” (Enf9)

Breast cancer is associated with a mental image related to pain, loss of libido, impotence, rejection and it could take these women to psychological misfits, manifested by feelings derived from the mutilation of the body, with direct reflections on sexual life that hinder interpersonal relationships. It affects, so intensively, the self-esteem of women, because the loss of a body part as breast reflects negatively on female identity maintenance [12].

Thus, it is important for nurses to know the experience of women in the discovery of this diagnosis, so he/she can provide adequate support and assist in addressing this situation, solving the doubts and concerns that may appear in this context [8].

4. Final Considerations

This research analyzed the importance of the role of nursing staff to patients living with breast cancer. Nurses interviewed were positioned according to the difficulties of operation of each area of work, but always facing the same problem: lack of resources for carrying support to breast cancer patients and weaknesses of these women to accept the disease as a result of denial of treatment.

In this context, it noticed the improvement of professional assistance as emotional support, pointing out that in most cases, nurses work with host, qualified listening, health education measures leading to self-knowledge, self-esteem and acceptance of the disease, and so creating bonds with the patients.

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Building Knowledge: The Concept of Care

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Abstract

Aim and Objectives: The aim of this article is to explore whether the specific levels of caring described in Swanson's Middle Range Caring Theory which include characteristics of caring, people's concerns and commitments underlying caring, conditions that enhance/inhibit caring and consequences of caring and non-caring could be used in categorizing findings from two literature reviews investigating the concept of care. **Background:** Nursing has a long legacy as a caring/healing profession where caring is increasingly posited as one of the core concepts in modern nursing science. However, the meanings given to the concept of care remain elusive, ambiguous and unclear. **Design:** Two systematic literature reviews. **Method:** Twenty-nine articles based on strategic inclusion and exclusion criteria were synthesized. Data was retrieved from CINAHL, Medline, Embase and PsycInfo covering the period 2003-2016. The literature search used the key words care, concept analysis, systematic review, meta-synthesis, meta-analysis and narrative review. **Results:** Major themes found were related to the following characteristics of caring persons: compassionate, knowledgeable, positive and reflective. Concerns and commitments underlying caring were doing the right thing, connecting, focusing on the others' experience, acknowledging individual dignity and worth and being present. Conditions that enhanced/inhibited caring were situational constraints, personality traits, communication skills, health problems and organizational features. Consequences of caring and non-caring actions included both positive and negative emotional, spiritual, physical, and social outcomes for patients, families and nurses. **Conclusion:** The specific levels of caring described in Swanson's Middle Range Caring Theory are highly suitable for categorizing the findings from three literature reviews on the concept of care. **Relevance to Clinical Practice:** Swanson's Middle Range Caring Theory can be used to guide clinical practice and encourage an individual approach to care. It has been shown to contain clear, comprehensible language in its theoretical basis; this encourages use in clinical practice.

Keywords

Caring, Concept Analysis, Concept Development, Swanson's Middle Range Theory of Caring, Theoretical Framework

1. Introduction

Nursing has a long legacy as a caring/healing profession. Caring is increasingly posited as one of the core concepts in modern nursing science [1] [2] [3] [4] [5]. Nevertheless, it has been stated that the interest of nursing researchers in the phenomenon of caring has grown slowly over the past 10 years, and although there appears to be an increased use of the term care/caring in nursing, there has been limited interest or systematic study of the concept itself [6]. The central place of caring as the essence of nursing has also been challenged by various nursing scholars. Further, controversy exists within and outside of nursing as to the role of caring in personal and professional relationships [7]. A universal definition or conceptualization of caring does not exist, despite attempts to achieve conceptual clarity [8]. The lack of a universally accepted definition is linked to the level of maturity of a concept, with caring being described as an immature [9]. Compounding this criticism is the fact that nursing science is concerned with complex human behaviors within a continually changing trajectory of health. Consequently, concepts of interest to nursing such as caring are multifaceted, interconnected and may manifest differently at varied points along the health trajectory.

Concepts are the building blocks of theory and thus need continual exploration to clarify their meanings [10]. Huch [11] argues that concepts are not like bricks but instead are like niches and succinctly states that conceptual clarification is not possible without theoretical commitment. He argues that in the absence of theoretical commitment, concept clarification becomes an arbitrary and vacuous exercise in semantics. Therefore, theoretical commitment to concept development should be of upmost importance and nurses should continually strive to verify existing theoretical structures, also in existing nursing theories [12].

Swanson's theory of caring is considered a middle range theory. Middle range theories are more concrete and narrower than grand theories, being composed of a limited number of concepts and positions described relatively concretely on a specific level. When a middle range descriptive theory describes a phenomenon, it describes the commonalities found in observations of individuals, groups, situations and events and categorizes the commonalities into mutually exclusive, overlapping, hierarchical or sequential dimensions. Swanson's Middle Range Caring Theory was developed over a series of clinical research studies in women's health [13]. She also conducted an extensive meta-analysis of 130 studies of caring which led her to conclude that knowledge about caring could be categorized into five levels of caring [13]. Consequently, her theory provided both a conceptual framework and empirical support for the generalizability of the theory beyond clinical contexts from which it was generated. The five levels described by Swanson are as follows: Level 1 portrays characteristics of persons with the capacity for caring with a focus on how the caring person has traits which are both inherent and influenced by the environment. Level 2 describes concerns and commitments which focus on the beliefs or values that underpin caring actions. Level 3 includes conditions and circumstances that enhance or inhibit caring which are related to the patient, nurse, or organization. Level 4 is described as concrete caring actions, be-

haviors and therapeutic interventions. This level is not included in this paper due to the vast amount of data and will be published separately. Lastly, Level 5 focuses on the positive and negative consequences of caring which may consist of both intentional and unintentional outcomes for the provider and/ or recipient [13]. Notably, in Swanson's earlier work, she discussed how these five caring levels are interconnected and states "... caring begins with a fundamental belief in persons and their capacity to make it through events and transitions and face a future with meaning" [14]. She regarded maintaining belief in the person as the basis of nursing care. She also described how the five levels overlap each other, and indicated that their relationship to each other may also be hierarchical [14]. However, others have found that the caring levels occur simultaneously [15].

2. Aims and Method

The aim of this article is to explore whether specific levels of caring in Swanson's Middle Range Caring Theory could be used in categorizing findings from the literature reviews here, study will be made of characteristics of caring persons, concerns and commitments underlying caring, conditions that enhance/inhibit caring and consequences of caring and non-caring.

2.1. Design

The study was carried out using a systematic literature review based on concept analysis, meta-analysis or narrative review.

2.2. Data Collection

A systematic literature review was made in the CINAHL, Medline, Embase, PsycInfo databases covering the period January 2003-December 2013, updated from January 2014 to May 2015. Key words included care AND concept analysis AND limitations which included timeline, review OR systematic review OR meta-synthesis OR meta-analysis OR narrative review. The first search resulted in 414 citations. The title and abstract of these citations were reviewed independently by the authors. During this process, 291 citations were excluded due to the titles were not relevant, in duplicate form, and/or not written in English. The 123 citations found relevant were retrieved for further evaluation. The titles and/or abstracts of these citations were again reviewed independently based upon the following inclusion criteria; the word care/caring was present in the title or the abstract, written in English and the paper provided a concept analysis, a systematic review, a meta-analysis or meta-synthesis. Duplicate citations were again excluded. The search resulted in 35 articles which were fully retrieved. After detailed reading, a further six articles were deleted as they did not discuss care or caring per se, did not apply an explicit method of concept analysis or the findings did not reflect the perspectives of staff, care recipients, or family members. Upon the second reading of the remaining 29 articles, a further four were excluded because they did not discuss care or caring per se or describe their literature review methodology. In the

second search from 2014-2016, based upon the same inclusion criteria, an additional four articles were found. All decisions to exclude articles were made by consensus between the two authors. The final sample included 29 articles. During both reviews, the authors attempted to follow the “Preferred Reporting Items or Systematic Reviews and Meta-Analysis Statement (PRISMA) statement. No attempt was made to locate further references by manual searching due to limited time and resources. Although manual searching is often recommended, it also carries with it the possibility of introducing human error and retrieval bias. Refer to **Figure 1** which plots the data extraction process.

2.3. Data Analysis

Data analysis consisted of reading each article attentively to allow immersion in the data and comprehend meanings given to the concept of caring. The analysis was carried out according to the thematic analysis procedure described by Miles and Huberman [16]. Thus, all categories of data were evaluated in order to identify the emerging topics in the listed articles. Categorization at broad, topical levels occurred first. Then clusters of phenomena were devised using a constant comparative method. Data were read

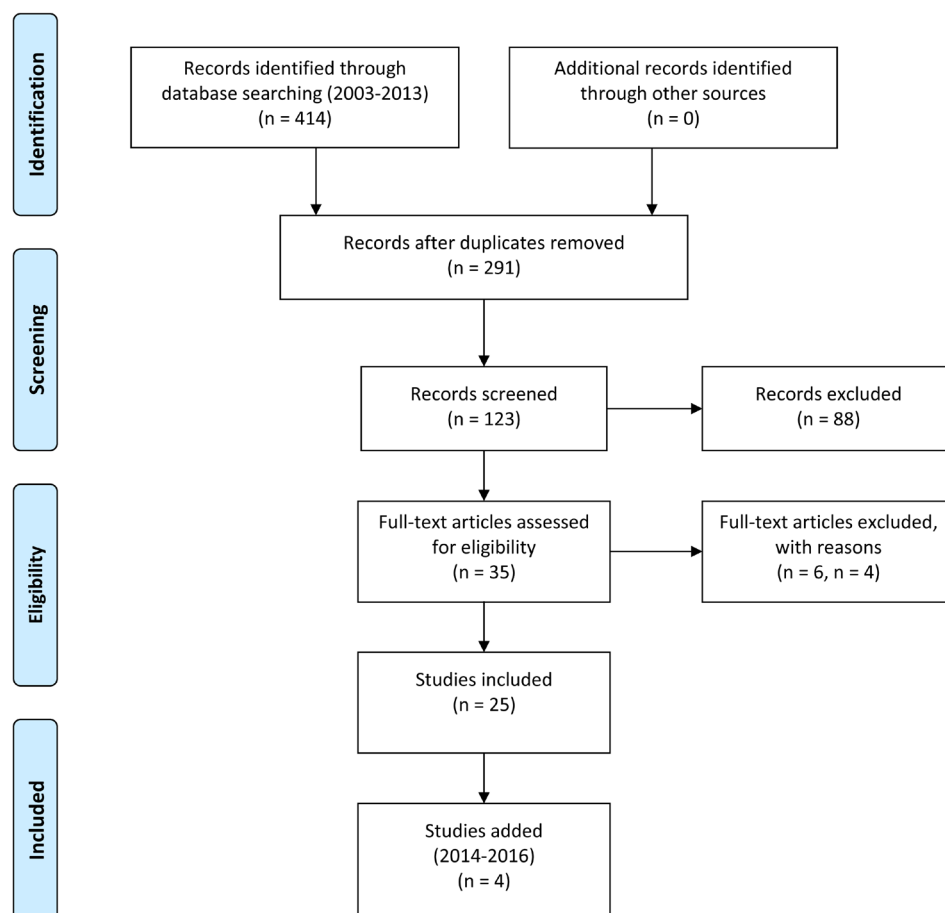


Figure 1. Literature identification process.

thoroughly and assigned descriptive words and phrases. An attempt was made to preserve the rich details of the findings as descriptions at the cluster levels. Further classification of data under these categories was then recoded in accordance with Swanson's caring levels described as characteristics of caring persons, concerns and commitments underlying caring, conditions that enhance/inhibit caring, and consequences of caring and non-caring. The second author (JO) read through the classification schemes, raised questions and suggested alterations. Both authors discussed the classification of findings until agreement was reached. A log book was used to write down reflections supporting the reliability of the study.

3. Results

Characteristics of caring persons (Level 1)

Characteristics of caring persons include being *compassionate*, which embodies being friendly, courteous, interested, concerned, nurturing, ministering, diplomatic, authentic, cherishing, sensitive and loving [17]-[24]. A further characteristic is *being knowledgeable*, which consists of being engaged, competent, confident and respectful [17] [19] [24] [25]. Being *empathetic* is another characteristic, which embodies listening, showing concern for patients' privacy, responding promptly, provision and/or management of pain relief, giving time to speak, showing sympathetic presence and being cautious in avoiding harm [17] [18] [19] [20] [23] [24] [25] [26]. Another characteristic is *being positive* which includes having a positive outlook, having positive personal qualities and feeling and exhibiting concern for others [18] [19] [23] [25]. Lastly, the characteristic of *being reflective* embodies being conscientious, protective, diligent, attentive and committed with an attitude of warmth, openness and willingness to share responsibility [20] [27].

Concerns and commitments underlying caring (Level 2)

The concerns and commitments underlying caring include a commitment *to doing the right thing* which is grounded in moral and ethical obligations, standards and policies for practice and values and social norms. This rests on ethical principles of non-malevolence and beneficence, and ethical ways of knowing what is nonjudgmental [19] [22] [23] [24] [26] [27] [28] [29] [30].

Other concerns and commitments include *connecting with the other*, which is characterized by a contextually negotiated reciprocity. It is compassionate, caring, honest, sincere, confident, and is based on a mutual commitment of health professional and family members to engage in a healing process. It also reflects a partnership that shares common goals and is committed to a way of being [18] [24] [25] [26] [27] [28] [31]. *Focusing on the other's experience* relates to having a humanistic view of the patient, understanding the patients' lived experience and recognizing the patient as a spiritual being. The patient may believe in God, a supernatural being, a life force, or a spiritual force with a dynamic quest for a transcendent relationship [23] [26].

Concerns and commitments also embody acknowledging *the dignity and worth of each person*. This is a holistic quality, emphasizing respect for individual and cultural

differences and accepting variability [18] [21]-[28] [32]. *Being present to the self* is another concern. This involves the nurse's internal perceptions, values and decisional processes, attitudes and positioning within relationships and an understanding of patients' capabilities: these include individual identities, needs, and self-evaluations [26] [33]. Being present also means being competent: here, work style and motivation are important. Also involved are the professional's personal sense of commitment, responsibility, consideration, sympathy, giving of self and is ability to discern the other's growth potential [18] [19] [34].

Nurse-patient and organizational conditions affecting caring (Level 3)

Nurse-related factors affecting the relationship with the patient include *conditional constraints* which are related to emotional demands, power imbalances, frequency and intensity of care, work complexity and social norms [20] [35]. Other constraints are lack of clear definitions of patient-centered care, inadequate education, lack of collaboration, coordination and continuity of care, staff shortage, lack of good teaching models and curriculum on patient centered care, dominance of biomedical model perceptions, economic constraints and patient complexity [22] [35] [36]. *Personality characteristics* will also affect emotional adaptability, and be dependent on the nurse's societal culture and ethical and religious beliefs [19] [20] [35].

Patient-related conditions which affect the relationship and *communication* are the patient's openness to nursing and the patient's attitude and behavior. The patient may be angry, aggressive, overly demanding, not consciously aware, or fearful and anxious. Communication is also influenced by the varied emotional responses found in women and men [17] [27] [35] [37]. Caring is also affected by patient characteristics such as age, ethnicity, education, personal abilities, lifestyle, prior abuse and self-rated health [37] [38]. Other patient-related factors are the *patient's health problems* such as diagnostic/therapeutic/care uncertainty, chronic status, physical function/disability, illness and symptom severity, instability, complications, comorbidities, emergency hospitalization and criticality [38]. Other health problems include pain which is not assessed and treated, cognitive impairment, complex, unpredictable trajectories and geriatric syndromes, frailty and insurance limitations. Nurses may have to resuscitate patients with a persistent vegetative state or give mechanical ventilation support to patients with only a few days to live [29] [35].

Organizational conditions which affect caring include *administrative support* which is professionally centered on medical and patient models of care, emphasizing care and regard nurses as experts [26] [27]. Other organizational factors are organizational rules, organizational teamwork, and number and type of nurses/assistive caregivers including their competency level, education, and past experience [19] [39]. Administrative support also consists of available and adequate resource allocation such as number of beds, medications and supplies, and functioning equipment [19] [22] [27] [35] [36] [39]. Administrative support also consists of organizational environments which actively promote emotional support exchanges, lead in developing and adapting innovative patient centered care models, identify needs for support in self-awareness and review

staffing/education policies in regard to suboptimal care [19] [21] [26] [35].

Other organizational conditions influencing caring include *personnel-or role-related factors*. These may involve nurses consciously or unconsciously regulating patient's possibilities for participation or refraining from communicating in order to avoid conflict. A further factor is physicians who are inadequately trained in self-management, nurses who experience caring themselves and have team support and reasonable work expectations [25] [27] [31]. Other factors are effective staff relationships with regularly scheduled meetings, interdisciplinary team actions, the planning of care and pain management and continued education, mentoring and support for nurses [32]. *Work or practice condition* is another organizational factor, these may involve patient care demands, time allotment, and a working environment that contributes to a caring health care system [26] [27] [32] [39]. Other work conditions consist of fragmented, uncoordinated care, power dominance, nurses having to perform non-professional duties, patients receiving potentially conflicting self-management regimes and communication problems in multiple settings [26] [27] [29] [35] [38]. Other factors are supportive environments conducive to reflection, understanding and discussing emotional labor in caring for difficult patients, and interdisciplinary support to identify compassion fatigue and stressors which contribute to negative behaviors [19] [21]. Lastly, *technology* is another organizational condition; here the level of technology and availability of equipment are important [26] [31] [36] [38].

Consequences of caring and non-caring for patients, families and nurses (Level 5)

Positive consequences for patients

Notably, sixteen papers described positive consequences of caring for patients as including *emotional-spiritual* outcomes such as improved quality of life, general well-being, satisfaction with care, and healing relationships with self, others and religious icons [18] [22] [23] [24] [26] [27] [29]-[34] [40] [41]. Emotional-spiritual outcomes also include personal growth and self-actualization, reduced mortality, increased autonomy and inner control, feeling valued and respected, and the preservation of valued capabilities [26] [27] [33] [42]. Other consequences include self-respect and self-esteem, improved meaning, increased problem solving, relief from suffering, improved pain control, discovery of new possibilities, and help to face an optimal and peaceful death [18] [21] [25] [26] [28] [31] [38] [40] [41] [42]. Further outcomes are a sense of freedom and responsibility, enhancing a positive mental attitude, happiness, and reduction of stress, fear and anxiety [27] [33] [42]. Enhanced human dignity (finding a sense of worth and reason to live), finding meaning in life in regard to issues of suffering, providing future hope, and enabling the discovery of new potentials are other positive outcomes [17] [23] [34] [40]. *Physical aspects represent* another positive outcome and consist of improved health, improved healing and a sense of security and safety which enhances functioning and independence [17] [18] [22] [24] [27] [30] [31] [34] [41]. Similarly, maintaining patient autonomy, sense of control, self-efficacy, competence, self-confidence, empowerment, opportunities for decision making, increased patient

adherence, increased reality orientation, positive behavior changes, successful coping and increased strength to deal with illness are other physical outcomes [17] [18] [22] [24] [27] [31] [40] [41] [42].

Positive consequences for patients also embrace *social aspects* such as increased use of health care services, increased health promotion, improved health care utilization, improved relationships with others, and increased sense of solidarity [17] [18] [34] [41].

Negative consequences for patients

Negative outcomes for patients include *emotional-spiritual consequences* such as negative input on quality of life [35] [38] [43]. They also include *physical consequences* such as death, resuscitating patients to a life attached to equipment, harming patients, anxiety, post-traumatic stress symptoms, increased cardiac arrests, increased severity of health care problems, increased hospital stays, spiritual distress, multidimensional vulnerability, behavioral problems and avoidance of health care systems [22] [24] [35] [37] [38] [43].

Positive outcomes for families

Positive outcomes for the family include *emotional-spiritual outcomes* such as strengthened coping abilities and sense of control, decreased psychological distress, reduced guilt, improved bereavement outcomes, empowered individual resources, reduced powerlessness, strengthened family health functioning and integrity, and the preservation of dignity [25] [27] [32] [44]. *Social consequences* include improved bonding between parents and their family, extended relationships with other families, more open and honest relationships with decreased conflict and anger, mutually satisfactory collaboration, and enhanced communication between patients, families and staff [16] [22] [30].

Negative outcomes for families

Negative *emotional-spiritual outcomes* for the family are futile care, burdened sense of responsibility, vigilant behavior and financial strain [25] [35]. *Professional consequences* in family-centered care may involve a blurring of roles and professional identity, which result in nursing actions focused on their unconscious need for control. A further factor is disagreement between families, nurses, leading to moral dilemmas for nurses [25].

Positive outcomes for nurses

Positive emotional-spiritual outcomes for nurses include *emotional-spiritual consequences* which include improved quality of life, increased mental well-being, renewed energy and passion, increased empathy and sensitivity, management of negative feelings, reduced stress, enhanced ability to face denial of death in patients and increased personal growth and self-actualization [17] [20] [21] [27] [34] [41].

Other positive outcomes include *professional consequences* such as increased expertise and understanding of the patient's situation, self-confidence, job satisfaction, professional pride, increased holistic and safe care, and improved empathy [17] [18] [20] [22] [24] [25] [27] [30] [31] [32] [34] [39] [40]. Similarly, individual care involving improved communication, conflict reduction and growth development in both nurse and

patient will promote nurse empowerment, self-esteem, self-management, and result in enhanced service performance with emotional engagement and a sense of professional and personal accomplishment [19] [25] [27] [31] [40] [41].

Positive social consequences for nurses include the development of relational and other skills and improved problem solving, decision making and goal attainment. Nurses may gain greater role clarity, improve and enhance reflection, learning and sharing of skills, facilitates team approach, and enhances consistency of information [22] [30] [34] [40] [41] [45].

Negative consequences for nurses

Negative *emotional-spiritual outcomes for nurses include* loss of empathy, accident proneness, emotional breakdown and burnout, negative emotional distortions, emotional stress, emotional exhaustion, depersonalization, increased guilt and shame, weight loss, and sympathetic over-awareness arising from over-identification and over-involvement [19] [20] [37] [38] [43]. Other negative professional are sickness absences, inaccurate perception of patient experiences leading to suboptimal care, conflict within the medical teams and with patients and communication problems [38] [43]. Nurses can also have egoistic motivation to alleviate their own distress by overly helping patients. They may not understand the patient's frame of reference or impose their interpretations of the patient's situation. This may result in decreased empathy and emotional bonding in the relationship with the patient [20].

Positive and negative consequences for the health care system

Positive consequences for the health care system include the creation of a *therapeutic culture*, which includes improved quality of care, increased preventative services, a cheerful environment and greater continuity of care. It also involves decreased movement of patients during hospitalization, increased productivity, and enhanced public and patient confidence with fewer patient complaints [19] [22] [26] [37] (see **Figure 2**).

4. Discussion

Applying Swanson's levels of caring as a conceptual framework, the results of Level 1, which describes caring traits composed of both inherent and environmental-related qualities, showed that the major characteristics of caring persons included being compassionate, knowledgeable, empathetic, positive and reflective. Level 2 which focuses on beliefs and values that underpin caring actions showed that major concerns and commitments underlying caring were doing the right thing, connecting with the other, focusing on the other's experience, acknowledging individual dignity and worth, and being present to self. Level 3 which concerns factors which enhance or inhibit caring for the nurse, were conditional constraints, personality characteristics and communication. Patient-related conditions affecting caring were patient's health problems, degree of administrative support, and technological aspects. Level 5 which focuses on the positive and negative consequences of caring concerning patient's included emotional-spiritual, physical and social consequences, for the patient, emotional-spiritual, physical and social outcomes for nurses and the emotional-spiritual, social and professional conse-

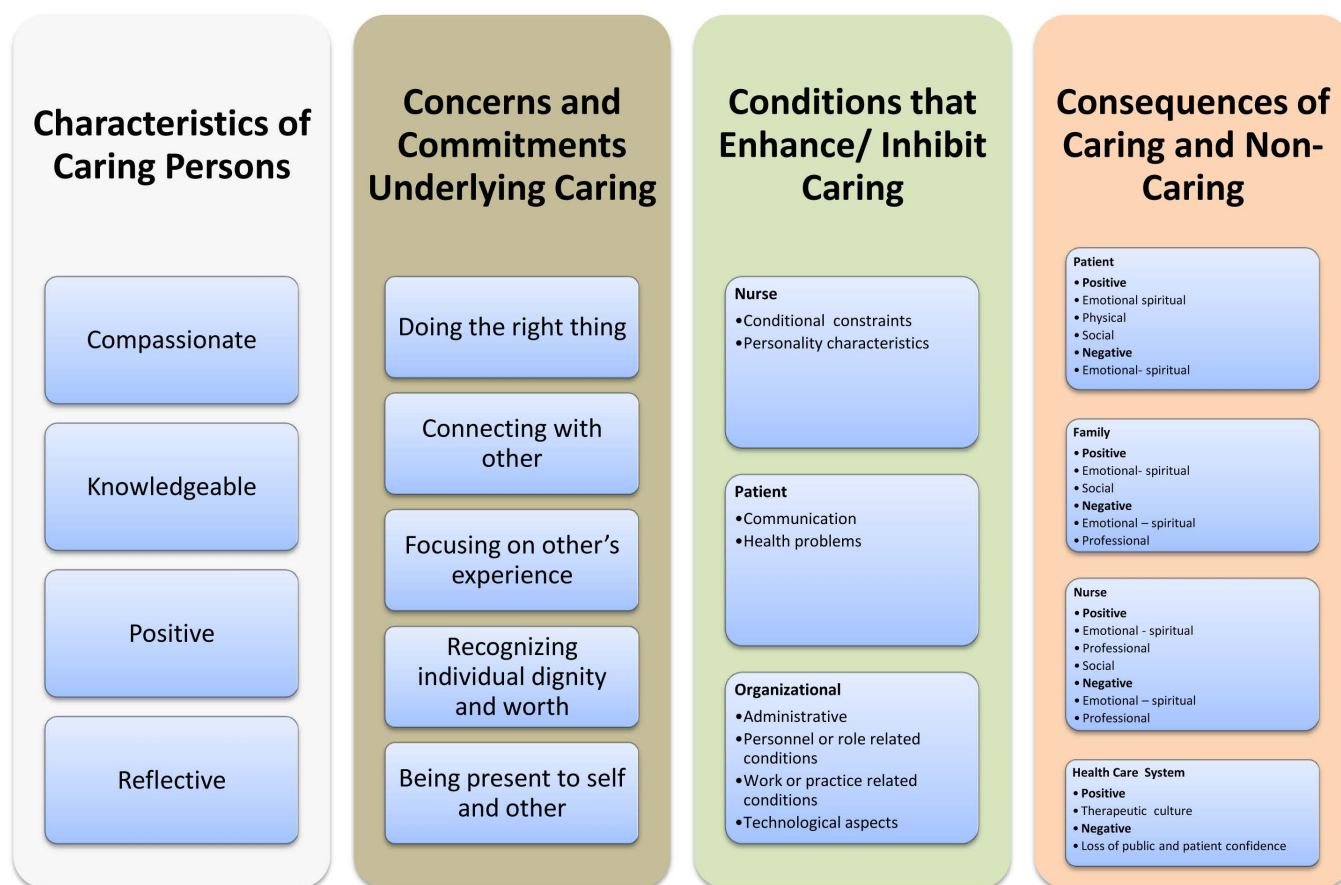


Figure 2. Characteristics of Swanson's caring levels.

quences for the family. Consequences while negative/consequences included emotional-spiritual and social outcomes. Both positive and negative caring consequences for nurses included emotional-spiritual, professional and social outcomes. For family, positive and negative outcomes included emotional-spiritual, social consequences and professional consequences. Positive and negative consequences for the health care system which affected caring included impacts on the therapeutic culture. Notably, the definitions of Swanson's levels of caring in her theory of caring were found to be semantically clear and provided a useful conceptual framework for classifying results from a systematic literature review. This semantic clarity of Swanson's concepts has been supported by others [42].

One of the most outspoken critics of the use of the concept of care in nursing [45], proposed that nursing theory in the ethics of care be postponed indefinitely because it is incapable of doing the work that nurses need to do. We disagree with this contention.

Swanson's Middle Range Theory of Caring has received considerable attention around the world with its usefulness being demonstrated in research, education and clinical practice [42] [46]. The results of this study also support the applicability of the theoretical constructs in categorizing findings from literature reviews.

Many decades ago, Glaser & Strauss [47] stated that theories should be able to ad-

vance theory development, guide practice, offer perspectives on behavior, serve a means of interpreting data and provide an approach style for research in specific areas of human behavior. Further and more recently, Watson [48] underlined that the next generation of theory, research, methods and measurements requires conceptual and operational space to develop and validate new grand theories, mini-theories, middle-range theories and situation-specific theories. This can be achieved through the exploration and uncovering of old and new relationships and new understandings about the phenomenon of caring. She contends that the demand for theory-guided, theory-based and theory-located contexts for evidence is becoming greater due to current and cultural demands for evidence and outcomes ([48], p. 271). The findings of this study support the applicability of Swanson's caring levels as an analytic tool and hopefully demonstrate linkages between theoretical constructs and evidence-based indicators.

The results also seemingly support the multidimensionality of care/caring as a complex, subjective, intersubjective, relational, personal and professional human phenomenon. Given the complexity of caring as a concept, conceptual differences regarding caring are inevitable [49]. These differences can enrich, although at the same time hinder, communication regarding our understandings about caring. Some dialectic debates regarding caring have also centered on the tautological nature of care, with criticism focusing on the needless repetition of the same sense of meaning of caring, or idea of caring, being said with different words [50]. Conversely, Sargent [51] contends that caring should be reframed as discursive practice that is fluid and contingent rather than a fixed conceptual entity. On the other hand, Paley [29] claims that nurses do not discriminate between perceptions of caring, the concept of caring, the experience of caring and caring itself. However, much of Paley's criticism focuses on what he describes as the inability to separate the dual components of nursing—attitudes/values and activities ([52], p. 188). The rich diversity of our findings under the various levels offers support for Swanson's suggestion that professional discussion on the concept of caring in nursing might best be characterized as having different levels of discussion. When referring to the concept caring, she states, "there is a need to be clear about whether the discourse is about the capacity for caring, the concerns and commitments that underline caring, conditions that inhibit or enhance caring, caring actions, or the consequences of caring" ([13], p. 63).

Watson [5] has previously given credit to the theoretical and empirical work of Swanson. Our findings also demonstrate congruence with the 10 carative factors found in Watson's Theory of Caring. These carative factors include: the formation of a humanistic altruistic system of values, the instillation of faith-hope, the cultivation of sensitivity to one's self and to others, the development of a helping-trusting relationship, expressing positive and negative feelings, the systematic and creative use of scientific problems-solving method for decision making, the promotion of interpersonal teaching-learning, the provision for a supportive, protective, and/or corrective mental, physical, sociocultural, and spiritual environment, assistance with the gratification of human needs, and the allowance for existential-phenomenological spiritual forces. For example, the formation of a humanistic-altruistic system of values and being authenti-

cally present and opening up to others can be seen in our results as characteristic in Level 1 and 2 in Swanson's Caring Theory. The instillation of faith-hope can be seen as an outcome in Level 5, while the cultivation of sensitivity to one's self and to others can be seen in Level 2, developing a helping-trusting relationship and being authentic are characteristics of Levels 1, 2, 3 and 5, also together with characteristics of non-caring. The expression of positive and negative feelings and provision of a supportive, protective mental, physical, sociocultural, and spiritual environment and assistance with human needs can be seen in Levels 2, 3 and 5. The systematic and creative use or non-use of scientific problems-solving method for decision making can be observed in Levels 3 and 5. Further, the promotion of interpersonal teaching-learning is found in Levels 3 and 5, and the allowance for existential-phenomenological spiritual forces can be seen in Levels 2 and 5. Consequently, the findings of this study lend validation to both caring theories.

5. Limitations to the Study

Regarding the limitations of this study, the notable variation in findings may be due to bias in the selection of relevant literature upon which the different forms of concept analyses were based. Most articles were written by nurses which represents a specific disciplinary status. Very few articles were found based on the patient's perceptive. Further, no manual searching was undertaken as stated earlier due to limited time. As the purpose of the paper was to produce a sample of the application of the concept, in medicine, psychology and nursing research, limiters were set to reflect a rather narrow definition of the scientific literature. Only studies that were considered a form of concept analyses, systematic review, a meta-analysis or meta-synthesis or meta analysis were included as the authors meant these studies represented high quality evidence. Further, only studies which had the term care or caring in their title and/or abstract were found applicable. This was done to ensure a high degree of subject specificity. The desire for subject specificity could have been too restrictive and sacrificed the theoretical richness of the nature of the concept. Names given to the major themes and sub-themes were discussed by two independent researchers to enhance validity; however, the selected terminology used in classifying themes and sub-themes in this study is biased toward specific nursing knowledge. Interpretations of the data may have been enhanced by inviting people with different expertise to discuss the interpretation of the findings. We also confined our search to the past 13 years, which provide little historical perspective on the nature of the concept. Although this is a contemporary view of the concept of caring, we believe that concepts are dynamic, impacted by changing sociocultural influences and represent a probable truth at a certain point in time. Consequently, we do not regard a concept analysis as a static product ([10], p. 404).

6. Conclusion

Middle range nursing theories, like Swanson's theory, can help nurses to conduct sound nursing research ([53], p. 39). Notably, three decades ago Meleis [12] argued that since

nursing has developed many competing and complementary theories, the debate on the validity of these theories should contribute to the scholarly development of nursing as a discipline over time. Consequently, an important process in the development of nursing knowledge is the continued analysis, evaluation and synthesis of existing nursing theories. The findings of this study support the validity and applicability of Swanson's caring levels described in her Caring Theory as an analytic tool in classifying results from literature reviews.

7. Relevance to Clinical Practice

Swanson's Middle Range Caring Theory can be used to guide clinical practice and encourage an individual approach to care. It has been shown to contain clear, comprehensible language in its description of theoretical levels, which has encouraged its use in practice.

Caring theories need to be expanded and translated into useful practice models and into measures and testable protocols that are employed in replicable research designs. Importantly, praxis should be informed practice-empirically validated and informed not only by one's philosophical/ethical/theoretical orientation, but grounded in concrete actions and behaviors that can be empirically assessed and measured. The difficult task for clinicians is to find a way to demonstrate how caring practices and professional models of care grounded in theoretical caring processes, such as Swanson's theory, make a difference in nursing, patient, or organizational outcomes [3] [45]. For example, the Carolina Care Model (University of South Carolina) has operationalized Swanson's Caring Theory and change clinical practice to ensure consistently high standards of practice. This model is one approach to actualizing caring theory across health care organizations by systematically incorporating interventions that link nursing actions, caring processes and expectations [51]. Numerous hospitals and health care facilities have since adopted the theory as a guide to their own nursing services, in e.g. in the US, Canada and Sweden [54]. Although her theory was originally conceived within a perinatal concept, it has been successfully applied across a wide spectrum of nursing care, demonstrating an easily understood and readily applicable theory in the context of nursing practice. Swanson's theory of caring has also been the theoretical foundation for numerous research studies. Consequently, it is a relevant theory for modern nursing research. Regarding the future implications of our results, we support Swanson's contention that nurses' professional challenges include the production/evaluation of clinical practice models and psychometrically sound measures for examining each level of caring, careful examination of associations within and among the caring levels and a commitment to framing nursing intervention studies in the language of caring. This will provide a measurable and conceptually congruent framework for a sound theoretical basis for effective clinical practice [13].

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Contributions

MK was responsible for the study conception and design. JO was responsible for acquisition of data. MK and JO analyzed the data. MK drafted the manuscript. MK and JO made critical revisions to the paper regarding important intellectual content.

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Testing of the Content Validity of a Modified OPCq Instrument—A Pilot Study in Norwegian Home Health Care

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Abstract

Aim: To test the content validity of a modified Oulu Patient Classification instrument (OPCq), part of the RAFAELA Nursing Intensity and Staffing system in home health care (HHC) in Norway. **Background:** Due to the growing number of patients in HHC, a Patient Classification System (PCS) whereby the systematic registration of patients' care needs, nursing intensity (NI) and the allocation of nursing staff can occur is needed. The validity and reliability of the OPCq instrument have been tested with good outcomes in hospital settings, but only once in an HHC setting. In this study, the OPCq is tested for the first time in HHC in Norway. **Methods:** A pilot study with a descriptive design. The data were collected through a questionnaire (n = 44). Both qualitative and quantitative analyses were used. **Results:** The OPCq fulfills the requirements for validity in HHC, but the manual may need some minor adjustments. **Discussion:** The OPCq seems to be useful for measuring nursing intensity in HHC. Staff training and guidance, high-quality technological solutions and that all technology works satisfactorily are important when implementing a new PCS. Further research is needed in regard to NI and the optimal allocation of nursing staff in an HHC setting.

Keywords

Nursing Intensity, OPCq, Home Health Care, Patient Classification System

1. Introduction

The percentage of older people in the population of many countries is rising, concur-

rent with a widespread trend to refocus health care services away from hospital care and into municipal-based care. The number of beds in hospitals and nursing homes facilities has decreased in the European Union [1], which has resulted in a significantly increased need for home health care (HHC) services and, consequently, an increased need for nursing resources. Until now, research on the allocation of nursing resources in HHC has been scarce [2], and relatively few instruments for classifying and measuring patients' care needs in HHC have been developed and regularly used [3] [4] [5] [6].

As delineated by the Norwegian Ministry of Health and Care Services in the Coordination Reform, municipalities are now responsible for the care of individuals with complex medical and psychosocial needs [7]. A person-centered approach in primary health care is also recommended [8]. During the last decade, several researchers have found that a person-centered, holistic approach improves the quality of care that older and vulnerable patients receive [9] [10]. In a person-centered approach, one important objective is the fulfillment of patients' physical, psychological, sociocultural and spiritual needs [11]. Yet organizational structures also affect whether patients' needs can be fulfilled, especially in regard to staff resources: both in terms of educational level and number of nurses and/or nursing hours. An optimal nursing workload ensures that nurses can meet patients' needs. Aiken *et al.* [12] found associations between higher mortality in hospitals and fewer nurses qualified at bachelor's degree level. In a recent study, a clear association between a nursing workload above the optimal level and mortality was found [13].

We maintain that if nursing resources are not matched to patients' care needs and nursing intensity (NI), adverse events and mortality will increase in HHC. It is therefore essential that the continual classification and measuring of patients' care needs and NI occur. New instruments and systems for the systematic monitoring of NI are needed, so that nurse staffing resources can be purposely planned and quality of care ensured.

NI as a concept is closely related to the concepts "patient dependency", "acuity" and "severity" [14] [15] [16]. NI can be defined as how nursing-intensive a situation is and how dependent a patient is on the care provided: how much care, help and support a patient receives [14] [15].

The RAFAELA Nursing Intensity and Staffing system is a classification system developed in Finland in the early 1990s for hospital settings [17] [18]. The RAFAELA system provides a rational, systematic and objective foundation for evidence-based human resource management [19]. It is a well-functioning, tested administrative tool for nurse managers, which has been used in Finland, Norway and Iceland and on different health care and hospital organizational levels [17] [18] [20] [21] [22]. In an integrative review of PCS, Fasoli and Haddock [23] found that RAFAELA was one of a small number that met the criteria for validation and reliability in hospital settings.

RAFAELA is composed of two instruments, the Oulu Patient Classification/Qualisan (OPCq) instrument and the Professional Assessment of Optimal Nursing Care Intensity Level (PAONCIL) instrument. The OPCq was developed for hospital use and incor-

porates a holistic approach to care, measuring basic physical needs, emotional needs and nursing care activities. The validity of the OPCq has been tested in HHC once in Finland [4]. In this paper, we describe the process whereby the OPCq was modified to suit a Norwegian HHC setting and present the results of a pilot study of the content validity of the modified OPCq, assessed through nurses' evaluation of the instrument.

2. Background

PCS and NI instruments were first developed in the USA in the 1940s for use in hospital settings; similar development and research in the Nordic countries started first in the early 1970s. Of those designed for use with older patients in HHC settings, the majority have been developed in the USA. We found several tools: Clinical Care Classification (CCC) [24], Resident Assessment Instrument (inter RAI), Resource Utilization Groups (RUG III) [5], Community Health Intensity Rating scale (CHIRS), Easely-Storefjell Patient Classification Instrument (R-ESPCI) [3] and Caseload Intensity Tool (CIT) [6]. Some instruments estimate functional capacity instead of NI, for example the Katz Index of Independence in Activities of Daily Living [25] and the modified Katz ADL [26].

In Sweden, the Time in Care instrument (TiC) has been used in some municipalities [27]. In Norway the *Individbasert statistikk for pleie-og omsorgstjenesten i kommunene* (IPLOS) register, a central health register that forms the basis for national statistics for the nursing and care services, is used in Norwegian municipalities to catalogue individual patient's resources and need for assistance [28]. The IPLOS register is not all-encompassing and mainly classifies functional capacity; it does not register sociocultural or spiritual needs. Norwegian nurses consider it to be a technology-driven register whereby interpersonal skills are diminished [29]. The need exists to test an instrument that captures all dimensions of nursing care, such as the RAFAELA system, which is the most commonly used system in the Nordic countries [14] [22] [30] [31].

3. Description of the RAFAELA System and the Modification of the OPCq for a HHC Setting

When using the RAFAELA system, it is possible to gather information on each patient's need for individual care and ensure the realization of a person-centered care. HHC Nurse Managers can use the RAFAELA system to balance patients' needs and nurse staffing resources and realize an optimal nurse staffing level. The RAFAELA system is used to ensure that the workload per nurse (expressed in NI points per nurse) is on the optimal NI level. This makes it possible to ensure the quality of nursing, good patient outcomes, good working conditions and the effective use of available resources [21].

The validity and reliability of RAFAELA in hospital settings has been assessed in several dissertations [14] [30] [31] and in primary health care in one dissertation [4]. With RAFAELA it is possible to respond to the constant variation in patients' needs, and it consists of the following components: 1) Daily registration of patients' care needs using the OPCq instrument; 2) Daily registration of actual nurse staffing resources; 3. Periodical determination of optimal NI level using the PAONCIL instrument.

In the OPCq, nursing care and care needs are organized into the following six sub-areas: 1) Planning and co-ordination of nursing care; 2) Breathing, blood circulation and symptoms of disease; 3) Nutrition and medication; 4) Personal hygiene and secretion; 5) Activity, sleep and rest; 6) Teaching, guidance in care and follow-up care, emotional support. Using the OPCq, nurses measure the six sub-areas at regular intervals, with A = 1 point (independent), B = 2 points (partial need of help), C = 3 points (repeat need of help, complex) or D = 4 points (constant need of help, very complex); the sum provides a total NI per patient per day in hospital or per HHC visit. Total NI can thus vary from 6 to 24 points.

This project was a collaboration between a municipality in southeast Norway and a regional University College and lasted from 2012-2014. The Finnish Consulting Group Ltd. (FCG) [32] supplied the RAFAELA system and led a two-day introduction (educational program) to the RAFAELA system for all nursing staff at the participating HHC units in October 2012. The FCG also provided a manual for the OPCq instrument, which included instructions for its use and descriptions of the six sub-areas, classification system and key terms. Prior to the start of the project, the OPCq manual was modified for use in an HHC setting. Two workgroups consisting of 8 people in total (including registered nurses (RNs), practical nurses (PNs) and organizational leaders) met 4 - 5 times to discuss modifications to the OPCq manual with the internal project leader. Modifications were based on what staff considered to be relevant concerning clinical practice in HHC. The internal project leader regularly discussed the modifications that the workgroup had agreed upon with an external project leader/professor from the University College, and the experts at FCG thereafter approved all modifications.

Modifications were made as follows. Examination program at regular intervals B-C was removed from sub-area 1 (Planning and co-ordination of nursing care). The requirement that nursing staff assess electrolyte and acid-base disturbances or increased intracranial pressure was removed and patient positioning was changed to bedridden in sub-area 2 (Breathing, blood circulation and symptoms of disease). Management of prophylactic medication was changed to continuous medication in sub-area 3 (Nutrition and medication). The need for advice prior to discharge from hospital was removed from sub-area 6 (Teaching, guidance in care and follow-up care, emotional support), because the patients were already living in their own homes. Modifications were additionally made to the *key terms* listed in the manual: “occasional” was adjusted to “need for occasional help” in sub-areas 2 - 6.

Prior to implementation of the instrument, all nursing staff at the two participating HHC units were given an introduction to the modified OPCq instrument. The project leader was responsible for all subsequent education related to the project and/or use of the OPCq instrument.

While in hospital settings measurement of the OPCq occurs daily, this was not considered feasible in an HHC setting. Instead, measurement of the modified OPCq occurred after each HHC visit. Following each visit, the nurses first wrote down their classifications by hand and then entered the data into the RAFAELA database after-

wards. However, due to the high number of visits per nurse, the daily classifications were assessed as being too time consuming and the FCG and the municipality decided to develop a mobile OPCq classification application. While the final mobile application saved time, during its development and whenever there was poor mobile network coverage the participants were required to continue to write down their classifications by hand, which caused additional stress.

4. Aim

The aim of this present study was to test the content validity of the modified OPCq instrument, part of the RAFAELA Nursing Intensity and Staffing system, in HHC in Norway.

5. Ethical Considerations

Approval was sought from and provided by the Norwegian Social Science Data Services (NSD) prior to commencement of the study and appropriate permission was sought from the municipality. A license from the FCG to use the RAFAELA system was sought by the municipality and granted.

6. Methods

6.1. Design and Settings

This is a pilot study with a descriptive design. Validity testing of the OPCq instrument through the use of a summative questionnaire was carried out on two HHC units in a medium-size city, about 70,000, in southeast Norway during 2013 and 2014. The study was a part of a municipal research and development program and realized in collaboration with a regional University College during 2012-2014.

6.2. Participants and Data Collection

The data collection was conducted in two phases. Inclusion criteria were that participants worked 50% or more, worked day or evening shifts and had participated in the RAFAELA educational program for instruction in the use of the OPCq instrument. In spring 2013 the head nurses at two HHC units handed out 31 questionnaires. The HHC units had a total of 36 staff members, 24 RN and 12 PN or assistants. The head nurses and the coordinators were not included in the study. The questionnaire was answered anonymously and were returned, sealed in a reply envelope, to the same head nurses with a response rate of 71% ($n = 22$). In order to garner more participant responses, nursing students from the University College collected data in spring 2014 through the use of structured interviews, with interviewers basing their questions on the same questionnaire previously used. Twenty-two participants responded this time. The questionnaires, sealed in a reply envelope, were returned to the external project leader/professor leading the research project. The main items in the questionnaire concerned background variables (age, gender, education and work experiences), questions about the

sub areas 1 - 6 and NI, education and training in OPCq classification and motivation to classify. All participants provided written informed consent for participation in the study and were informed that they could withdraw from the study at any time.

Of the participants ($n = 44$), 23 (52.3%) were RNs with bachelor degrees, 18 (40.9%) were PNs with vocational degrees and one was an assistant without formal competence (2 missing). A total of 27 (61.4%) had ten years or more work experience, 5 (11.4%) between 5 - 10 years, 3 (6.8%) between 3 - 4 years and 7 (15.9%) between 1 - 2 years (2 missing). The mean age was 40.8 years (MD 39), with a range from 19 - 69 years. The majority were women, with only two men. The participants had classified patients' NI about 7 months before the 2013 data collection and 18 months before the 2014 data collection.

The OPCq has been evaluated using the same questionnaire in two earlier studies: once in a hospital setting [14] and once in a primary health care setting [4]. For this study, the questionnaire was translated from Swedish into Norwegian and slightly modified to suit an HHC setting. The face validity was tested by six RNs at the municipal research unit prior to data collection. The internal consistency was measured using Cronbach's alpha, with a reliability of 0.96 [33] [34]. A reliability coefficient of 0.70 or higher is considered acceptable [34].

The questionnaire comprised 13 questions with set answers and the possibility to comment on eight of the questions. Ten questions had a five-point Likert scale with the variables: 1 = not at all, 2 = partly, 3 = pretty well, 4 = well, 5 = very well: as well as the alternative 0 = cannot say. One question had a five point Likert scale with the variables: 1 = not motivated, 2 = partly motivated, 3 = motivated, 4 = very motivated and 5 = highly motivated. The remaining two questions pertained to demographic variables (gender, work experience, educational level) and whether the OPCq's six measurement sub-areas should be modified. One question was excluded from the questionnaire in that it had different content in the first and second data collections.

6.3. Data Analysis

IBM Statistical Package for Social Sciences (SPSS) Version 22 was used for descriptive analyses. Pearson's r and Spearman's rho correlations were also used: both are recommended for use when calculating ordinal scales [33]. Inductive content analysis [33] [35] was used in a simplified form to analyze qualitative comments.

7. Results

The data findings are presented quantitatively and qualitatively below. Note that in the tables, but not the analysis, the questionnaire scoring options were sorted into four categories: very well/well, pretty well, partly/not at all and cannot say.

Q2: In your opinion, how well are the sub-areas 1 - 6 described in the OPCq instrument?

About 80% of participants scored sub-areas 1, 2, and 4 using very well/well or pretty well. Sub-area 5 was given the lowest score (Table 1).

Table 1. Q2: In your opinion, how well are the sub-areas 1 - 6 described in the OPCq instrument?

| Sub-areas | Very well/well | Pretty well | Partly/not at all | n | Mean | Median | SD |
|--------------------------|----------------|-------------|-------------------|----|------|--------|------|
| 1. Planning | 27.3% (12) | 54.5% (24) | 18.2% (8) | 44 | 3.06 | 3 | 0.82 |
| 2. Breathing circulation | 27.3% (12) | 54.5% (24) | 18.2% (8) | 44 | 3.09 | 3 | 0.77 |
| 3. Nutrition medication | 25% (11) | 52.3% (23) | 22.7% (10) | 44 | 3.00 | 3 | 0.96 |
| 4. Personal hygiene | 34.1% (15) | 45.5% (20) | 20.5% (9) | 44 | 3.11 | 3 | 0.87 |
| 5. Activity, sleep | 25% (11) | 47.7% (21) | 27.3% (12) | 44 | 2.98 | 3 | 0.82 |
| 6. Teaching guidance | 27.3% (12) | 47.7% (21) | 25% (11) | 44 | 3.00 | 3 | 0.86 |

Q3: Does a need exist for additional sub-areas?

Fourteen participants ($n = 44$) replied that additional sub-areas were needed, 14 that none were needed and 15 cannot say (1 missing).

Qualitative findings. Nineteen participants left written comments, from which two categories were discerned: *some sub-areas do not match* and *poorly adapted to HHC*.

In *some sub-areas do not match*, participants specified that some sub-areas did not match and should be more clearly defined: a degree of overlapping existed and there was uncertainty in regard to the OPCq's NI classification levels B and C. Participants also noted that there were too many situations included in each sub-area. Nevertheless, participants considered some sub-areas to be well described, full of detail and as having good coverage. Still, the use of more suitable keywords was sought.

In *poorly adapted to HHC*, participants mentioned that they lacked the ability to classify practical things such as: garbage, activities, the washing of garments, support stockings, weather conditions, driving conditions, phone calls, interdisciplinary collaboration and unexpected events.

Q5: How well do sub-areas 1 - 6 describe the patient's total NR?

More than half of the participants 25 (56.8%) indicated that sub-areas 1 - 6 describe NI very well, well or pretty well, while 18 (40.9%) scored this partly or not at all (1 missing) (**Figure 1**).

Qualitative findings. Eight ($n = 44$) participants left written comments. While some indicated that the sub-areas were well described, one replied (without further elaboration) that they should be more specific. Some sought better keywords and the ability to register unexpected events and better express concepts such as emotional support and persuasion.

Q8: How well does the OPCq's interpretation of the patient's NI correspond to the interpretation that your experience leads you to?

Twenty-one (47.7%) participants replied using well or pretty well, 14 (31.8%) partly, six (13.6%) not at all and two cannot say (1 missing).

Q6: How well do the sub-areas 1 - 6 differentiate from one another?

Twenty-three (52.3%) participants replied using very well, well or pretty well while 19 (43.2%) replied partly or not at all (2 missing) (**Figure 2**).

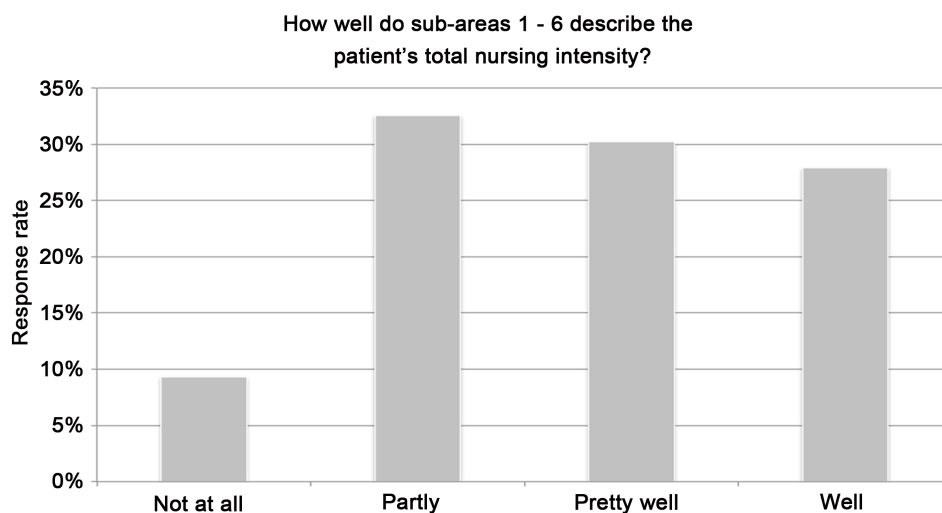


Figure 1. Q5: How well do sub-areas 1 - 6 describe the patient's total nursing intensity?

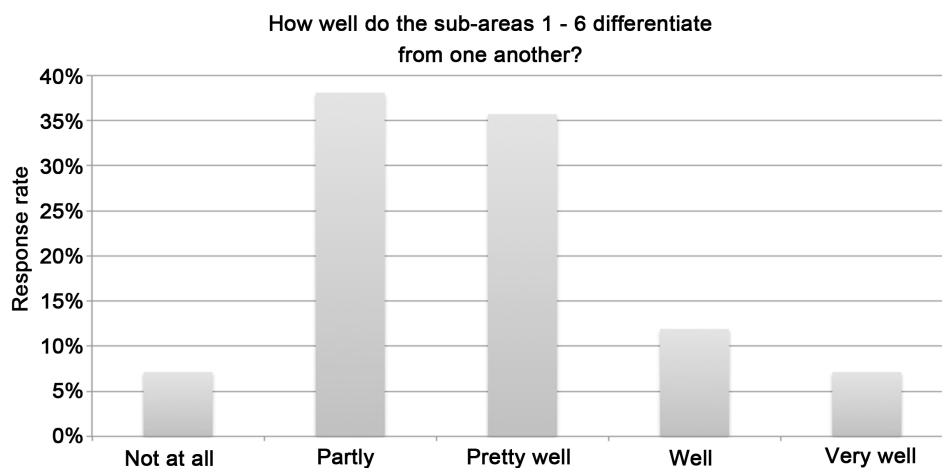


Figure 2. Q6: How well do the sub-areas 1 - 6 differentiate from one another?

Q4: In your opinion, how well are the NI levels A-D described in the following sub-areas in the OPCq instrument?

Two thirds of participants replied using very well, well or pretty well. The highest estimated sub-area was personal hygiene and secretion (sub-area 4) and the lowest estimated was nutrition and medication (sub-area 3) (**Table 2**).

Qualitative findings. Fourteen participants left written comments from which two categories were discerned: *some unclear* and *time*. In *some unclear*, participants noted that some NI levels were unclear and difficult to understand: there were only slight differences between the levels, making classification difficult; it was difficult to address nuances when selecting a level; and it was difficult to distinguish between levels C and D. A few mentioned that the instrument was not suited for use in HHC. In *time*, participants noted that they could not properly register the time they spend with patients, e.g., making phone calls to doctors or other authorities: “*It is difficult to account for the*

Table 2. Q4: In your opinion, how well are the NI levels A-D described in the following sub-areas in the OPCq instrument?

| Sub-areas | Very well/well | Pretty well | Partly/not at all | n | Mean | Median | SD |
|--------------------------|----------------|-------------|-------------------|----|------|--------|------|
| 1. Planning | 25% (11) | 47.7% (21) | 27.3% (12) | 44 | 2.90 | 3 | 0.93 |
| 2. Breathing circulation | 25% (11) | 47.7% (21) | 27.3% (12) | 44 | 2.90 | 3 | 0.93 |
| 3. Nutrition medication | 15.9% (7) | 45.5% (20) | 38.6% (17) | 44 | 2.70 | 3 | 0.90 |
| 4. Personal hygiene | 18.2% (8) | 56.8% (25) | 25% (11) | 44 | 2.86 | 3 | 0.88 |
| 5. Activity sleep | 25% (11) | 43.2% (19) | 31.8% (14) | 44 | 2.84 | 3 | 0.97 |
| 6. Teaching guidance | 22.8% (10) | 50% (22) | 27.3% (12) | 44 | 2.89 | 3 | 0.92 |

time". Some participants even remarked that a lack of time made it difficult to classify the patients' NI.

Q7: In your opinion, how practical and concrete is the OPCq instrument?

More than half of the participants replied using very well, well or pretty well in regard to the question's three sub-categories: instrument instructions (manual's written instructions), concepts and support words, NI levels A-D (**Table 3**).

Q9: In your opinion, has the training been sufficient?

More than half of the participants replied using very well, well or pretty well in regard to the question's four sub-categories: electronic scheduling, OPCq as a method used to measure, sub-areas 1-6 and NI (**Table 4**).

Q10: Has the training provided you with practical skills in the use of the OPCq instrument?

Twenty-six participants (59.1%) replied using very well, well or pretty well, thirteen (29.5%) replied partly or not at all and five (11.4%) cannot say.

Qualitative findings. Nine participants left written comments. A number considered the educational program to be good.

Q12: How motivated are you to classify patients' NR?

Twenty-six participants (59.1%) replied using motivated, very motivated or highly motivated and 17 (38.7%) partly motivated or not at all (1 missing). Additional analyses revealed a moderate correlation (0.36; $p < 0.05$) between Q12 (*How motivated are you to classify patients' NR?*) and Q13 (*How do you like working in HHC?*). While no correlation was seen between Q12 and work experience, PNs (a lower educational level) were more motivated than RNs (0.34; $p < 0.05$).

Qualitative findings. Eleven participants left written comments from which two categories were discerned: *motivation* and *time*. In *motivation*, participants noted that they were motivated to use the OPCq but that some technical problems (PC-to-instrument software compatibility, password issues) lowered their motivation. In *time*, participants mentioned a lack of time as one of the factors that made using the OPCq

Table 3. Q7: In your opinion, how practical and concrete is the OPCq instrument?

| | Very well/well | Pretty well | Partly/not at all | n = 44 | Mean | Median | SD |
|------------------------|----------------|-------------|-------------------|--------|------|--------|------|
| Instruments | 20.5% (9) | 38.6% (17) | 36.3% (16) | 42 | 2.78 | 3 | 0.92 |
| Concepts support words | 15.9% (7) | 40.9% (18) | 25% (17) | 42 | 2.69 | 3 | 1.07 |
| NI levels | 20.5% (9) | 43.2% (19) | 20.5% (14) | 42 | 2.78 | 3 | 0.97 |

Table 4. Q9: In your opinion, has the training been sufficient?

| | Very well/well | Pretty well | Partly/not at all | Cannot say | n | Mean | Median | SD |
|---------------|----------------|-------------|-------------------|------------|----|------|--------|------|
| 1) scheduling | 20.5% (9) | 34.1% (15) | 34.1% (15) | 9.1% (4) | 43 | 2.41 | 3 | 1.31 |
| 2) OPCq | 31.8% (14) | 34.1% (15) | 20.4% (9) | 6.8% (3) | 41 | 2.87 | 3 | 1.20 |
| 3) Sub-areas | 38.6% (17) | 27.3% (12) | 22.7% (10) | 4.5% (2) | 41 | 2.95 | 3 | 1.16 |
| 4) NI | 31.8% (14) | 27.3% (12) | 27.2% (12) | 6.8% (3) | 41 | 2.73 | 3 | 1.24 |

difficult: “*The motivation is certainly present, but out of everything that should be done RAFAELA is prioritized last*”.

Q13: *Do you enjoy working in HHC?*

The majority of participants 43 (97.7%) replied using very well, well or pretty well; only one replied using partly.

Qualitative findings. Thirteen participants left written comments from which two categories were discerned: *working environment* and *relationship with the patients*. Participants mentioned positives including a good working environment of high professional quality, contact with the patients and a variable workday. Still some mentioned negatives, including a lack of time and high workload: “*The environment is good, but the workload and intensity are too great after the new coordination reform.*”

8. Discussion

The RAFAELA system’s OPCq instrument has been tested for the first time in an HHC setting in Norway. The content validity of the modified OPCq instrument, evaluated using a summative questionnaire, was estimated as being quite good. The modified OPCq instrument’s sub-areas were overall assessed favorably (very well, well or pretty well), though some disagreement was seen. Sub-area 1 (Planning and coordination), sub-area 2 (Breathing, blood circulation and symptoms of disease) and sub-area 4 (Personal hygiene and secretion) were given the highest scores while sub-area 5 (Activity, sleep and rest) was given the lowest score. The sub-areas given the highest scores may be those areas that the participants feel confident classifying. Sub-area 5 may be difficult to classify, because of the short time spent with the patient. Furthermore, the low score given to sub-area 5 could result from that decisions related to activities and/or psychosocial needs are not common in the care of HHC patients. Instead, those care services directly related to illness/disease, elimination, medication or hygiene are common.

In this study, only day and evening shift nursing staff used the modified OPCq instrument. Some participants expressed a need for additional sub-areas, which may indicate that the instrument should be further adjusted for use in HHC. Participants specifically mentioned items such as support stockings, garbage, weather and driving conditions. While a few expressed that the sub-areas did not describe patients' NI at all, more than two-thirds considered the assessment of the NI levels A-D to be very well, well or pretty well. Still, participants indicated that some ambiguity exists between the levels, especially between C and D, which may reflect the lower level of education among the staff. Similar results were seen in a study by Frilund and Fagerström [4] in Finland. More than half assessed the OPCq manual as being practical and clear, but critique in regard to the written instructions may indicate that some adjustments may be needed. Participants assessed the educational programs lead by the FCG and the project leader as being good.

The participants were primarily RNs and PNs, with only one assistant without formal education. The educational level of nursing staff is relevant, because professional assessments often correspond to educational level [36] [37] [38]. In Norwegian HHC, RNs and PNs often perform the same tasks and help with personal activities of daily living (PADL). While this reflects the HHC context, RNs are nonetheless more often responsible for acute care needs and specialized nursing interventions [39]. The participants had quite a lot of work experience, which may be a benefit when implementing a new PCS. While the majority here were motivated to use the OPCq instrument, the PNs were more motivated than the RNs. A lack of time was mentioned as a negative factor, also seen in a study by Flöjt, Hir and Rosengren [40]. Likewise, Gautun and Bratt [41] showed that when nurses experience great pressure in regard to time, not enough time could be given to individual patients. According to Tønnessen, Nortvedt and Førde [42], nurses ration care on a daily basis due to time constraints, consequently prioritizing medical and physiological needs over psychosocial and spiritual needs. This is not congruent with a person-centered approach [11], in which each patient's emotional, sociocultural and spiritual needs are supported. The OPCq, which does include a holistic approach congruent with a person-centered approach, includes emotional support and dialog in its sixth sub-area [14] [17] [18]. A lack of time may negatively affect one's ability to engage in dialog or cooperation with patients and, as such, may increase a task oriented way of working [42] [43] [44]. When the participants in this study felt that they did not have sufficient time to complete all tasks, they ceased prioritizing using the OPCq, which has an adverse effect. If patients' care needs are not systematically monitored, a correct and complete depiction of nurses' workload is not possible and the calculation of staff resources will, accordingly, be incorrect.

There was a high level of work satisfaction among the participants, despite their lack of time and a high workload. Nübling *et al.* [45] showed that HHC staff evaluate their psychosocial work situation more positively than other employees in professional geriatric care and that a high rate of part-time workers in HHC could affect results. While an indication of this was also seen in our study, exact data is unavailable.

This was a pilot study with relatively good results. The use of a PCS that measures NI is relatively new in an HHC setting, and it takes time to introduce a new system. Further clinical projects and research are needed to guarantee care and care results (outcome) and for the optimal allocation and calculation of nursing staff resources.

Based on the presented results, nurse leaders on varying levels in HHC can use the OPCq instrument, after some slight modifications, to measure and classify NI and as a workforce planning tool for nurse staffing. Use of the OPCq makes leaders aware of actual care needs and need for resources, but more focus should be placed on training nurse leaders to use systematic data in the allocation of nurse staffing resources. The shift from institutional to municipal-based care [7] [8] and the growing population of older people [2] make this essential.

Methodological Considerations

For more reliable results, a larger study is needed; this was a pilot study comprised of two HHC units with a limited number of participants. Due to low participant response in 2013, a new data collection was assessed as necessary and conducted in 2014. Technological problems such as poor mobile network coverage prevented the participants from using the mobile classification application, which caused stress and could thereby have affected the findings negatively.

One strength was that the summative questionnaire had been used in earlier studies [4] [17]. The questionnaire used in a study in Finnish primary health care for older people [4] showed a reliability of 0.89 (Cronbach's Alpha), while the questionnaire used in this study showed a reliability of 0.96 (Cronbach's Alpha). Another strength is that open responses from self-completed questionnaires can complement frequency distribution.

9. Conclusion

The results showed that the modified OPCq instrument, one of two instruments' part of the RAFAELA Nursing Intensity and Staffing system developed for use in a hospital setting, seems to fulfill the requirements for validity in an HHC setting. However, the OPCq manual should be improved and some instrument aspects changed to better correspond to the specific needs in HHC. Based on the findings in this study, our recommendation is to improve the manual slightly to better adapt to HCC, both in regarding to sub areas 1 - 6 and the NI levels A-D. It might be a need for more clearly defined levels A-D and keywords that are more suitable. Staff training and guidance are important when implementing a new PCS and that all technology works satisfactorily. Given that the complexity of care and the number of patients are increasing in HHC, further research is needed in regard to NI and the optimal allocation of nursing staff in an HHC setting.

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Conflict of Interest

The authors declare that there is no conflict of interest regarding the publication of this paper.

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Abbreviation Note List

=equal to, is, are

e.g. for ek sample

<less than



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Pain during Arteriovenous Fistula Cannulation in Chronic Renal Patients on Hemodialysis

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Abstract

This study aimed to evaluate pain intensity in chronic renal patients under hemodialysis during the arteriovenous fistula cannulation. It was a cross-sectional study conducted in a hemodialysis clinic in the second semester of 2014. 70 individuals participated in the research and were assessed by the visual analogue scale. The project was approved with opinion number 453.508-2013. During cannulation, the pain reported was moderate in 58.5% of patients, intense in 30% and mild in 11.5%. There was no association between the occurrence of pain in relation to gender, shift and time of hemodialysis. The study points out to the need for pre-cannulation analgesia to improve comfort during the procedure.

Keywords

Pain, Arteriovenous Fistula, Renal Dialysis

1. Introduction

The presence of vascular access is vital for patients with chronic kidney disease in hemodialysis [1], in order to establish a proper blood flux and guarantee the blood purification [2], ensuring the quality of dialysis.

To carry out the hemodialysis treatment, the arteriovenous fistula (AVF) cannulation must be performed three to four times a week [2], approximately 300 punctures per year [3], with thick needles [4]. Despite this observation, AVF remains as the main choice of nephrologist teams, because it has minor risk of infection, assures proper functioning for a period of five years and requires lower demand for maintenance in-

terventions [1].

Although the cannulation technique influences on survival rate of the access [5], there is no universally standardized method to apply this technique. However, rotation is recommended in the points of punctures [6] [7].

Three puncture techniques are used by hemodialysis professionals: area puncture, rope-ladder and buttonhole [8] [9]. Some authors point out that the most widely used technique in the world, including Europe and the United States, is the rope-ladder [8] [9] [10]. In Brazil, this is the preferred technique. It consists in alternating puncture sites as an attempt to prevent aneurysm formation, stenosis and repeated trauma by multiple punctures [11] [12].

In a study aimed to measure the pain associated with AVF cannulation, comparing the buttonhole with the rope-ladder technique with sharp needle, the first seemed less painful, although without statistically significant results [13]. On the other hand, other authors who compared the effects of the traditional and the buttonhole method, demonstrated statistically significant results in favor of the buttonhole method for pain reduction. In addition, another finding in this study was that the use of this technique reduced pre-cannulation anxiety [14].

The pain caused by AVF cannulation is an important aspect to be evaluated in the patient by the nursing professionals. This subject should be marked in the first instance, because it is a stressful issue when patients need to accept AVF as the mean to make a vascular access [4]. Often, the fear of needles and the pain caused by the puncture can provoke discomfort and anxiety, requiring the use of local anesthetic products in the pre-cannulation [9].

In this sense, the pain assessment during AVF cannulation by nursing staffs should be a daily practice in dialysis services. However, this principle has been little used, and studies that approach this topic with the due attention are rare. To fill this knowledge gap, this study aims to measure the pain intensity in chronic renal patients under hemodialysis during AVF cannulation by using the Visual Analogue Scale (VAS).

2. Methods

2.1. Type of Study

Cross-sectional study conducted in a hemodialysis clinic that assists 150 chronic renal patients. The data collection period was from October to December 2014.

2.2. Sample and Participants

150 patients under dialysis treatment were considered for the sample calculation. It was considered a significance level of 5% and 80% of power, besides estimation for inclusion of 60 patients. In this study, 10% of losses were estimated, and at the end, 70 patients were included in the sample.

Inclusion criteria were adult patients, regardless of treatment time. Patients with cognitive and visual deficit as well as the ones who became inpatients during the data collection period were excluded.

2.3. Data Collection and Instrument

For the data collection, a questionnaire prepared by the authors was applied, which contained variables (gender, age, education, shift in treatment and time of treatment of hemodialysis). Multiple choice questions related to the presence or absence of pain during cannulation and type of pain (piercing, cutting, irradiated). The pain intensity produced during AVF cannulation by the rope-ladder technique was measured by a unidimensional scale that examines only one characteristic [15]. The Visual Analogue Scale (VAS) was used as a first-choice instrument due to its ease of application and reproduction [16]. For pain classification, the patient is requested to select one of the options in the scale that goes from zero (no pain) to ten (worst pain imaginable), indicating the intensity of their pain at the moment [17]. As a reference for pain intensity, scores ranged from 0 to 3.9 cm for mild pain, from 4.0 to 7.9 cm for moderate pain, and from 8.0 to 10.0 cm for severe pain [18]. All instruments were applied in a hemodialysis room, immediately after the AVF cannulation procedure.

The project was approved by the Committee of Ethics in Research Involving Human Subjects of Universidade do Estado de Santa Catarina (UDESC) with opinion number 453,508 of 11/8/2013, 20138913.4.0000.0118 CAAE. All patients included in the study have read and agreed to participate by signing the informed consent form.

2.4. Data Analysis

The data were inserted in the Statistical Package for Social Sciences (software version 18.0). Continuous variables were expressed as mean and standard deviation, and the categories with relative frequencies and absolute number. Chi-square test and Fisher's exact test were used, with a significance level of 5%, to verify the if there was any association between the gender, shift, period of the dialytic procedure variables and period of hemodialysis with pain.

3. Results

The sample consisted of 70 patients, women being predominant. The average age was 60 ± 19 , and approximately half of the sample had finished elementary school and had 4-hour dialysis session, mainly in the evening period.

When evaluated with VAS, for the presence of pain during the arteriovenous cannulation, 41 (58.5%) of patients mentioned moderate pain, 21 (30%) severe pain and 8 (11.5%) mild pain. These data are shown in **Table 1**. Regarding pain characteristics, 36 (51%) classify it as penetrating and 34 (49%) describe as cutting.

Table 2 presents the pain perception by the patient under hemodialysis during the AVF puncture concerning gender, shift and time the treatment is carried out. No association was observed between the analyzed variables ($p < 0.05$).

4. Discussion

This is one of the few studies that approach the assessment of pain during AVF puncture. Pain reports of patients by scale assessment shows varied intensity. Most of them

Table 1. Characteristic of patients and pain during cannulation of arteriovenous fistula.

| Variables | N = 70 |
|---------------------------------------|------------|
| Gender | |
| Sex (female) | 37 (53%) |
| Education | |
| Not attended school | 12 (17%) |
| Elementary School | 39 (56%) |
| High School | 19 (27%) |
| Hemodialysis performance shift | |
| Morning | 23 (33%) |
| Afternoon | 28 (40%) |
| Evening | 19 (27%) |
| Characteristic of pain | |
| Penetrating | 8 (11.5%) |
| Moderate | 41 (58.5%) |
| Intense | 21 (30%) |

Table 2. Pain perception and association with gender, shift and time the hemodialysis is carried out.

| | Pain intensity | | | |
|--|-----------------|---------------------|-----------------|-------------|
| | Mild pain n (%) | Moderate pain n (%) | Severe pain (%) | Total |
| Gender | | | | |
| Male | 4 (12.5%) | 20 (62.5%) | 8 (25.0%) | 32 (100.0%) |
| Female | 4 (10.5%) | 21 (55.3%) | 13 (34.2%) | 38 (100.0%) |
| Dialysis performance shift | | | | |
| Morning | 1 (4.3%) | 12 (52.2%) | 10 (43.5%) | 23 (100.0%) |
| Afternoon | 3 (10.7%) | 19 (67.9%) | 6 (21.4%) | 28 (100.0%) |
| Evening | 4 (21.1%) | 10 (52.6%) | 5 (26.3%) | 19 (100.0%) |
| How long hemodialysis has been performed | | | | |
| Up to 5 years | 6 (11.3%) | 30 (56.6%) | 17 (32.1%) | 53 (100.0%) |
| More than 5 years | 2 (11.8%) | 11 (64.7%) | 4 (23.5%) | 17 (100.0%) |

are moderate pain, but with a significant percentage of severe pain.

The reported characteristics by patients are according those described by Aitken *et al.* [19]—traumatic and nociceptive pain. Traumatic pain is a type of acute pain caused by injuries, diagnostic procedures or treatments, invasive procedures that involves the use of sharp instruments through the tissues [20], which is very similar to the vessel cannulation by needles.

When asked about painful sensations during procedures, although some have not referred to pain, for all the patients evaluated the pain was present when the analog scale was used. The use of instruments to assess pain intensity is the best way to interpret and understand the pain experienced by the patient, improving the assistance offered by the team to meet individual needs [15].

Little concern with comfort and pain during AVF cannulation were the determining factors that hamper hemodialysis treatment adherence in a study with 45 chronic renal patients [21]. Intense pain during the procedure generates anxiety and fear regarding a new puncture, often discouraging the treatment [21].

In a study that investigated the difficulties and complications in the introduction of the buttonhole technique for AVF at home with a native vein—and with a visual-digital scale to assess pain during the punctures—it was observed that pain intensity produced by the buttonhole technique was softer when compared to the traditional technique [7].

In our study, we found no association among pain with genre, shift and time of hemodialysis treatment. Concerning genre, the result is in accordance with the study carried out by Aitken *et al.* [19] and Celick *et al.* [3], in which there was no significant relationship between pain and genre [3] [19]. However, in the study of Sabitha *et al.* [22], by correlating the perception of pain and age, gender and time variables, the AVF use time and educational background of the analyzed individuals, the authors found that pain intensity related to AVF puncture was associated with women [22]. Figueiredo *et al.* [13] also found slightly elevated degree of pain in women compared to men, although this result was not statistically significant [13].

Women tend to have lower pain threshold compared to men, because pain is influenced by mechanisms that can stimulate or inhibit the sensations. The difference in the pain threshold between men and women can be related to hyperalgesia, or to the hypoactivity of the inhibitory system of pain related to women. Sexual hormones explain this difference in pain perception [23].

In this study, the hemodialysis time was influenced by the duration of the arteriovenous access—the longer the time in hemodialysis, the higher the use of AVF. Thus this result corroborates the ones obtained by Sabitha *et al.* [22], researchers who have found no correlation with the duration of use of the fistula or the number of punctures to which it was submitted.

A study of 461 patients assessed the prevalence and nature of pain in AVF and its impact on the quality of life and adherence of patients with dialysis—the result showed that 20.4% of patients had severe pain caused by cannulation during the first year, and 7.6% of the patients had severe pain after the first year of cannulation [19].

In relation to the shift of dialysis treatment, there was no influence regarding pain, result similar to the one found by Dalarosa *et al.* [24], who investigated pain felt by the elderly—89 (51.15%) individuals reported no specific time for the pain onset. It should be noted that in the study of Dalarosa *et al.* [24] no invasive procedure was used.

The search for alternatives to minimize pain at the moment of the arteriovenous fis-

tula puncture comes from studies such as the one by Novarte *et al.* [25], who used sensorial hyperstimulation, with a tourniquet called “millimetric smarchs”, and compressed the AVF member causing discomfort but in a way to not compromise circulation. The compression limit was evaluated by the patient in consensus with the nursing [25].

The evaluations were carried out during ten sessions and the application of extra compression was alternated with the usual compression. The results of this study indicate that an extra compression in the member with the access substantially reduced the pain degree during venipuncture. On the other hand, in the arterial puncture the pain reduction was not significant. Pain reduction makes interesting the use of the millimetric tourniquet (smarch) in comparison with the usual method [25].

Another alternative to minimize pain was performed with frozen needles—in this case, the pain intensity was compared with a pain assessment scale during the fistula cannulation with the insertion of needles at room temperature and needles frozen at -8°C . Frozen needles caused less pain than the needles at room temperature [26].

Reinforcing the findings of the effectiveness of low temperature, a randomized clinical trial with a sample of 60 patients investigated the effect of cryotherapy by applying ice between the thumb and the index finger of the hand that did not have AVF (contralateral). Ten minutes before cannulation, the cold was applied and lasted all the cannulation procedure. Cryotherapy showed to be effective in reducing pain during the arteriovenous fistula cannulation. But for the authors, although the study obtained favorable results, the fact that it was conducted in a single medical center does not enable a generalization for their findings [22].

Using the cold experiment, Thomás *et al.* [4] found the occurrence of pain during AVF cannulation in comparison to anesthetic ointment and local cold. In the first week of analysis, the patients were subjected to the EMLA anesthetic ointment; in the second week a placebo was used—a moisturizing cream—and in the third week the ice application took place. The pain was measured by the visual analogue scale and a numeric scale [4].

The use of EMLA anesthetic ointment was more effective for the assessment of patients. The ice showed no favorable outcome, condition that, according to the authors, can be associated to the discomfort caused by the technique, since the study took place in a period of low temperature [4].

The use of the anesthetic was also tested by Celick *et al.* [3] who used lidocaine vapocoolant spray, a placebo and EMLA cream. The authors noted that EMLA application showed lower pain scores compared to other interventions. No patient presented severe pain with the use of EMLA or vapocoolant spray, and the latter was considered as effective as EMLA to prevent mild to moderate pain during cannulation [3].

Although the EMLA efficacy is recognized and used in hemodialysis patients, it is not a standard practice for nursing staffs. In this sense, Soler and Romero [2] developed a study to justify the use of anesthetic ointments to minimize the pain during the puncture in patients under hemodialysis [2].

Its efficacy was proven by a decrease of the pain sensation by applying the anesthetic

ointment in three dialysis sessions, using the same needles, and keeping the same puncture technique. The authors highlight that nurses may suggest the use of ointment, but it is up to the patients accept it or not [2].

The result of studies investigating the dull needle puncture technique, although not having the main outcome regarding pain, corroborate the topic by reporting pain reduction through the buttonhole cannulation technique. Since this technique uses sharp needles during the intubation stage, which are introduced in the exact point of the previous puncture, keeping the same angle and consistency in the penetration carried out by a single nurse (or two nurses), and after the tube formation starts the dull needles procedure [5] [7] [11], this could be the possible reason for minimizing the pain by reducing the trauma, without damaging the endothelium.

Favorable results in minimizing pain using this technique were found by Pergolotti; Rich; Lock [14], Silva *et al.* [27], as well as by Evans [8] in a bibliographic revision in which pain and anxiety were reduced and patients have improved the quality of life.

Pain assessment is a challenging task [15], as well as the measures used for its management, which have potentialities but also—like any other technique—some disadvantages such as the EMLA anesthetic, which despite presenting effectiveness, starts to act 45 - 60 minutes after its application. This requires more time to prepare the cannulation area [3] and, even being effective, does not completely eliminate pain [4].

In its turn, the vapocoolant spray showed, by ultrasound examination, that it does not cause significant difference in the vessel diameter and in the flow volume after application in healthy adults and dialysis patients, but the concern is related to probable vasoconstrictors effects, which can cause obstruction in the AVF during the application [3].

Cryotherapy was pointed out by the authors as a technique with limitations due to the small number of samples. Moreover, the diabetes patients were not uniformly distributed in groups, and thus the found results need to be confirmed by studies with larger samples [22].

Buttonhole cannulation uses high number of dull needles [11], and studies have discussed the increased risk of local and systemic infections through the use of this technique [6] [8] [28] [29] [30].

Recently a randomized clinical trial, comparing the buttonhole and the rope-ladder technique, evaluated 131 patients and found no pain reduction with the use of button technique compared to the traditional technique. Despite the methodological rigor of the study, the weakness resides on the use of local anesthetic by patients before the arteriovenous cannulation, which can alter results [31].

This data are supported by a systematic review that included 23 studies, and points out that the technique does not minimize the overall cannulation pain. This suggests that its use is only recommended to patients with specific indications, such as patients with short, deep or tortuous fistulas. And also warns that there is low scientific evidence in the studies on the subject and encourages the implementation of more robust methodological designs [30].

In any case, the appropriate monitoring and surveillance for pain detection in vascular access of hemodialysis patients is essential for a good acceptance of the treatment.

Study Limitations

One of the limitations of the study is that the pain during the fistula puncture by the rope-ladder technique was evaluated in a single occasion. Furthermore, we used the same approach for all patients, including those above 60 years of age.

5. Conclusion

The use of VAS showed the presence of moderate pain in most patients. No association between pain and gender, treatment period and hemodialysis shifts was found.

Implications for Clinical Practice

This study points out the need for an effective pain assessment before the AVF puncture, which can serve as a starting point for the elaboration of protocols for pain management in hemodialysis.

We suggest experimental studies to compare different pharmacological and non-pharmacological approaches as alternatives to minimize pain.

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Characteristic Duties of Critical Care Nurses in Japan: A Time-Study Comparison with Neurology Ward Nurses

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Abstract

Background: The importance of the acute phase in hospitals has been increasing. While administering high-level critical care, the working styles of critical care nurses, the types of clinical care they provide, and the way in which they prioritize tasks, remain unclear. Aim of this study was to elucidate the characteristic duties of critical care nurses through a comparison with neurological ward nurses. **Methods:** We recorded the duties of critical care nurses and neurology ward nurses (10 each) using a time-study design. Duties were measured separately by action, classified using a classification table, and differences between the two groups were compared. **Results:** No differences in the number of actions were observed between the two groups. The top five items that required the most time for critical care nurses were, “Movement”, “Administration and oxygen management”, “Handover process/Doctor’s rounds”, “Preparation for entry and exit management of patients”, and “Bed bathing (for bedbound patients)”. Of the 195 items, significant differences between the groups were noted for 34 items, while the duties of critical care nurses were best characterized by bed bathing (for bedbound patients), changing position, confirmation of infusion tubes, handover process/doctor’s rounds, and preparation for entry and exit management of patients. **Conclusion:** A characteristic of critical care nurses is that they must remain near patients and perform tasks while moving only a short distance. Moreover, the promotion of tasks while communicating with physicians is presumed to play a role in the promotion of team medicine. Furthermore, much time was spent caring for patients in bed, and a lot of time was devoted to the preparation and finalizing of treatments and care, suggesting the possibility that more time can be spent on caring for patients through a revision of duties.

Keywords

Critical Care Nurse, Time-Study, Neurology Ward Nurse

1. Introduction

Due to the arrival of a rapidly aging society, improved survival rates due to advances in medical technology, and the shortening of hospital stays, the importance of the acute phase in hospitals has been increasing. Due to the increasing number of elderly operative patients, and patients who require care for the acute exacerbation of chronic disease, there are now many patients who require complex and advanced care. The number of patients in critical condition has also been increasing. While administering high-degree critical care, critical care nurses care for patients in critical conditions, and perform a wide variety of tasks [1]. Although the behavior of critical care nurses may seem natural, it is dictated by a number of complex factors, such as the needs and preferences of each individual patient and their situation, knowledge obtained by nurses, difficulty of implementation, and the balance of priorities and preferences [2] [3] [4]. When providing support, there are often various types of restrictions that exist, for example, patient-related factors such as decreased function and exacerbation or instability of condition; nurse-related factors such as the quality and ability of nurses; and environmental factors, such as insufficient staffing levels and the inability to receive instructions due to the absence of physicians [1]. Under such complex circumstances, it is unclear what sort of working styles critical care nurses have and what sort of clinical care they are able to provide.

Therefore, we focused on neurology ward patients when examining the nature of critical care nursing practice. Neurology patients, who are in critical condition and are highly dependent on medical treatment, often have disorders that persist after treatment, and in many cases the cause of the problem and the appropriate treatment cannot be identified, resulting in slow and uncertain progress. As their conditions progress, patients are forced to rethink their lives and lifestyles, and often have to give up a large amount of autonomy to medical practitioners and family members [5] [6] [7]. It is important for neurology nurses to be supportive of patients when making decisions and undertaking lifestyle changes as a result of their conditions. Moreover, an assessment of the amount of nursing duties [8] revealed that nursing needs scores, and the degree of supporting patients required to perform daily living activities was higher in the neurology ward and intensive care unit (ICU); characteristic nursing duties included: caring for patients resistant to treatment without leaving them unaccompanied on the ward, and time taken for generalized physical care in the ICU. A time-study of nursing tasks in the ICU [9] revealed that ICU nurses performed various tasks, with the emphasis on tasks differing depending on the experience of the nurses. It can be predicted that the environment surrounding nurses, the quality of the nurses themselves, patients, treatment, and care environment, change the level of support that is provided.

2. Aim

The principal aim of the present study was to elucidate the characteristic duties of critical care nurses through a comparison with neurology ward nurses, who are said to deliver an especially high degree of care to patients highly dependent on medical treatment.

3. Methods

3.1. Participants

The participants were 10 nurses who worked in a critical care unit and 10 who worked on a neurology ward at a university hospital in the Tokyo region of Japan. The nurses were divided equally into two groups: those with five or more years of clinical experience, and those with less than five years of experience. The participants were selected randomly. The critical care unit contained 12 beds, and there were many patients planned to be admitted, as well as patients whose condition suddenly changed during hospitalization. There were 46 beds in the neurology ward, but of these, neurology patients used 42 and cardiology patients used four.

3.2. Investigation Period

November 2009-August 2010.

3.3. Data Collection Method

The present study employed a time-study design, in which the actions of nurses were observed. The actions of each nurse were measured by the second during working hours on weekdays (8:00 to 17:00). Each time an action changed, it was counted as one action. The days of measurement were selected randomly from days in which staff duties were performed. However, nursing actions that required the bathing of patients while talking were regarded as a series of nursing actions, and were regarded as “Bed bathing”. The classification of recorded actions was based on the model developed by Numazaki *et al.* [10]. Based on the characteristics of the observed hospital ward, and for ease of classification, we classified actions using a classification table comprised of four primary items, 32 secondary items, and 195 tertiary items (Table 1). The recipients of nursing actions were classified in four groups: patients of charge, other patients, both-type patients (charge and other), and non-patients. Moreover, nursing actions performed in the following six locations were recorded: bedside, nurses’ station, specific locations on the ward (shower room, patient toilet, examination room, device room, etc.), during movement within the ward, during movement outside the ward, and other (rest space and staff toilet).

3.4. Analysis Method

Using SPSS software (Ver.18), descriptive statistics and Mann-Whitney U tests were conducted to compare each measurement item between critical care nurses and neurology nurses. Statistical significance was set at $p < 0.05$.

Table 1. Nursing action classification table.

| Major item | Included item | Detailed item | Major item | Included item | Detailed item | |
|------------------------------------|--|---|--|---------------------------|--|----------------|
| Nursing for under treatment | 1. Meals | Caring for meals (total assistance) | 15. Administration and oxygen management | | Management of ventilator | |
| | | Caring for meals (some assistance) | | | Management of oxygenation | |
| | | Setting and clearing table | | | Order (computer) check | |
| | | Equipment (for bedbound patient) | | | Double check for medicine | |
| | | Equipment (for escort or ambulant patient) | | | Preparation/Finishing | |
| | | Care for drinking water (ice cube) | | | Other | |
| | | Tube feeding | | | Assessment of vital signs | |
| | | Preparation/Finishing | | | Measurement except the vital signs | |
| | | Other | | | Physical assessment | |
| | | Bed bathing (for litter patient) | | | Assessment of monitor | |
| | | Bed bathing (for escort or ambulant patient) | | | Respiratory and circulatory management | |
| | | Shampoo/Hairdressing (for bedbound patient) | | | Measurement of output | |
| | | Shampoo/Hairdressing (for escort or ambulant patient) | | | 16. Observation/Measurement and evaluation | History taking |
| | | Tooth brushing/Gargle | | | | Auscultation |
| | | Oral health care (no intubation tube) | | | | Palpation |
| Oral health care (intubation tube) | Inspection | | | | | |
| Nursing of the body | Conditioning the figure | Percussion | | | | |
| | Bathing care | Visit to room/Patrol | | | | |
| | Shower care (for bedbound patient) | Preparation/Finishing | | | | |
| | Shower care (for escort or ambulant patient) | Other | | | | |
| | Washing face assistance | Swallowing training | | | | |
| | Perineal care | Respiratory exercise | | | | |
| | Hand bath/Foot bath | Extremity exercise on bed | | | | |
| | Changing clothes | Sitting position training | | | | |
| | Preparation/Finishing | 17. Training | Gait training | | | |
| | Other | | Occupational therapy | | | |
| | Excretion on bed | | Phonation training | | | |
| | Diaper change | | Preparation/Finishing | | | |
| | Removal of impacted feces | | Other | | | |
| | Enema/Suppository | | Medical care/Medical treatment/Examine | | | |
| | Stoma care | | Operation | | | |
| 3. Excretion | Portable toilet | | Living activities | | | |
| | Toileting assistance | | 18. Explanation/Instruction/Consultation | Explanation at admission | | |
| | Suctioning secretion | | | Orientation for discharge | | |
| | Eliminant care | | | Explanation to a family | | |
| | Preparation/Finishing | | | Preparation/Finishing | | |
| | Other | | | Other | | |

Continued

| | | | |
|---|---|--|-------------------------------------|
| | Changing position | | Chart |
| | Position adjustment of the bed | | Documents except chart |
| | Sitting upright | 19. Data collection | Preparation/Finishing |
| 4. Changing position and transfer of patients | Sitting position | | Other |
| | Wheelchair | | Handover process/Doctor's rounds |
| | Stretcher/Bed | | Doctors |
| | Standing/Walking | | Nurses |
| | Preparation/Finishing | 20. Information exchange/Report/Consultation | Medical staff |
| | Other | | Conference |
| | Adjustment of the medical treatment environment | | Preparation/Finishing |
| | Making bed | | Other |
| 5. Environmental maintenance | Adjustment of around the bed | | Talking by a nurse call |
| | Preparation/Finishing | 21. Nurse call | Preparation/Finishing |
| | Other | | Other |
| | Help of the communication | 22. Other | Other |
| 6. Other everyday life help | Representation of other ADL | | Nursing record (computer input) |
| | Preparation/Finishing | | Documents except the nursing record |
| | Other | 23. Record | Ward-related record |
| | Mental comfort | | Preparation/Finishing |
| | Counseling | | Other |
| | Event/Recreation | | Nurses |
| 7. Psychological care | Daily conversation/Say something | | Student |
| | Talk with a family | | Instruction to other people |
| | Preparation/Finishing | 24. Education/Instruction | Getting education |
| | Other | Other nursing | Preparation/Finishing |
| | Prevention of risk (patient) | | Other |
| | Prevention of risk (environment) | | Visitor correspondence |
| 8. Safety | Confirmation of infusion tubes | | Medicine management |
| | Set tubes right | | Article management |
| | Preparation/Finishing | | Article conveyance |
| | Other | 25. Clerical work | Patient change management |
| | Massage | | Ward environment maintenance |
| 9. Comfort | Compress | | Allotment of the patient |
| | Preparation/Finishing | | Search for person or thing |
| | Other | | Preparation/Finishing |

Continued

| | Seeing of/meeting patient | | Other |
|--|---|--------------------------|-----------------------------------|
| 10. Seeing of/Meeting patient | Preparation for entry and exit management of patients | | Communication in the ward |
| | Other | | Communication to other courses |
| | Mortuary care | | Communication to other facilities |
| 11. Post mortem nursing | Preparation/Finishing | 26. Contact | Guidance to a family |
| | Other | | Telephone support |
| 12. Other | Other | | Preparation/Finishing |
| | Nursing at the time of the medical examination | | Other |
| 13. Nursing at the time of the medical examination | Nursing at the time of the treatment | | Hand-washing/Hand disinfection |
| | Nursing at the time of the examination | 27. Infection prevention | Gown or gloves wearing |
| | Preparation/Finishing | | Preparation/Finishing |
| | Other | | Other |
| | Treat 1: pretreatment | | Movement |
| | Treat 2: wound management | 28. Movement and wait | Wait |
| | Treat 3: suction | | Preparation/Finishing |
| | Treat 4: pressure ulcer management | | Other |
| Nursing for medical care | 14. Remedial nursing | 29. Other | Other |
| | Establishment or extract of IV | | Research |
| | Taking blood | | Self-learning |
| | Sampling of biological specimen | 30. Research/Learning | Preparation/Finishing |
| | Preparation/Finishing | | Other |
| | Other | Anything except nursing | Recess |
| | Management of IV | | Preparation/Finishing |
| | Injection | 31. Recess | Other |
| 15. Administration and oxygen management | Drug administration | | Other |
| | Distribute drug | 32. Other | Other |
| | Inhalation | | |

3.5. Ethical Considerations

The present study was approved by the institutional review board of the target facility (Approval No. 673). The participants were informed of the purpose and methods of the study, the fact that participation in the study was voluntary, and how the data was to be handled. The anonymity of participants was stressed and consent was obtained from all. Care was taken so that the standing position of the researchers during data collection did not interfere with nursing duties, and data collection was suspended or discontinued upon request by a participant.

4. Results

An overview of the 10 critical care nurses and 10 neuroscience nurses is given in **Table 2**. No significant differences in the number of years of clinical experience, and number of years of experience in a certain field, were noted between the groups. Education background of all nurses was nursing junior college or nursing university. The mean number of patients that nurses were in charge of on the investigation day was 2.5 for critical care nurses (range: 2 - 3), and 5.2 for neurology nurses (range: 4 - 8). A total of 25 patients were charged to the critical care nurses. All 25 patients were bedbound patients, and of these, 13 were patients who were admitted or discharged from the unit. A total of 52 patients were charged to the neurology nurses. Of these 52 patients, 32 were bedbound patients, 17 were escorted patients, three were ambulatory transfer patients, and none were patients who were admitted or transferred. The mean number of actions per participant was 760.2 for critical care nurses (range: 525 - 983), and 780.4 for neurology nurses (range: 543 - 939); no significant differences between the groups were found.

4.1. Recipients of Nursing Actions and Locations of Nursing Actions

We compared the mean time of nursing actions between the two groups (**Figure 1**). The time given to patients the nurses were in charge of comprised the largest share of time in both groups (60% or higher). The time spent with patients other than patients of charge was significantly longer for critical care nurses (mean time: 1 hour, 16 minutes 39 seconds, $p = 0.028$). The location in which nursing actions were performed, that is, the place in which nurses were located, was at the bedside in more than 50% of cases in both groups (**Figure 2**). The time that neurology nurses spent at the nurses' station was significantly longer (1 hour 53 minutes 35 seconds, $p = 0.016$).

4.2. Major Items

No significant differences between the groups were observed for the four major items (**Figure 3**). The greatest amount of time was devoted to diagnostic support nursing, followed by remedial nursing. These two items each comprised more than three hours

Table 2. Demographic profile of participants.

| Item | CCN† (n = 10) | NN‡ (n = 10) |
|-------------------------|---------------|--------------|
| Sex, n (%) | | |
| Female | 9 (90) | 9 (90) |
| Male | 1 (10) | 1 (10) |
| Clinical experience | 7.2 ± 5.9 | 8.1 ± 7.2 |
| More than 5 year, n (%) | 5 (50) | 5 (50) |
| Less than 5 year, n (%) | 5 (50) | 5 (50) |
| Domain experience | 3.1 ± 1.8 | 3.7 ± 4.0 |

†: CCN; Critical Care Nurse. ‡: NN; Neuroscience Nurse Experience = Mean ± SD (year).

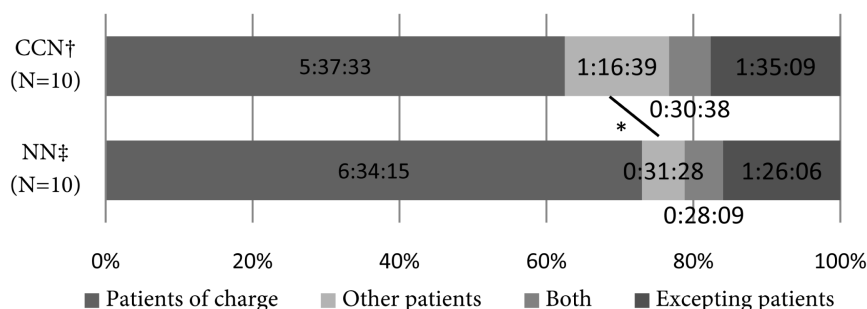


Figure 1. Average time of nursing action subject. †: CCN: Critical Care Nurse; ‡: NN: Neuroscience Nurse time = h:min:s, * $p < 0.05$: Other patients.

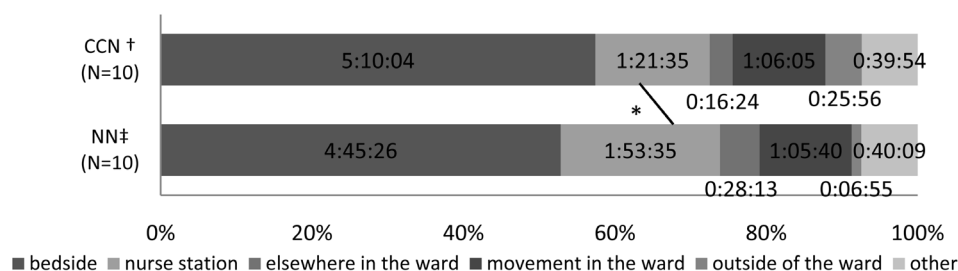


Figure 2. Average time of place to stay. †: CCN: Critical Care Nurse; ‡: NN: Neuroscience Nurse time = h:min:s * $p < 0.05$: Nurse station.

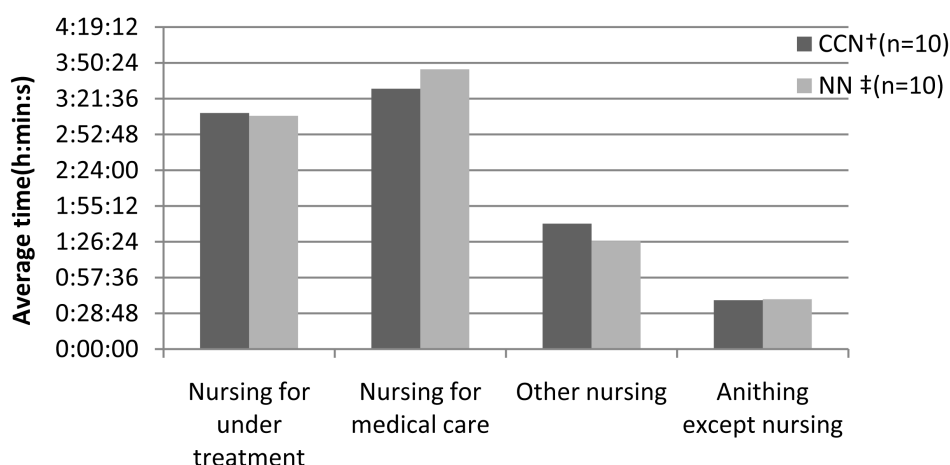


Figure 3. Average time of major item. †: CCN: Critical Care Nurse; ‡: NN: Neuroscience Nurse.

(75% of the total time). Moreover, the present study investigated only lunch break time in addition to nursing actions. A mean time of 40 minutes of break time could only be taken by both groups.

4.3. Detailed Items

4.3.1. Items for Which Significant Differences Were Observed

Significant differences between the groups were observed for 34 detailed items (Table 3). A total of 17 of the 34 items were $p \leq 0.002$, and of these, critical care nurses spent

Table 3. The item which is significantly different in two groups (detail item).

| NO | Included item | Detailed item | Average (min: s) | | |
|----|--|---|------------------|-------|---------|
| | | | CC† | NN‡ | P-value |
| 1 | | Setting and cleaning table | 00:19 | 02:21 | 0.002 |
| 2 | 1. Meals | Tube feeding | 00:51 | 03:01 | 0.024 |
| 3 | | Preparation/Finishing | 05:01 | 09:05 | 0.023 |
| 4 | | Bed bathing (for bedbound patient) | 29:00 | 07:51 | 0.002 |
| 5 | 2. Cleanliness of the body | Oral health care (no intubation tube) | 00:55 | 08:54 | 0.005 |
| 6 | | Conditioning the figure | 00:23 | 02:53 | 0.004 |
| 7 | | Perineal care | 00:43 | 08:47 | 0.002 |
| 8 | 3. Excretion | Diaper change | 00:00 | 02:58 | 0.001 |
| 9 | | Toileting assistance | 00:00 | 07:11 | 0.000 |
| 10 | 4. Changing position and transfer of patients | Changing position | 15:57 | 10:25 | 0.041 |
| 11 | | Wheelchair | 01:41 | 09:22 | 0.006 |
| 12 | | Standing/Walking | 00:30 | 03:15 | 0.022 |
| 13 | | Prevention of risk (environment) | 00:00 | 00:32 | 0.005 |
| 14 | 8. Safety | Confirmation of infusion tubes | 13:20 | 00:34 | 0.000 |
| 15 | | Preparation/Finishing | 00:06 | 01:43 | 0.008 |
| 16 | | Seeing of/meeting patient | 07:23 | 00:00 | 0.005 |
| 17 | 10. Seeing of/Meeting patient | Preparation for entry and exit management of patients | 30:54 | 00:00 | 0.000 |
| 18 | 13. Nursing at the time of the medical examination | Nursing at the time of the examination | 01:53 | 00:20 | 0.021 |
| 19 | | Preparation/Finishing | 01:46 | 00:29 | 0.026 |
| 20 | 14. Remedial nursing | Preparation/Finishing | 01:46 | 05:15 | 0.001 |
| 21 | 15. Administration and oxygen management | Drug administration | 02:29 | 10:32 | 0.000 |
| 22 | | Inhalation | 00:01 | 00:35 | 0.000 |
| 23 | | Management of ventilator | 01:15 | 00:10 | 0.002 |
| 24 | 16. Observation/Measurement and evaluation | Order (computer) check | 10:09 | 28:59 | 0.000 |
| 25 | | Double check for medicine | 08:18 | 01:59 | 0.001 |
| 26 | | Assessment of vital signs | 02:00 | 10:02 | 0.001 |
| 27 | 19. Data collection | Documents except chart | 00:48 | 01:51 | 0.013 |
| 28 | | Handover process/Doctor's rounds | 35:05 | 12:32 | 0.000 |
| 29 | 20. Information exchange/Report/ Consultation | Doctors | 07:49 | 04:05 | 0.028 |
| 30 | | Medical staff | 00:29 | 02:03 | 0.023 |
| 31 | | Conference | 11:00 | 21:40 | 0.023 |
| 32 | 21. Nurse call | Preparation/Finishing | 00:00 | 00:31 | 0.002 |
| 33 | 27. Infection prevention | Gown or gloves wearing | 01:31 | 07:02 | 0.001 |
| 34 | 28. Movement and wait | Wait | 01:55 | 03:32 | 0.023 |

†: CCN: Critical Care Nurse; ‡: NN: Neuroscience Nurse. Mann-Whitney U test, critical *p*-value *p* < 0.05.

more time on the following six: “Bed bathing (for bedbound patient)”, “Confirmation of infusion tubes”, “Preparation for entry and exit management of patients”, “Management of ventilators”, “Double checking for medicine”, and “Handover process/Doctor’s rounds”. By contrast, the 11 items that neurology nurses spent more time on were as follows: “Setting and clearing tables”, “Perineal care”, “Diaper change”, “Toileting assistance”, “Preparation/Finishing (Remedial nursing)”, “Drug administration”, “Inhalation”, “Order (computer) check”, “Assessment of vital signs”, “Preparation/Finishing (Nurse call)”, “Gown or gloves wearing”.

4.3.2. Items on Which Time Was Spent

The actions taking the longest mean time in the two groups are shown in **Table 4**. The item that took the greatest amount of time in both groups was “Movement”, followed by “Preparation and clearance of drugs and oxygen”. The items following these that required the most time for critical care nurses were, “Handover process/Doctor’s rounds”, “Preparation for entry and exit management of patients”, and “Bed bathing (for bedbound patients)”. For the neurology nurses, the items that took the longest time were “Order (computer) check”, “Conference”, and “Preparation/Finishing (Cleanliness of the body)”.

5. Discussion

5.1. Working Environment Characteristics for Critical Care Nurses

The results of the present study indicate that the time critical care nurses give to provide care for other patients is longer, and that duties are often performed at the bedside,

Table 4. Ranking of average time (detailed item).

| Ranking | CC†; Detailed item (min:s) | | NN‡; Detailed item (min:s) | |
|---------|---|-------|---|-------|
| 1 | Movement | 43:22 | Movement | 40:33 |
| 2 | Preparation and clearance of drugs and oxygen | 35:55 | Preparation and clearance of drugs and oxygen | 36:55 |
| 3 | Handover process/Doctor’s rounds | 35:05 | Order (computer) check | 28:59 |
| 4 | Preparation for entry and exit management of patients | 30:54 | Conference | 21:40 |
| 5 | Bed bathing (for bedbound patients) | 29:00 | Preparation/Finishing (Cleanliness of the body) | 20:18 |
| 6 | Nursing record (computer input) | 27:52 | Nursing record (computer input) | 18:16 |
| 7 | Information exchange between nurses | 24:32 | Treat 3: suction | 17:30 |
| 8 | Changing position | 15:57 | Information exchange between nurses | 17:03 |
| 9 | Preparation/Finishing (cleanliness of the body) | 15:37 | Handover process/Doctor’s rounds | 12:32 |
| 10 | Confirmation of infusion tubes | 13:20 | Daily conversation/Say something | 12:15 |

†: CCN: Critical Care Nurse; ‡: NN: Neuroscience Nurse.

or in the vicinity of the bed. Previous research investigating nurses' range of movement in the ICU [9] found that 46% of daily tasks were performed in the area near the patient, with similar results found for movement around the bed. By comparison, the neurology nurses spent much more time at the nurses' station preparing treatments, conferring with colleagues, and organizing records. These findings reflect the characteristics of critical care patients who are often connected to monitors and artificial respirators, having many tubes (such as infusion tubes and excretion drains) connected to the body, meaning that there are few times that they are left alone. The area in which critical care nurses need to operate is small, which is why the time needed for movement did not change in comparison with neurology nurses, as critical care nurses were constantly moving across shorter distances. Moreover, in critical care practice, it is often difficult for a single nurse to give care, and actions such as cleaning, changing body position, and performing suction often require two or more nurses. Therefore, the environment of the nurses is set up so that there are few patients of charge, all of whom can be easily watched by the nurses, even when care is given to other patients. Furthermore, the bedside function of the nurses' station is distributed at bedside. Items used for treatment are placed at the bedside, and there is a treatment table next to the bed to prepare infusion fluid; as a result, it is an environment in which efficient communication with other staff members is facilitated. Based on the results of the present study, it can be concluded that the work environment of critical care nurses is unique, and the nurses are positioned so that movement occurs within a short distance.

5.2. Characteristic Work Duties of Critical Care Nurses

5.2.1. Always Remaining near the Patient

In comparison to neurology nurses, critical care nurses spent much more time on tasks related to bed bathing for bedbound patients, confirmation of infusion tubes, performing double checks of drugs and devices, and the management of artificial respirators. Therefore, it can be understood that critical care nurses care for patients while managing medical devices and tubes. The results revealed that in comparison with neurology nurses, who often directly talked with and came into close contact with patients through performing actions such as toileting assistance, administering drugs, and assessment of vital signs, critical care nurses observed the condition of patients while remaining at their side so that the nurses could provide care at any time. The results are consistent with those of previous studies, which indicate that critical care nurses perform comparatively less direct physical and personal care of patients and engage in less conversation [11]. It was revealed that remaining in close proximity to the patient was a very significant and important strategy used by critical care nurses when performing duties, even when not directly coming into contact or speaking with patients. Studies that have investigated the experiences of patients receiving critical care [12] have reported that when in a critical condition, patients feel peace of mind when a nurse is nearby watching over them, and have a desire to fight the illness. Although continually being near the patient may create the risk of violating the privacy of patients, it is ne-

cessary to consider how to behave while understanding the significance of remaining near the patient.

5.2.2. Impetus of Team Medicine

The neurology nurses took a certain amount of time in the nurses' station, and spent a certain amount of time conferring with other members of the medical team, or each other. By contrast, critical care nurses consulted with physicians and other nurses about the condition of patients between performing care longer than in conferences, and spent more time on preparation for entry and exit management of patients. It is clear that critical care nurses did not generally leave the sides of patients, and performed their tasks while communicating with medical staff during short periods. In order to adapt to changes in the state of the patient, quick discussions with others were observed. Previous studies [13] [14] have indicated the role of nurses in promoting interdisciplinary coordination and collaboration in the field of critical care medicine. Based on the working style and duties of critical care nurses, they involve other medical staff members and perform care as a team while watching over the patients; it can be predicted that this is the impetus for the promotion of team medicine.

5.2.3. Tasks That Can Be Substituted

The results of the present study revealed that preparing for and finishing movement and preparation for drug administration and oxygen management took, the greatest amount of time for nurses in both groups. This is because the items have different applications between the groups, with critical care nurses moving continuously within a short distance and often performing the preparation and cleanup of many transfusions. Neurology nurses spent much more time moving from the bed to guide patients to the toilet, and moved across long hallways; preparation and cleanup of medicine also took a longer time. Moreover, a characteristic specific to critical care nurses was much time being dedicated to the acceptance of operative patients and the preparation and finishing of movement between the critical care unit and the hospital wards. Although there was movement that was associated with preparation and cleanup that required expertise, many tasks were performed on behalf of another person, or could be shortened through adjustment. It can be said that a review of staffing and operations is needed, and that and subsequent revisions and adjustments of the environment, such as the rearranging of items, is required.

6. Conclusion

Characteristics of critical care nurses are that they must perform tasks while moving across a short distance in the unit, be continually ready to observe and be ready to respond to the needs of patients by remaining near them, and communicate with physicians and other nurses while performing their tasks. Critical care nurses constantly remained near patients, and it can be presumed that they played a role in adjusting the team while being able to quickly make judgments and respond to patients. Moreover, much time was spent performing care for patients in bed, but much time was devoted

to the preparation and finishing of treatment and care, suggesting the possibility that more time can be spent on performing assessments and caring for patients through a revision of duties.

7. Limitations and Further Research

As the present study was a survey limited to the wards of a single facility, there is a possibility of specific outcomes. In the future, it is necessary to conduct investigations that include a variety of facilities and critical care centers. Moreover, investigations that focus on characteristics as a result of experience are needed.

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Narrative Approach for Identifying Movements of Change and the Value of Therapeutic Writing Related to Chronic Pain Management

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Abstract

In this study, we examined extensive narratives prepared by participants who attended a chronic pain management programme where therapeutic writing was included. The aim was to explore how narrators experience the contexts in which their lives unfold following a cognitive behavioural programme. The analysis was based on a three-sphere model for context analysis, which referred to the contexts in which the narrators located their life stories: their immediate inter-subjective relationships, the collective social field, and broad cultural meaning. We identified important change processes related to adaptation. Our examination of the experience of therapeutic writing clearly indicated that therapeutic writing is helpful. We suggest that obtaining a better understanding of living with chronic pain through storytelling as part of therapeutic writing and using a three-sphere model for context analysis could improve understanding and approaches to nursing. Health carers should organize care around the experience of illness and its inter-subjective, social, and cultural consequences, which may provide a deeper understanding of identity and the core themes embedded in life stories.

Keywords

Chronic Pain Management, Context Analysis, Narrative, Movements of Change, Therapeutic Writing

1. Introduction

Chronic pain demands lifelong coping because of health challenges and an unforeseen life course, which may lead to changes in peoples' ideas about themselves as they move

between different social identities, and some may seem to lose themselves [1]. In this study, we investigated the experiences of women who found themselves in this situation because they had suffered from chronic pain for a long period of time. These women had received several treatments and as their situation worsened, they were offered a pain management programme based on cognitive behavioural therapy (CBT). Their experiences were described as narratives that contained different stories and perspectives regarding their life situation. These written narratives may be described as a set of signs built from elements that convey meaning [2].

In health research, illness narratives are recognized increasingly as legitimate data sources as they may capture individual suffering in everyday life and yield insights unobtainable by other means [3]. In narrative terms, the threads of a person's life may become broken during illness and they must be reconnected in some way. Thus, telling new stories by reconstructing and revising previous stories may provide an opportunity to link the broken threads of one's life. This involves obtaining an understanding of the illness, but also past and future perspectives [2]. To understand the patient's perspective and health care needs, the health care worker must capture the patient's explanatory model, which refers to the concepts held by patients regarding their illness and life circumstances. Their explanations are often tacit and they may contain contradictions and shifts in content. Furthermore, these models are connected to strong emotions, which are difficult to express openly [2]. Promoting hope is essential in chronic illness. As a result of therapy, patients should achieve a degree of distance from their earlier emotional state. To achieve success, health carers must organize care around the experience of illness and its social and cultural consequences [4].

1.1. Context and Therapeutic Writing

Therapeutic writing may be defined as expressive and reflective writing by patients, which can be self-generated or suggested by a therapist or researcher. Therapeutic writing is of great value during illness because it includes personal, explorative, and expressive writing [5]. It is a personal and informal form of writing, which can give rise to uncensored and direct writing. This form of expressive writing is close to inner speech and thought processes, and it may be considered an introspective technique for discovering one's own thoughts and feelings [5]. This type of writing may also be described as a therapeutic tool because it may lead to reflection about the writer's life experiences [6] [7].

Several researchers have documented the positive effects of writing as an aid for adjusting to challenging life situations [8] [9] [10] [11] [12]. Previous findings indicate that therapeutic writing may strengthen CBT by facilitating cognitive restructuring processes in chronic pain [13]. Additional insights may be gained into chronic pain by using a narrative approach [1].

While writing interventions have proven to be useful in a variety of life situations, more studies seems needed to examine the utility of therapeutic writing following a CBT programme for chronic pain. Chronic pain is a subjective experience that occurs

in a specific person and situation, so chronic pain is influenced by context [14]. Zilber *et al.* [15] indicated that individual identities are bound by context because people construct their stories within a social relational framework and in terms of the culture to which they belong. However, despite the consensus among narrative researchers about the importance of referring to the context when analysing narratives, the importance of context remains unclear [16].

1.2. Aim and Research Question

Based on the considerations outlined above, the aim of the present study was to explore how narrators experience the contexts in which their lives unfold following a CBT programme.

Two research questions were addressed, as follows.

How can we identify movements of change related to contextual conditions?

What is the value of therapeutic writing within contexts?

2. Methods

2.1. Participants and Intervention

Three women who attended an eight-week group-based pain management programme in spring 2014 participated in this study. They met the following inclusion criteria: age between 18 - 67 years; chronic non-malignant pain lasting for longer than six months; medical investigation and/or treatment completed before referral; motivated to participate in an active rehabilitation programme and no ongoing litigation due to their pain problem. The group participating in that programme comprised 13 members, of whom four were men. The mean age of the group members was 49 years. They all reported severe pain problems, and for our participants, pain was related to several body regions.

The overall focus of the eight-week CBT programme was to highlight how maladaptive feelings and thoughts may influence the perception of pain [13]. Therapeutic writing was included as a tool related to homework tasks (Table 1). Guidelines for writing were introduced and delivered (Appendix 1) together with four different writing tasks in the first meeting (Appendix 2). They could also choose to write about personal topics, and about whatever they felt was important for them to explore and express. The intention was that this material would belong to the participant.

2.2. Data Collection and Materials

The group leaders gathered the data. Three self-selected participants willingly and anonymously gave their stories written as part of the CBT programme to the group leaders as a way of demonstrating a new start in life. These narrators gave permission for the researchers to use their written narratives in ongoing research. Informed consent was obtained. The empirical materials comprised 31 rich and detailed handwritten pages. The guidelines for the writing tasks were followed strictly to frame their narratives. Different stories and perspectives were obtained and the content often shifted. The writing style varied from highly structured with accurate spelling to a more spon-

Table 1. A chronic pain management programme: organization of the sessions and corresponding topics covered in the programme.

| Session | Physical activity | Topics | Homework/writing |
|---------|--------------------------|--------------------------------------|--|
| 1 | None | Establishing the group goals | Develop own goals/*present life situation, hope and joy |
| 2 | Progressive relaxation | Physical activity and pain | Plan for physical activity |
| 3 | Progressive relaxation | Pain as a complex phenomenon | *Recording of factors that increase and decrease pain/the pain problem, thoughts and feelings related to loss and grief |
| 4 | Breathing, movements | Muscle tension, relaxation and pain | Muscle relaxation and tension Practice in autogenic training |
| 5 | Active exercise training | Coping and pain | *Recording of coping strategies and appraisals and alternative ways of coping/previous and present relationship with important persons |
| 6 | Mobility, stability | Self-esteem, social network and pain | Recording of self-esteem and social network and alternative ways of behaving |
| 7 | Mobility, stability | Thoughts, feelings and behaviours | *Recording of thinking patterns and the relationship between thoughts, feelings and behaviours/adaptation, meaningful life, future plans |
| 8 | Active exercise training | Communication, self-help | *Recording of communication patterns and suggestions for improvement |

*Topics for therapeutic writing undertaken.

taneous and expressive style with deletions, exclamation marks, and underlining, with shifts in context. Several metaphors and turning points were identified. The study was approved by the Regional Committee and the Data Inspectorate (Ethical approval no. 428.10).

3. Analysis

A model for context analysis was selected, which referred to three distinct contexts where life stories could be situated, thereby providing a tool for understanding the motivations, values, and meaning systems that are important for constructing identity [16]. These contexts comprised inter-subjective relationships, the collective social field, and broad cultural meaning. The focus was on understanding the identity of the narrators and the choices shaped by the contexts in which they live [15] [16]. We performed a systematic exploration of the text context, where there was some flexibility in its reading and interpretation. The data analysis comprised the following six stages.

1. Transcription of the hand-written material.
2. Reading the text several times to obtain an overall sense of the whole text.
3. Highlighting exclamation marks, underlining, and metaphors.
4. Performing context analysis (Table 2).
5. Searching for turning points and therapeutic writing elements in different contexts.
6. Reflection and discussion, and selecting quotes.

4. Findings

The lives of those who attended the course were filled with pain and a vicious circle was identified, which involved loss of sleep, inactivity, uncertainty, hopelessness, and addi-

Table 2. Examples of three spares of context.

| The immediate inter subjective relationships in which the narrative is produced | The collective social field in which one's life story evolves | The broad cultural meaning systems that underlie and give sense to the particular story |
|--|---|---|
| The present situation: Help seeking, at home mostly, periodically in bed, lack of energy, outside daily pulsating life | The family: spouse/partner, children, parents, grandparents | Self-realization in a modern society |
| | Friends | Gender perspective in a modern society |
| | Group leaders and members | Laws and regulations during illness |
| | Colleagues | Health care system |
| Writing is related to topics in a CBT programme | Health care workers | NAV* |
| | Employees in NAV* | Facebook |
| | Pets: dog, cat | |

*NAV: Common agency for employment, social security and social services [17].

tional health problems. At the end of the course, their life situation assessments clearly indicated movements of change towards a stronger identity because hopes and future perspectives were outlined.

4.1. Narratives and Contexts

The narratives were situated in a help-seeking situation. They appeared to be realistic and personal, and they dealt with various aspects of living with chronic pain. The following examples indicate the interplay between the three contextual dimensions, how we read them in the text, and how we integrated them in a reliable interpretation.

4.1.1. The Immediate Inter-Subjective Relationships in Which the Narratives Were Produced

The first contextual dimension considers the dynamics of interactions. The first lines in two of the narratives expressed pain as an overwhelming experience in everyday life. The third narrative focused more on the consequences of pain, such as leaving the work place and finding oneself in an unresolved work situation. All expressed the severe limitations in their daily lives in various ways: “Frustration, hopelessness, and lack of motivation have come into my life”, “I turn over in bed a lot each night, but in the end, I manage to get up in the morning”, “I have become very inactive although I take a walk with my dog every day”, and “I feel terrible and I am unable to work at the moment”.

4.1.2. The Collective Social Field Where the Stories Evolved

The collective social field considers the life context, where the narrators situated their stories relative to several outside events and figures. Obviously, independence is lost when living with chronic pain, but family life, social life, and working life are also affected. In addition, mistrust by health care workers appeared to increase their burden. These issues were expressed in their own words as follows: “I blame myself for not being a good mother”; “The grief comes when I am unable to take part in previously arranged events. I become embarrassed!”; “I met the wall totally when we talked about networks. Mine is weak and I am not satisfied”; “I have few friends I can rely on. As I

cannot drive a car any more, I have lost my freedom”; “I experience mistrust and little knowledge among health care workers”; and “My work place has not arranged any meetings with me or made contact”.

4.1.3. The Broad Cultural Meaning System That Supports the Interpretation of the Stories

At this level of the analysis, the focus was on deciphering the systems of cultural meaning and values in the text in order to support the interpretation of the stories. Culture affects narrative construction by providing narrators with collectively shared meaning systems, which need to be identified by interpretation [16].

From a gender perspective, it seems that the role of women is threatened by a lack of freedom, where they may fail to fulfill family roles, participate in work outside family life, or engage in social activities. In addition, they reported a lack of understanding and help from the health care system and NAV, which is the Norwegian common agency for employment, social security, and social services [17]. This burden led to a feeling of insecurity, which was expressed in the following statements: “I have to fight for everything!”; “Most difficult is the mistrust among health care workers”; “My financial situation is a great problem”; “NAV threatened me and denied me my pension because I looked too well”; and “Facebook is the only place I can be understood and feel safe”.

In the following, we provide explicit examinations of the metaphors, turning points, and therapeutic writing in the three contexts.

4.2. Metaphors

Several metaphors were identified as important for strengthening the text such as: “I live in a pain hell”, “My heart was pulled out”, “My smile is a defence for my cold heart”, “I have to put on a mask and pretend that nothing is wrong”, “I present a façade and do not talk about feelings”, and “For me, hope is like finding a key to a better situation”.

4.3. Turning Points

Several movements of change towards adaptation were identified in the analytic process, as illustrated by the following quotations:

“By talking with the group leaders and participants the future seems brighter. This has led to inner motivation to find the driving forces in myself”.

“A meaningful life is what I make out of the situation. My plan is not to give up on hope, but to seize the day and the challenges it will bring”.

“I may relapse to my old pattern, but after a while, I manage to return to my new way of life”.

“I have learned that my negative thoughts do not need to guide my life. Coping means a lot and every day, I hope to perform an activity that is fulfilling”.

“I have gained new insights into my own life and I am able to cope with the pain in a new way. It has been tough to accept that I have chronic pain after having undergone many rounds of anger and grief, but I have now reached a point where I

experience more happiness”.

4.4. Therapeutic Writing

All of the narrators emphasized that therapeutic writing was a thought-provoking process that provided clarity and release; for example: “I try to say that I have no special relationship with anybody except my children. Not even myself after writing this, which is not a nice discovery, but true enough. What is left is my belief in God, which I have promised myself”.

At the end, one of the participants described what she called a small detail: “Writing about myself is new to me. The result is that I have written away my negative experiences to gain a totally new view of myself and my life, so thank you for encouraging me to write”.

5. Discussion

The aim of the present study was to explore how narrators experience the context in which their lives unfold during a CBT programme. Our main objectives were to identify movements of change in the narratives and the value of therapeutic writing. The three stories differed because they were embedded in different contextual experiences. However, they also shared a common meta-perspective related to therapeutic elements initiated by the CBT programme, such as behavioural change processes, and reconstructing the self from hopelessness to hope. Metaphors such as “heart”, “hell”, “mask”, “façade”, and “key”, as well as deletions and exclamations facilitated the understanding of the motivations, values, and meaning systems that are important for constructing identity beyond written words [5]. These features expanded the expressions of the narrators because they reveal strong thoughts and feelings, which are difficult to express openly, as part of healing [2].

In our presentation of the narratives, we demonstrated how a systematic exploration of the contexts directed our understanding of different stories and identities. When exploring the **inter-subjective** context, our attention was directed to the way the participants situated their stories and we identified how their meaning systems led to reflections and life choices. The narrators provided insight into living with chronic pain and how this was embodied in their identity. This first context described the current situation, such as living “in hell”, “my heart is pulled out”, “finding a key”, illustrating the tension between a passive and uncomfortable role, and exploring hope. This strengthened our understanding of the three strong women who were actively rebuilding their lives and futures despite their disabilities.

The **social field** was the second context considered, which provided us with an understanding of how social roles and institutions shaped the life choices of the narrators. The relevant social fields selected may have indicated that the narrators viewed them as important for their identity [15]. Their family life was greatly affected and they tried to fulfill their expected roles. They lacked an active working life and there were few possibilities for retraining. Moreover, restrictions on their social lives prevented them from

participating in activities with their own children, arranging parties, and forming a support network. Obviously, this led to isolation, thereby preventing self-realization and strengthening the pain experience. Metaphors such as “mask” and “façade” may have reflected the loss of self. This is supported by the findings reported by Haraldseid *et al.* [18], who emphasized how roles and identity can change when the experience of chronic pain prevents participation in meaningful activities in society.

To understand how the narrators depicted themselves, we also considered the **cultural perspective**, which highlighted the struggle to attain an active and healthy life, according to the norms of society. Being modern women in their forties and belonging to a society with equal rights for health services and economic security during sickness all influenced the discontinuity in their life stories. From a gender perspective, their situation excluded them from fulfilling their roles as independent and modern women. The use of social media, specifically Facebook, appeared to be an alternative for making social contact and sharing experiences by taking a directing role themselves. Situating their stories within these contexts helped to highlight their motivations in terms of searching for an independent and active role in life.

The life stories could also be read in terms of disapproval and negotiating with the work life and health care systems. The main aim of the common agency for employment and social security is to help more people to find work and provide appropriate services and benefits [17]. Guidelines exist for “including work life” for people with limited capacities and special needs in order to prevent their sickness absence, exclusion, and withdrawal from working life [19]. However, despite the availability of services and guidelines, better financial guidance would be useful for our narrators who found themselves in uncertain situations. The narrators also appeared to represent a challenge for the standard health care system because their problems were multifaceted. Davis [20] recommended that we should treat these patients with trust because “the pain is the patient’s, [and] only he or she [can] experience it and give it meaning”. Experiencing uncertainty about chronic illness has been described as stressful [21], and Hummel [22] raised important concerns about the future personal and financial resources required to manage this situation. The health care system and common agency failed to play a coordinating role to discover each individual’s overall situation. Thus, better co-operation between these two systems might reduce uncertainty to offer combined and better adapted solutions.

5.1. Movements of Change and Therapeutic Writing about Contexts

Our depiction of the narrators as active agents for change in their own rehabilitation was also emphasized in the meta-narratives related to the CBT programme, which gave the stories a sense of coherence. When considering the three contexts as a whole, we identified different movements of change and the value of group participation and therapeutic writing were emphasized. From our perspective, the personal changes in the narrators altered the characteristics that made them who they were. This appeared to affect their ability to fulfill roles and to make changes due to a sense of loss of self in order to adopt a more active and positive approach to their lives. In terms of identity,

greater integration of body and mind is an important part of the adaptation process, which is called “relearning the world” [23].

Our findings clearly indicate that therapeutic writing led to increased awareness, and clarification of the connection between chronic pain and the factors that may increase or decrease pain. Storytelling is said to have a constructive role [24]. By telling new stories through reconstructing and revising previous stories, the narrators were offered an opportunity to link the broken threads of their lives by obtaining an increased understanding of their illness from a broader perspective [2]. Expressive writing is thought to benefit individuals by focusing on expressions and allowing avoided material to be processed and organized [5]. Furthermore, a better understanding is achieved by exploring their deepest thoughts and feelings about challenging events and life situations. Thus, expressive writing is associated with the benefits obtained by opening up to thoughts and feelings [6]. According to our study, this form of expressive writing is close to inner speech and thought processes, and it may be considered a therapeutic tool that could facilitate reflection on the life experiences of the writers [6] [7].

Due to movements of change, our narratives can be considered as two-stage narratives, which is typical for people whose life situation has changed dramatically from good health to a state of severely reduced health [16]. These changes are often referred to as tragic narratives, which are reflected in all our narratives by many losses. However, we identified what we refer to as a third-stage narrative where a movement of change towards an optimal adaptation to the life situations of the subjects occurred following the CBT programme. In agreement with other studies, the important factors associated with successful adjustment to chronic pain appeared to be related to social and cultural aspects rather than biomedical factors [25].

5.2. Methodological Considerations

The texts obtained in this study differ from ordinary life stories because they were placed in a different context compared with face-to-face interviews. Thus, by considering the text objectively, the impressions that might have been elicited by an interview situation did not influence our interpretations. Using the three spheres of context model [15] [16], we analysed how different contexts might give meaning to the narratives. For practical reasons, we analysed the three spheres of context as separate and distinct, although they are interrelated and their integration can provide a complementary and wider approach for understanding life stories.

We are aware that the narratives did not cover the whole complex reality of the subjects, but instead they were limited to specific aspects of being in the world. The interpretation of context is always considered selective [15]. Thus, the narrators created a context when telling their stories, but we also created new possible contexts when interpreting their stories [15]. Therefore, the challenge was to achieve a balance between the contexts mentioned in the narratives and the cultural contexts considered in our discussion. It is important to note that comparing these stories with those of other patients could enrich our understanding of the life situation of women.

We had a limited number of narrators, which might represent a highly selective group. However, our findings are rich and varied, according to group leaders' observations in all groups, and similar to those obtained in other comparable studies [13] [18], which may strengthen our conclusions. Chronic pain is a worldwide challenge and CBT is a well-documented approach, so we consider that the present study has broad international relevance to this area of nursing.

6. Conclusions

In this study, we systematically explored narratives to identify how the narrators situated their stories within various contexts and to understand the experience of living with chronic pain in a modern society. The inter-subjective context directed our attention to stories highlighting the daily struggles of the subjects. How they situated their stories within a social context highlighted the role of social order in society. The cultural perspective strengthened our understanding of the women as social people, who were active in rebuilding their lives despite the many obstacles presented by chronic pain and cultural norms.

Important change processes were identified regarding adaptation. Our findings clearly indicate that therapeutic writing is helpful. Thus, in order to help this vulnerable group of people, health carers must organize care around the illness experience and its inter-subjective, social, and cultural consequences, which may provide a deeper understanding of identity and the core themes embedded in their life stories. Therapeutic writing in a CBT programme for chronic pain represents an important tool to grasp these various aspects. Further research may consider illness narratives following interventions, including therapeutic writing and movements of change.

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Appendix 1. Guidelines for writing.

- It is important to be honest, open and patient when writing.
- You may from the beginning write down goals for your writing
- In the beginning you may “warm up” writing whatever you wish related to daily life
- It is irrelevant to care about correct spelling and punctuation
- It is important to write spontaneous and let the words flow freely
- It is important that you write uncensored what appears for you
- By raising questions to your self will stimulate reflection
- You may have a conversation with yourself when you are writing
- You may raise questions to yourself trying to answer these
- It is important not only to recite what it is about, but also feelings and experiences
- Try to describe details
- Writing should occur uninterrupted in a quiet place
- You are the owner of the text
- No one else should have access to the text, you decide openness in the group
- If you strive with your writing you may discuss it with the supervisors

Appendix 2. Writing tasks.

| Session | Writing tasks |
|---------|--|
| 1 | Write about your present life situation What does hope mean to you? What does joy mean to you? |
| 3 | Describe difficult situations related to your pain problem Try to describe your thoughts and feelings related to loss and grief Try to describe how you deal with the difficult situations |
| 5 | Focus is here your relationship to other persons What kind of earlier relationships exist and how has it influenced you? What kind of present relationships exist now and what kind of meaning do they represent? |
| 7 | Describe your present life situation and what is important to you now How are you prepared to meet your new life situation? What can you do to live a meaningful life? How does the future look like, and what kind of plans do you have? |

Status of Health Promotion Established after the Family Health Strategy

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Abstract

Objective: To summarize the scientific knowledge concerning the promotion of health after establishing the Family Health Strategy. **Method:** This is an integrative review conducted in databases: LILACS, MEDLINE/PubMed, SciELO and Cochrane, using following key words: Family Health Strategy; Health Promotion and Health Personnel. **Results:** After the criteria established 23 articles were selected, identifying strengths, weaknesses and challenges of health promotion after establishing the Family Health Strategy. **Conclusion:** Despite the effectiveness of health promotion practices in many health units of the family still persist the curative care model.

Keywords

Family Health Program, Health Promotion, Health Personnel

1. Introduction

According to the World Organization of Health (WHO), health concerns “the complete physical well-being, mental and social and not merely the absence of diseases or injuries” [1]. This concept has instigated reformulation of the dressing-privatizing clinical model focused on care of hospital central for a model with integral actions in the care of health [2].

The 1st International Conference on Health Promotion took place in November 1986 and it was considered a milestone in the field of health promotion, as well as the Ottawa Charter. In this context, health promotion was defined as the community empowerment process to act on improving the quality of life and health of the assisted population. However, for this, the participation of individuals in control of this process is necessary by: identifying their aspirations, satisfying their needs and modifying favorably

the environment. In this direction it is necessary to earmark approach to social and personal resources as well as to physical capacities because health is more than a healthy lifestyle in an attempt to obtain a global welfare [3] [4].

In this sense, the implementation of Health Promotion has brought changes in the health area, and the absence of disease now has prerequisites. Thus, in the 90s, Law No. 8080, in its Article 3 specifies the determinants and conditioning factors to health: “Food, shelter, basic sanitation environment, labor, income, education, transport, leisure and access to essential goods and services” [4]. With that it has been the goal that people reach their highest health potential, changing habits, lifestyle and better quality of life [3] [5].

Moreover, Art 196 of the Constitution of 1988 states: “Health is a right of all and duty of the State and it is ensured through social and economic policies in order to reducing the risk of disease and other health problems. Added to this it is guaranteed by the State universal and equal access to actions and services for its promotion, protection and recovery” [4].

Thus, the current legislation proclaims that health promotion policies are structured on the basis of territory with the intersectoral participation. In addition it is also important to plan the health surveillance, and primary care, with funding by the three levels of management [6].

The current Family Health Strategy (FHT) was established in 1996 when the Brazilian Ministry of Health began to reformulate the concept of the Family Health Program (FHP). Thus, FHP worked with the idea of “verticality and transience” and the FHT introduced a strategy considering the reorganization of health services provided by Basic Care. The FHT innovates the assistance from the perspective of that people have prevention, promotion, and continuous, humane and good quality care [7].

In this way, the current actions in the FHS are performed by the team of health professionals consisting of at least: a family doctor or a generalist, a nurse, a nursing assistant and Community Health Agents (CHA). All these professionals work from a delimitation of territory where there is a construction of “intra- and extra-family relationships” and improvement of living conditions resulting from a better understanding of the health-disease process [8].

Thus, as the policies established in the FHS are actions focused on health promotion, the guiding question for this study is: what is the situation of health promotion established after the FHT assistance model?

In that way, the theme was thought because of the importance of Health Promotion contained in the FHT and what is established for the health of the family. In this sense, the objective is to synthesize scientific knowledge about the health promotion after fixing the FHS assistance model.

2. Method

This is an integrative review, in which previous studies are selected from the inclusion criteria and analyzed in relation to the objectives, materials and strategies. From this it

is possible to obtain a broad knowledge of the subject studied, which allows the development of future research arising from critical evaluation and synthesis of theme analyzed evidence [9].

Thus, the data collection was conducted in August and September 2015, after had become established: research protocol composing the theme of research, objective, guiding question and use of descriptors. The descriptors used were: Family Health Strategy; Health Promotion and Health Personnel. The search process has consulted the following databases: LILACS, MEDLINE/PubMed, SciELO and Cochrane Library.

The search amounted to 17.446 articles. During this stage of the research was performed the following crossings: Family Health Strategy and Health Promotion and Health Personnel (MEDLINE/PubMed 100; SciELO 2; LILACS 13; Cochrane Library 115); Family Health Strategy and Health Promotion (MEDLINE/PubMed 570; SciELO 92; Lilacs100; CochraneLibrary 940); Health Promotion and Health Personnel (MEDLINE/PubMed 8830; SciELO84; LILACS 118; Cochrane Library 6482), as **Figure 1** below.

After the reading of the titles and abstracts, the following inclusion criteria were applied: articles available in full and free by Capes portal; productions related to the research problem; studies in the languages Portuguese, English and Spanish, no restrictions on the type of study. Moreover, the exclusion criteria used were duplicated productions, of which only one of the reps would be selected; letters to the editor; integrative reviews; dissertations and theses.

From there the articles were pre-selected and saved in the computer. Then complete reading of these studies were conducted, of which 23 articles were selected (SciELO7, LILACS 8; MEDLINE/PubMed 5, Cochrane Library 3) presenting its methodological trajectory clearly.

Finally, data were extracted by the model instrument and validated for data collection [10] and then organized into two frames, where the first of them contained: presentation of studies, references, place of study, objective, method database. The second framework was composed of the item “health promotion” after established the FHT assistance model. This framework was illustrated by counting the number of times each result appeared being grouped by similarity. These groupings emerged the potential, weaknesses and challenges. These results were presented descriptively and analyzed in the literature light.

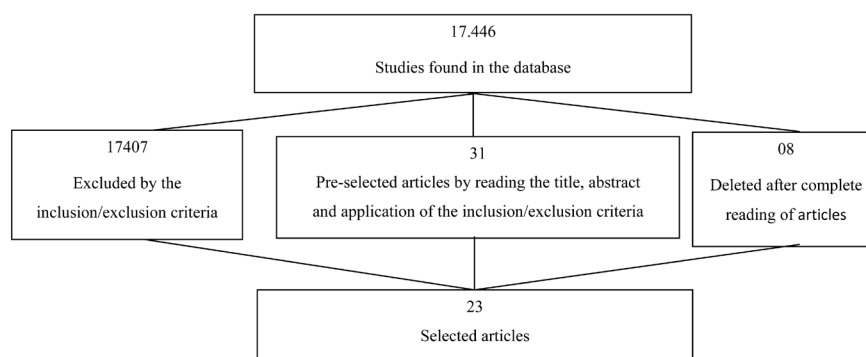


Figure 1. Flowchart of searching process.

3. Results

The **Table 1** presents 23 studies on health promotion established after the FHS assistance model. All the mentioned studies were developed in Brazil, the country where there is this health strategy. In addition, it was observed prevalence of qualitative method with publications beginning in 2004.

It is observed in **Table 2**: potentialities, weaknesses and challenges by the situation of health promotion established after to FHS. Thus, it was appointed high- lighted the health education activities, support groups and home visits as potentialities.

However, other studies also indicate: absence or lack of health promotion activities, absence or lack of medical professional commitment in promotion activities, professional dissatisfaction, wholeness in family care neglected and presence of the curative model. So there is the challenge of professional qualification and the consolidation of the process of building of health promotion in the FHS.

4. Discussion

In search of better health conditions in the community's daily life, the Ministry of Health (MH) implemented in 1991 the Program of Community Health Agents (PCHA). The PCHA had primary focus for the expansion of primary care coverage and introduction of the Community Health Agent (CHA). The program was responsible for interlocution between government and community, enabling actions in the quality improvement of life and community well-being to which they belong [34] [35].

According to chronology proposed by MH, it was established in 1994 the PSF, now called the Family Health Strategy (FHS). The FHS was created to meet needs of the population, using the work of the daily epidemiological approach. In this perspective there must be understanding of the multiple risk factors to health and the possibility of intervention on them. For this are necessary different strategies, such as health promotion [35].

In order to promote better understanding it is noteworthy that the Home Visit (HV) was inserted in the health since the mid-twentieth century when there was still a curative model. However, given the changes to integral model and then FHP, the practice of HV started to work in the intervention of the health-disease process of individuals or planning actions aimed at promoting the health of the community [35].

The development of these shares is attributed to the CHA-the most prominent professional in ESF-because these professionals know the daily routine and community territoriality in which CHA is inserted. For this reason, health promotion and prevention are made possible by the agents in order to provide better health and quality of life. Therefore it is necessary that CHA guide the community and families that are under their responsibility. These actions are based on the family, territoriality and responsibility [36].

Beyond practices of prevention, DV is also responsible for health education activities, where the agent informs families about the FHP program, well-being and quality of life [35].

Table 1. Characterization of the studies (Natal, Brazil, 2015).

| Reference* | Place of study | Objective | Method | Database |
|---|----------------|--|-----------------------|----------------|
| Medina, <i>et al.</i> 2014 [11] | Brazil | Describe health promotion and prevention of chronic diseases carried out by health teams that joined the National Program for Improving Access and Quality of Primary Care (PIAQ-PC) in Brazil and compare the information given by health professionals with those obtained by interviewers through documentary evidence. | Cross-sectional study | SciELO |
| Ramos, <i>et al.</i> 2014 [12] | Brazil | Estimate the prevalence of health promotion programs in basic health units in Brazil. | Cross-sectional study | MEDLINE/PubMed |
| Chagas HMA, Vasconcellos MPC, 2013 [13] | Brazil | Know and understand the reality of some Health Units Family (HUF) of the city of Rio Branco-Acre. | Qualitative study | LILACS |
| Costa, <i>et al.</i> 2013 [14] | Brazil | Analyze the audiologist's discourse on the practice developed in Support of Family Health Centers (SFHC), followed by core concepts and field in Public Health. | Qualitative study | MEDLINE/PubMed |
| Lopes, <i>et al.</i> 2013 [15] | Brazil | Know perception of professionals of the Family Health Strategy on health promotion; identify practices adopted to promote the health of the population, facilities and difficulties to carry out such practices. | Qualitative study | Cochrane |
| Onocko-Campos, <i>et al.</i> 2012 [16] | Brazil | Compare the performance of Basic Health Units according to the implementation of new arrangements and primary care strategies and mental health. | Evaluative research | MEDLINE/PubMed |
| Kanno NP, Bellodi PL, Tess BH, 2012 [17] | Brazil | Investigate problems and ways of coping referred to by the ESF teams of health professionals facing the medical and social demands presented by users in their daily work. | Qualitative study | LILACS |
| Melo, MRC, Dantas VLA, 2012 [18] | Brazil | Analyze the conceptions and practices of health professionals on the theme of health promotion at a Family Health Center in Fortaleza, Brazil. | Action research | LILACS |
| Rocha, <i>et al.</i> 2012 [19] | Brazil | Investigate the conception of the nurses of the Family Health Program (FHP) on Health Promotion. | Qualitative study | LILACS |
| Galavote, <i>et al.</i> 2011 [20] | Brazil | Evaluate the production of the work processes of Community Health Agents (CHAs) in the Family Health Strategy in the city of Vitória (ES). | Qualitative study | MEDLINE/PubMed |
| Gurgel, <i>et al.</i> 2011 [21] | Brazil | Know the concepts of health promotion and the interface performance of the nurse in the Family Health. | Qualitative study | Cochrane |
| Maia MA, Santos JS, 2011 [22] | Brazil | Analyze the perception of Community Health Agents (CHAs) and users of the proposed actions in the Family Health Program (FHP) to improve the quality of life of a population. | Qualitative study | LILACS |
| Silveira MR, Sena RR, Oliveira S R, 2011 [23] | Brazil | Discuss limits and possibilities of teamwork in the Family Health Strategy (FHS) and its implications for health promotion. | Qualitative study | LILACS |
| Silva KL, Rodrigues A T, 2010 [24] | Brazil | Analyze intersectoral practices for promoting health in the Family Health Strategy, identifying experiences, facilitating factors and restrictive to the partnership building process. | Qualitative study | SciELO |
| Gomes, <i>et al.</i> 2009 [25] | Brazil | Assess the impact of the Family Health Program (FHP) in the rural community of Airões, city of Paula Cândido, Minas Gerais. | Cross-sectional study | SciELO |

Continued

| | | | | |
|--|--------|--|-----------------------|----------------|
| Shimizui HE, Rosales C, 2009 [26] | Brazil | Identify and analyze the main practices developed in the Family Health Program. | Qualitative study | SciELO |
| Oliveira SF, Albuquerque FJB, 2008 [27] | Brazil | Evaluate qualitatively the Family Health Program (FHP) from the beliefs of the professionals of the Family Health Strategy (FHS). | Qualitative study | SciELO |
| Ronzani TM, Silva CM, 2008 [28] | Brazil | Analyze the perception of healthcare professionals, managers and users of the Family Health Program (FHP) in two municipalities of Minas Gerais, Brazil. | Qualitative study | LILACS |
| Santos ET, Cardoso CL, 2008 [29] | Brazil | Evaluate the FHS user experience in a health promotion group in the community. | Qualitative study | Cochrane |
| Azeredo, <i>et al.</i> 2007 [30] | Brazil | Evaluate, through home visits, housing conditions and sanitation of the families assisted in Family Health Program of Teixeira-MG. | Cross-sectional study | SciELO |
| Caldeira, <i>et al.</i> 2007 [31] | Brazil | Evaluate the knowledge and practices of the Health Strategy teams of the family in relation to breastfeeding. | Cross-sectional study | MEDLINE/PubMed |
| Guedes, <i>et al.</i> 2007 [32] | Brazil | Compare the results of primary care activities related to two periods: before and after the implementation of the FHS in the Community Macuco, Timóteo-MG. | Documental study | LILACS |
| Araújo MRN, Assunção RS, 2004 [33] | Brazil | Approach the actions of CHAs in Health Promotion and Disease Prevention. | Qualitative study | SciELO |

Font: research data. *The reference column of **Table 1** has superscript numbers on each line to identify of articles on column 2 of **Table 2**.

Table 2. Situation of health promotion established after the implementation of the Family Health Strategy Natal, Brazil, 2015.

| Situation of health promotion after established the FHS | |
|---|--|
| Potencialities | <ul style="list-style-type: none"> • Identification of the situation of population health [17] [30] • Home visits [15] [20] [22] [26] [30] [31] [32] • Health education activities [11] [12] [14] [15] [19] [25] [27] [30] [31] [33] • Support groups [13] [14] [15] [17] [19] [23] [29] • Intervention with families [21] [28] • Health Agent as a category of the most prominent teams [28] • 100% of population coverage [30] • Housing in the same work area [16] [30] • Reorientation of health services [23] • Reinforcement of community action [21] • Job integration in teams and among sectors [16] [17] [23] • Reduction of number of hospital internment [32] |
| Weaknesses | <ul style="list-style-type: none"> • Integrality in family care neglected [17] [26] • inadequate infrastructure [27] [33] • Dissatisfaction of professionals [27] [28] • Unsuitable materials and equipment for use [27] • Model curative [22] [27] • Assistance focused only on the prevention [28] • Limitation of individual abilities for self-care and community mobilization [33] • The actions are still organized in a normative reference, biomedical and non-dialogical [11] • Number of home visits less than the recommended [13] • Absence or lack of medical professional commitment in the promotion activities [13] [31] • Absence or lack of health promotion activities [12] [19] [24] [28] • Absence of reorientation of health services [19] • Confusion between the concepts of promotion and prevention [18] [22] |
| Challenges | <ul style="list-style-type: none"> • Professional qualification [25] • Promotion in the FHS is still a construction process [23] |

Font: research data.

Conversely, the FHS is one of the guiding principles of the integration of the multi-disciplinary team. This team is often viewed positively among professionals involved, because they can share information, enriching the team. Thus it becomes possible to face, in addition to individual and biological health problems, collective and socio-cultural problems of individuals and the community by which the health team has sanitary responsibility [35].

In addition, the FHS has characteristics for the development of educational activities corroborating for open discussions between user and professional, built on health situations of social groups or specific classes [37] [38].

Thus, developed study reveals that such practices serve as a tool for health promotion by offering knowledge of social, political and economic determinants of the health-disease. In health promotion the dynamics of support groups set up in the interaction between health professionals and users. Through communication and participation, both conduct dialogue on the conditions and determinant factors of health. This allows greater control of the subjects on the social and environmental context in which people are inserted [39].

Such practices are evidenced quantitatively about the impact on the rate of hospitalizations, when a study showed a relation between the gradual increase in the FHS coverage percentage and the consequent reduction in hospitalizations rates [40].

Opposed to this, health faces great problems to cater to its different current models, which propose activities of promotion, protection, recovery and rehabilitation of health. This is because there are still family health teams with curative practice, performing activities only in the presence of disease. Thus home visits targets comes to be lower than recommended by the FHS [41] [42].

The improvement and efficiency of services provided by family health teams are directly linked to infrastructure and good quality equipment. However, it is still common to find units with inadequate physical structures, sometimes even improvised besides maintaining use of obsolete equipment. Given that the FHS should solve about 85% of community health problems, it is necessary to have structural features and compatible devices that allow the action of professionals in relation to that commitment [43].

Health professionals are important stakeholders in the practice of health promotion within the family health. In this sense, the term “work environment saludable” represents a healthy workplace aiming at the welfare of professionals from: physical environment, good personal relationships, good organization and emotional health. These factors are directly related to job satisfaction [44].

However, there are often neglect these factors as their own needs. This causes low involvement of the professional towards the promotion actions and to the assisted population [45].

Health promotion activities are still very confused with preventive character. On this light, there is a common census that health teams work with an educational and preventive profile. Moreover, there is the vision of education as predominantly one-way transmission of knowledge [46]. This type of interpretation interferes with the actions to be developed for health promotion in the FHS.

Thus, it notes that the professionals qualifications and health promotion in the FHS are challenges to be overcome and are in process of construction. Despite this, the qualification and promotion mentioned can be achieved through actions that coordinate communication between the participants through solidarity, interdisciplinary and intersectionality [47].

5. Conclusions

The autonomy of the people on healthy living allows them to be protagonists of their own health. This is because it is considered autonomy as great ally both in health development, and for the policies and actions recommended by the promotion within the scope of the FHS.

Thus, this study synthesizes scientific knowledge on the promotion of health after establishing the FHS assistance model, listing the potentialities, weaknesses and challenges. In this way, the selected articles showed that the multidisciplinary work of the FHS teams is the principal means for interaction of families with health actions, as the promotion practices recommended by the Strategy.

However, despite the potential, it is found that the promotion of health in the FHS process is still under construction, since there is a stagnation by some health workers regarding the act of promoting health. Moreover, many professionals are still conniving to the curative practices, even with the policies of promotion, humanization and assistance.

This situation was explained by the studies when they claim that health professionals are not motivated or do not have the professional qualification in family health area. It is further that there is deprivation and even lack of health promotion activities associated to identified weaknesses. Thus, it identifies curative practice disguised as health promotion.

Therefore, with the development of this study it is expected that the reader understands the importance of knowledge about health promotion actions as main policy within the family health. And the need for adequacy of professionals is identified regarding the current health policies, so there is reaffirmation of what really FHS recommends.

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Reliability and Validity of the Norwegian Family Sense of Coherence Scale

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Abstract

Aims and Objectives: To investigate reliability and validity of the translated Norwegian version of the Family Sense of Coherence scale. **Background:** The Family Sense of Coherence scale measures the global sense of coherence in families and might help health professionals to identify vulnerable families and to facilitate the strengthening of coping strategies in families. **Design:** Cross-sectional. **Methods:** In total, 264 parents of children with Attention Deficit Hyperactivity Disorder (ADHD) and 157 parents of children in secondary schools in three municipalities responded to a questionnaire regarding the characteristics of the parent and the child, with four scales: Family Sense of Coherence, Sense of Coherence, Family Assessment Device and Well-being. Statistics with Cronbach alpha, intra-class correlation coefficient, independent sample t-test and Pearson's correlation coefficient were used to establish the reliability and validity of the scale. **Results:** Internal consistency with Cronbach's alpha was acceptable and test-retest reliability with intra-class correlation coefficient was sufficient. Known-groups test revealed statistical differences between the two groups of parents as pre-considered and significant correlations between Family Sense of Coherence and Sense of Coherence, Family Assessment Device and Well-being were found. **Conclusion:** The Norwegian version of Family Sense of Coherence scale can be considered as reliable and valid for the studied population. **Relevance to Clinical Practice:** The Family Sense of Coherence scale appears to be an appropriate instrument for evaluating and assessing to find vulnerable families who are in need of interventions strengthening the family's resources.

Keywords

Attention Deficit Hyperactivity Disorder, Family, Instrument Development, Research Methods, Sense of Coherence

1. Introduction

Public health nurses, nurses at schools and community health services play a valuable role in the encounter with- and referral of families with different challenges, disorders or chronic illnesses living in difficult life situations [1]. The nurse will encounter these families with a focus on the child or the entire family's needs.

Salutogenesis refers to the health perspective, in which healthy functioning and people's resources are emphasized instead of the pathogenic perspective where the focus is on what causes illness and disease [2]. Sense of Coherence (SOC) is essential in the salutogenic theory, and consists of the components of comprehensibility, manageability and meaningfulness. Comprehensibility refers to a feeling of confidence, in which one's internal and external environments are structured and predictable, including, for example, information given that is perceived as structured and clear. Manageability refers to the available resources to meet challenges in life, while meaningfulness contains a motivational component and challenges are perceived meaningful, worthy and overcoming. Sense of Coherence can be applied at both an individual and family level, with the latter called a Family Sense of Coherence (FSOC) [3]. As claimed by Antonovsky [2], general resistance resources (GRR) are crucial in the development of FSOC. Factors as characteristics of the person, a group or an environment, which facilitate the handling of tensions, are included in GRR. Moreover, social support is one of the most important components of GRR. FSOC, as a resistant resource in families facing life challenges, may be important to uncover vulnerable families. Instruments as the FSOC scale, validated in different countries, may be a tool to help public health nurses in clinical practice to uncover and assess families.

1.1. Background

Parents are essential to family life, and good parenting has the potential to promote health and well-being, and prevent ill health and social problems in subsequent generations [4]. In this study, "family" refers to a self-defined group of two or more individuals who may or may not be related by bloodlines or law, but who function in such a way that they consider themselves to be a family [5]. The family unit has changed over the last few decades [4], with more single-parent families and extended families. The family unit is comprised of individuals, but when one family member becomes impaired, it exerts an influence on all family members in one way or another [6].

Attention deficit hyperactivity disorder (ADHD) is a condition that is not usually classified as a disease, but instead as a disability with childhood onset that often persists into adulthood [7]. People with the disability are a heterogeneous group with varied impairments, having difficulties regarding the regulation of their emotions and activities, and maintaining attention and impulse control. Families with children with ADHD have many challenges to deal with, both in the family unit and in society at large [8] [9]. Family functioning is described as more of a strain than in other families [10] [11] [12]. Parents with their own ADHD report lower well-being than other parents [9].

Persons with a stronger SOC find life to be emotionally meaningful, helping to make sense to areas of life also giving strain, such as living in a family with a child with ADHD. Straining life situations in families are interpreted as challenges important enough to invest energy in- and devotion to. SOC can contribute to make stressors understandable, and straining life situations may strengthen SOC over time, understanding the stressors as manageable and a feeling of confidence in their own resources [13]. Manageability refers to how the family's resources are appropriate and that the family is aware of these resources. These resources can include friends, colleagues of the parents, neighbors, peers or personnel at school and in the health services. People with a stronger SOC are more willing to use and to have trust in people giving support [14]. The social orientation of SOC lies as resources to manage stressors, such as in family life [2]. A strong SOC may also play a role as a protective factor modifying the implications of ADHD symptoms in youth reported in a five-year follow-up study [15].

To measure SOC on an individual level, a 29-item scale was developed by Antonovsky [2]. This scale was adjusted to a short form, known as the 13-item scale. To further measure the family's global sense of coherence, Antonovsky and Sourani [3] developed the Family Sense of Coherence (FSOC) scale. The scale has been translated and validated in China [16] and Turkey [17] and has also been used in China [16], Israel [18], South-Africa [19] and Turkey [20].

To help avoid errors in measurements, the reliability and validity of a scale are important [21]. The reliability of the scale's stability can be measured with test-retest and homogeneity with internal consistency [21]. The internal consistency has previously been reported with Cronbach's alpha values of 0.80 [17], 0.83 [16] and 0.84 [18]. The construct validity with factor analysis of the Chinese version showed that FSOC consisted of a single global factor [16]. Construct validity also related to convergent validity [21], with a comparison of scales measuring related constructs, showed also a strong correlation between FSOC and the Family Assessment Device (FAD) [17], and SOC and Family and Marital Outcome Measures [16]. To measure construct validity, the known group technique can be used [21]. Families with children with ADHD are one of many groups facing challenges in family life with a member who has a chronic disease or disorder. When looking at the family as a system, in which the individuals interact and influence each other and when one family member becomes impaired, this will influence the entire family [6]. There is a need for tools, as for example FSOC to assess and evaluate families in strainful life situations. Because FSOC has not previously been translated and validated into Norwegian, there is a need for such a procedure.

1.2. Aim

The aim of this study was therefore to assess the reliability and validity of the translated Norwegian version of the Family Sense of Coherence scale (N-FSOC).

2. Methods

2.1. Design and Sample

This study had a cross-sectional design, which included two groups of parents. A ran-

dom sample, 548 out of 1,964 members of an ADHD association in Norway (Group A), who was parents to a child with ADHD aged 15 years and younger, were invited to participate. The response rate was 48.2%, including 264 participants, 217 mothers and 47 fathers (mothers 82.2%, fathers 17.8%). A random sample, 583 out of 789 parents to children aged 12 to 15 years (Group B) from three schools in rural and urban municipalities, were invited to participate. The response rate was 26.9%, including 157 participants, 106 mothers and 51 fathers (mothers 67.5%, fathers 32.5%).

2.2. Ethical Considerations

The study was approved by an ethical committee for medical and health research (ref. number: 2012/955/REK) and the Norwegian Social Science Data Service (ref. number: 42,756). The study was performed according to the Helsinki Declaration and the ethical research principles: confidentiality, non-maleficence and justice, were followed during the entire research process [22]. Parents of children who have ADHD may be a vulnerable group, and the families' sense of coherence can be a sensitive topic. On the other hand, it is important to include these families in research, thereby giving them the opportunity to be heard.

2.3. Data Collection

A randomized sample from the member list of an ADHD association—group A, was drawn. An employee at the association had the coding key and sent the questionnaire with an information letter by postal mail to the sample, and two reminders were sent. Group B—the researcher contacted the leader of schools and received lists of parents. The parents were sent the questionnaire with an information letter by postal mail and one reminder was sent. The FSOC was sent eight weeks later to 100 parents from group B, with a response rate of 52%.

2.4. Measures and Instruments

The questionnaire included questions regarding the parents' background and characteristics of the children, and four instruments.

Parents' background included questions regarding age, gender, marital status (cohabitant/married or single/divorced/widow/widower), education (compulsory school, upper secondary school or college/university) and place of residence (urban or rural). Occupation and economic status were not included.

Characteristics of the child included age and gender.

The Family Sense of Coherence scale (FSOC) was constructed by Sagy and Antonovsky [23], with 26 items based on assessing a family orientation on the three components of comprehensibility, manageability and meaningfulness. This scale was later modified by Sagy and Antonovsky [23] to a 12-item scale. The scale measures the family's global SOC, rated on a seven-point scale with the anchors defined. Some examples of the items are: "To what extent do you have the feeling that you can influence what happens in your family?" and "Do you have the feeling that you are being treated un-

fairly by your family?” A total scale score was computed by adding all the items together ranging from 12 to 87, with higher scores denoting a strong sense of family coherence. Permission for the translation and adaption of the Family Sense of Coherence to Norwegian was granted from Dr. S. Sagy, Ben-Gurion University of the Negev, Israel.

The Sense of Coherence scale-13 (SOC-13) was developed by Antonovsky [2]. This version consists of 13 items rated on a seven-point scale with the anchors defined. Some examples of items are: “How often has it happened that people whom you have counted on have disappointed you?” and “How often do you have the feeling that there is little meaning in the things you do in daily life?” A total scale score was computed by adding all the items together ranging from 13 to 91, with higher scores denoting a stronger sense of coherence.

The Family Assessment Device (FAD) was investigated with the subscale “General Functioning”, which was developed by Epstein, Baldwin and Bishop [24], and measures the general family climate and functioning. The subscale consists of 12 statements rated on a four-point scale from 1 (totally agree) to 4 (do not agree at all), including six statements regarding healthy family functioning, such as “We can express feelings to each other” and six statements regarding unhealthy family functioning, such as “Making decisions is a problem for our family”. A mean score for the scale was computed, with the lower mean score, the better the family functioning.

Well-being (Well) was developed by Sørensen, Bøe, Ingebrigtsen and Sandanger [25], and measures the degree of happiness, satisfaction, and how rewarding or unsuccessful life is perceived to be, including the Cantril ladder [26]. The instrument consists of four items, including “Would you say that you live a happy life at the moment?”, “When you think of how you are currently, are you most satisfied or dissatisfied?” and “Would you say that your life is mostly filled with disappointments, or mostly encouragements?” The items are answered on a seven-point scale. The Cantril ladder contains one question: “Here is a ladder with 10 steps. If we think that the highest step on this ladder stands for the best life you could think of and the lowest the worst, what step would you say suits you in your present life?”, which was answered using a 10-point scale. A mean score of the instrument was calculated by adding all the items, with the Cantril ladder multiplied by 7 and divided by 10, before adding the three other items, with the higher score the better.

Translation of the FSOC

The English version of the FSOC [23] was translated into Norwegian with elements from Brislin [27]. The instrument was forward translated by a bilingual (English and Norwegian) health professional from the original English version. The health professional had the knowledge of the culture and content of the instrument. The Norwegian version was reviewed for incomprehensive or ambiguous wording. A panel of 20 experts in health care gave their comments regarding the clarity of the instrument, and some formulations were clarified by making them more understandable in a Norwegian setting. The back-translation into English was made by another bilingual health professional (Norwegian and English) who was “blinded” to the original English version. The

research team reviewed the back-translated version with the original English version. The back-translation resulted in a highly similar version. Items with apparent discrepancies were examined to ensure that the content was the same. The instrument was pilot tested with 20 parents of children with ADHD. They gave their comments regarding clarity, and no further adjustments were made.

2.5. Statistical Analysis

Statistical analysis were performed using IBM statistics SPSS, version 22. T-tests were used to compare the two groups of parents with regard to background data (gender and age). Chi-square tests were used to compare the two groups regarding marital status, education and place of residence [28]. The internal consistency of the N-FSOC was assessed by Cronbach's alpha coefficients, with a Cronbach's alpha greater than 0.70 considered acceptable [29]. The questionnaire was analyzed for stability by the test-retest with the parents in group B, and two responses to the questionnaire were compared using the intraclass correlation coefficient (ICC) [30]. An ICC above 0.40 is acceptable, above 0.60 or greater indicates satisfactory stability, and greater than 0.80 is excellent [31].

The construct validity was assessed by the use of the "known-group technique" [21] using an independent samples t-test to compare the differences between the two group of parents. Based on previous studies, it was assumed that parents with a child with ADHD had a more difficult life situation, thereby reporting a lower score on FSOC than the other group of parents [9] [12]. The construct validity, convergent validity, of the scale was also tested by calculating the Pearson's correlation coefficient of N-FSOC with SOC, FAD and Well.

3. Results

The parents' background and the child's characteristics are reported in **Table 1**. There were statistically significant differences between the two groups of parents with regard to age, education and place of residence. The parents in group A was younger than those in group B ($t = 7.68$, $p < 0.001$), whereas more parents in group B had a college/university degree ($\chi^2 = 15.90$, $p < 0.001$), and lived in more urban areas ($\chi^2 = 18.40$, $p < 0.001$).

3.1. Reliability

The internal consistency using a Cronbach's alpha for the entire group was 0.89, for group A 0.87 and group B 0.89. The test-retest of group B ($n = 52$), using intraclass correlation coefficient (ICC), was .85 (CI 0.73 - 0.91).

3.2. Validity

The construct validity with known groups (Polit & Beck, 2012) revealed statistically significant differences between group A and group B, in that the parents with a child having ADHD reported lower scores in N-FSOC, SOC, FAD and Well (**Table 2**).

Table 1. Background data of the participants.

| | Group A ^a n (%) | Group B ^b n (%) |
|-----------------------------------|----------------------------|----------------------------|
| Background of the parents | | |
| Mothers | 217 (82.20) | 106 (67.50) |
| Fathers | 47 (17.80) | 51 (32.50) |
| Age-mean (SD) | 41.55 (5.96) | 46.03 (5.51) |
| Marital status | | |
| Cohabitants/married | 223 (84.50) | 129 (82.20) |
| Single/divorced/widow/widower | 41 (15.50) | 27 (17.20) |
| Education | | |
| Compulsory/upper secondary school | 126 (48.50) | 45 (28.70) |
| College/university | 134 (50.80) | 111 (70.70) |
| Place of residence | | |
| Rural | 132 (50) | 45 (28.7) |
| Urban | 132 (50) | 112 (71.30) |
| The children | | |
| Age-mean (SD) | 12.17 (2.24) | 13.92 (0.84) |
| Gender | | |
| Boy | 182 (70.50) | 72 (45.90) |
| Girl | 76 (29.50) | 85 (54.10) |

^aGroup A: Parents of children having ADHD; ^bGroup B: Parents of children aged 12 - 15 years.

Table 2. Comparing parents of children having ADHD with other parents.

| | Group A n = 260 M(SD) | Group B n = 156 M(SD) | <i>t</i> ^a | <i>p</i> |
|-------------------|-----------------------|-----------------------|-----------------------|----------|
| FSOC ^b | 57.88 (10.86) | 66.37 (9.68) | 8.26 | 0.001 |
| SOC ^c | 62.85 (10.91) | 69.50 (9.14) | 6.65 | 0.001 |
| FAD ^d | 1.98 (0.52) | 1.65 (0.39) | 7.47 | 0.001 |
| Well ^e | 4.88 (0.92) | 5.56 (0.78) | 8.11 | 0.001 |

^aIndependent-sample t-test; ^bFamily Sense of Coherence, sum scores could range from 12 (weakest) to 84 (strongest); ^cSense of Coherence, sum scores could range from 13 (weakest) to 91 (strongest); ^dFamily Assessment Device, scores could range from 1 (most favorable) to 4 (least favorable); ^eWell-being, scores could range from 1 (least favorable) to 7 (most favorable).

The construct validity, with convergent validity, yielded the expected results that N-FSOC correlated positively with SOC and Well and negatively with FAD (**Table 3**).

4. Discussion

In this study, FSOC was translated into Norwegian, and analyzed for validity and reliability. The translation process was rigorous with regard to the use of back-translation technique [21], review of the translated questionnaire by an expert group and a pilot test with a group that corresponds with the target group for the study, responding to

Table 3. Correlations of FSOC with FAD, SOC and well.

| | | FAD ^b | SOC ^c | Well ^d |
|-------------------|---------------------|------------------|------------------|-------------------|
| FSOC ^a | Pearson Correlation | -0.767** | 0.746** | 0.764** |
| | Sig. (2-tailed) | 0.001 | 0.001 | 0.001 |
| | N | 416 | 410 | 415 |

^aFamily Sense of Coherence, sum scores could range from 12 (weakest) to 84 (strongest); ^bFamily Assessment Device, scores could range from 1 (most favorable) to 4 (least favorable); ^cSense of Coherence, sum scores could range from 13 (weakest) to 91 (strongest); ^dWell-being, scores could range from 1 (least favorable) to 7 (most favorable).
 **Correlation is significant at the 0.01 level (2-tailed).

face validity [21]. After the translation process, two groups of parents, including both mothers and fathers, responded to the questionnaire. The two groups of parents were regarded to be appropriate because they were possible to compare on the basis that one group represents parents with a more difficult situation than the other.

Reliability was tested for internal consistency and stability [21]. Cronbach's alpha coefficients were above .80 for both the entire group and for the two groups of parents, thus indicating a sufficient internal consistency [29]. The alpha values were over .80, which is in line with other studies [16] [18]. The stability of the instrument analyzed with test-retest was found to be excellent, with an ICC value over 0.80 [31] in the group of 52 parents (group B), who responded twice on the N-FSOC over an eight-week period. In the study by Ngai and Ngu [16], the ICC was slightly lower, but still over 0.70, thereby indicating a satisfactory stability.

Construct validity was assessed by correlations between N-FSOC and SOC, FAD and Well. N-FSOC exhibited a strong positive correlation with SOC, which was expected since both the individual-and family sense of coherence have been found to be related to each other [16] [18]. Well-being, which can be seen as a part of quality of life, demonstrated a positive correlation with FSOC. Other studies suggest FSOC as a resource against stress leading to a high quality of life [32] [33]. Additionally, FSOC serving as a mediator between stressful life events and quality of life is well suited with the salutogenic framework [34]. The high negative association between N-FSOC and FAD indicates that the stronger the FSOC the better family functioning, which is also supported in other studies [3] [17]; this is in line with a longitudinal study by Ngai and Ngu [33], who followed couples during pregnancy and after birth.

Furthermore, the assumption that the two groups of parents would differ (known-groups) on FSOC, SOC, FAD and Well was achieved. The parents with a child with ADHD reported a weaker FSOC and SOC, a less favorable family functioning and a lower well-being, also supported by other studies [10] [12]. A previous study reported a consensus between mothers and fathers in FSOC, which suggests there is a collective family measure [33]. Families with a strong sense of coherence may have a more positive appraisal of the life situation that views demands in parenthood as a challenge. On the other hand, families with a child with ADHD face challenges not comparable to the situation of the average teenage family, as shown in this study's results. The parents in group A had significantly weaker FSOC and FAD than parents in group B. Having a strong global sense of coherence in the family may help facilitate family functioning, as

shown by the correlation with FAD.

Some limitations of the present study have to be noted. Because only one of the family members responded to the questionnaire, the results reflect the family situation from the parent's perspective. In further studies, it is therefore important to include more family members. The response rate was low, particularly in group B. In general, there is a trend towards a declining survey response rates in many countries [35]. Another explanation may be that the questions were perceived as sensitive, resulting in some parents choosing not to respond. As the parents in the ADHD association were recruited via the association, they were probably more motivated to answer. However, few fathers in group A answered, and it has been found that mothers seem to be more involved and engaged than fathers in their child with ADHD (e.g. [36]). Moreover, another limitation is the significant differences between the groups. The parents in group B were older and over two-thirds had attained the college/university educational level and lived in urban areas. The differences can be explained by the different ways the two groups of parents were recruited. It was a nationwide recruitment in terms of parents from the ADHD association, whereas the parents in group B only represented three municipalities. Both groups may therefore reflect an elite bias with the high educational level in group B and the belonging to an association in group A. According to the validity and reliability testing of the N-FSOC, it was assumed that the groups should differ in their responses to N-FSOC, SOC, FAD and Well. Nevertheless, more studies including other groups to further assess the N-FSOC are needed.

5. Conclusion

The results of this study indicate that the Norwegian version of N-FSOC showed a sufficient validity and reliability in two groups of parents. Despite the satisfactory results, further studies are required with other samples and age groups to confirm the validity and reliability of N-FSOC. It is especially important to include families with more than one family member responding to the questionnaire.

6. Relevance to Clinical Practice

Nurses, other health-care professionals and researchers need valid tools to assess families in strainful life situations. Hence, N-FSOC may be appropriate as a tool to find families who seem to be vulnerable to help further facilitate interventions that strengthen the family's resources. Furthermore, researchers and health-care professionals need valid instruments to compare outcomes of interventions in both clinical practice and research. The FSOC has been used in several countries and been shown to be valid and reliable, including in Norway. N-FSOC may also be used regarding families in difficult life situations in relation to the family's global sense of coherence.

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