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Description, and pilot evaluation, of novel staff education to improve care of confused older inpatients

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KEY WORDS

ageing, confusion, education, falls, geriatrics

ABSTRACT

Objective
To determine feasibility of novel staff education aiming to optimise care for confused older people.

Design
Pre/post qualitative study.

Setting
Tertiary teaching hospital.

Subjects
Clinical staff in two geriatric medicine wards.

Interventions
Self-directed learning modules, with access to an education resource officer to reinforce learning in real time.

Main outcome measures
Primary outcomes were feasibility (proportion of staff completing the education) and perceived effectiveness (measured in focus groups and individual interviews).

Results
Twenty-six staff agreed to undertake the education; six confirmed completion of the entire learning package. Participants were enthusiastic about education regarding confused older people. Participants who completed the education modules reported they were satisfied with the format and content of the learning materials, but cited time constraints as a major barrier.

Conclusion
Participants expressed need and enthusiasm for education but uptake of the package was less than anticipated. Organisational support (such as providing staff with protected paid time to complete education) may be required to improve adherence.

INTRODUCTION

The prevalence of cognitive impairment in Australia is increasing due to an ageing population. Health professionals will therefore be required to care for larger numbers of older people living with chronic neuro-degenerative impairments. Older people are admitted to hospitals with greater frequency (Oliver 2007; Rothschild et al 2000) and have longer admissions than younger people (AIHW Bulletin 53, 2007). Hospital admissions are associated with substantial risk of iatrogenic harm (functional decline and other adverse outcomes) among older people who are physically or cognitively frail (Podrazik and Whelan 2008; Inouye et al 1993; Gillick et al 1982). Inpatient falls are the most common adverse event (Healey et al 2008), and are associated with substantial costs to individuals and health systems (Oliver 2007).

Due to the increasing prevalence of dementia, many older people admitted to acute care settings are more likely to have pre-existing cognitive impairment (Podrazik and Whelan 2008; Siddiqi et al 2007; Douzenis et al 2010). People with pre-existing cognitive impairment frequently experience acute confusion and associated decline in cognitive function (delirium) related to the medical problem that necessitated admission to hospital (Siddiqi et al 2007; Fick et al 2002; Inouye, Wagner et al 1993). There is evidence that acute confusion is often under-recognised in acute care settings (Foster et al 2010). In addition, the researchers found that older people admitted to acute care are almost universally at high risk of delirium (Foster et al 2010). Other recent studies also report under-recognition and lack of treatment protocols for delirium (Young et al 2008; Rockwood 1999).

To date, there are few data determining how to reduce falls among people with cognitive impairments. This study has shown that self-directed patient education (reinforced by a health professional) is effective for prevention of falls among people with intact cognition admitted to acute care. However provision of education to people with impaired cognition was actually harmful (Haines et al 2011). The authors theorised that harm may accrue because cognitively impaired people have difficulty understanding, retaining, and translating falls prevention messages.

Staff education has been a component of some previous multi-factorial falls prevention initiatives (Renteln-Kruse and Krause 2007; Fonda et al 2006), and is likely to be the key to translating research evidence regarding best practice care of confused older people to acute care settings. However, translation of knowledge and management guidelines to practice is often difficult in busy clinical environments (Weinert and Mann 2008; Brennan et al 2004). Major barriers identified include time, staff education and rapid staff rotation (Inouye et al 2000). Researchers and hospital staff remain uncertain about which educational approach may be most effective in maximising knowledge and skills in the recognition and management of acute confusion on acute medical wards.

The researchers have therefore designed a pilot study to evaluate a novel, multi-modal staff education intervention focused on care for older confused patients. The aim of the study was to determine the feasibility of the proposed educational intervention in acute hospital wards.

METHOD

Ethics

This study was approved by the Royal Perth Hospital Human Research Ethics Committee. Written informed consent was provided by staff participating in individual interviews and focus groups, and from family members participating in follow-up telephone interviews.

Study design and setting

A pre-post mixed methods design was used. The study was conducted in two acute aged care wards (38 beds) at a 732 bed tertiary teaching hospital.

Participants

All clinical staff working in the two wards were approached by one investigator who attended ward staff meetings and daytime handovers for a two-week period to explain the aims of the study and distribute participant information sheets and consent forms. In addition to completing the education intervention, staff were invited to participate in a focus group and/or individual interview. Families of patients admitted during the study period were recruited by information packs left at patients' bedsides for staff to hand to visiting family members. Family members were invited to i) return a survey; and ii) participate in a follow-up interview three weeks after their family member was discharged from hospital.

Intervention

The intervention comprised an engagement phase (two weeks), formal education delivery (four weeks) and reinforcement phase (two weeks). The engagement phase comprised a ward meeting to introduce the project, explain its aims and encourage staff to complete the education package; and profiling of the study at handovers, facilitated by the ward staff development nurse. In addition, an investigator met individually with ward leaders (the ward manager, and staff development nurse). The formal intervention comprised an education package previously developed and used in an acute setting and freely accessible online (http://cra.curtin.edu.au/wadtsc/self_directed.cfm). This package aims to equip staff with the knowledge and skills to deliver evidence based care for medical inpatients with confusion. The three online learning modules were developed, supported by the WA Dementia Training Study Centre (led by one investigator), following a study that examined the knowledge of nursing staff regarding the assessment of patients with cognitive impairment (Hare et al. 2008). In the present study, staff had the option of completing the modules online, or in hardcopy format. In the present study, the education intervention included an education resource officer (who was an experienced nurse educator; see acknowledgements) who offered de-briefing to each staff member who completed the self-directed program, and attended on the ward to offer immediate support to staff in real time. The education officer attended for a total of 38.5 hours (generally for two hour blocks for four days per week) over the four-week intervention period.

Outcome data

Feasibility was measured by the proportion of staff completing the education package and their satisfaction (recorded using a feedback survey distributed with the education packages, and in focus group/interview feedback). Knowledge was measured by conducting pre- and post- module questionnaires (available as a component of the on-line package). Attitudes were surveyed using the UCLA geriatric attitudes scale (Reuben et al 1998).

Data collection

Staff who had consented to participate in the education intervention were personally handed pre/post knowledge surveys, reply paid envelopes and a feedback form with their education packs. Staff were able to post surveys back using the envelopes provided or place them in a collection box on the wards. Qualitative data were collected in semi-structured interviews and focus groups with staff conducted by one investigator prior to and after the intervention period. At baseline, a focus group of four staff was held and two individual interviews were conducted. After the intervention period, three individual interviews were conducted. These examined educational preferences, barriers and enablers relevant to education prior to the intervention and perceived change and feedback measures after the education process was completed.

Audit data were collected by one investigator for all consecutive patients admitted to the intervention wards for two weeks prior to, during, and two weeks after, the intervention period. We audited age, diagnoses, living situation, documented delirium diagnoses, use of restraints, indwelling urinary catheters and regular psychopharmacologic therapy, cognitive screens, and length of stay. The audit utilised inpatient records and the wards' incident data. Notes for all patients were audited at baseline. Additionally, notes for 75 (31%) of patients admitted during the study period were audited at discharge. When notes could not be accessed on the ward after discharge, discharge summaries were reviewed.

Incidents of falls reported using the hospital's incident reporting system were monitored on a monthly basis. Family involvement in care was measured using the F-Involve family survey (Reid et al 2007), which was modified for the acute care setting with the original authors' permission, and follow up interviews. F-involve surveys were left in the bed tray for each individual patient, along with the participant information sheet during the eight week study period. Ward staff were asked to draw the attention of visiting family members to the survey and encourage them to complete and return the survey. Surveys were returned using an attached reply paid envelope. For those families who consented, contact was made by telephone three weeks after their relative's discharge to collect further qualitative data regarding the family member's perceptions of their involvement in care.

Data handling and statistical analysis

Audit data were handled in SPSS and summarised descriptively. Qualitative data from focus groups and individual interviews were recorded on a digital voice recorder and transcribed. Transcripts were de-identified, and a thematic analysis was completed initially by one investigator. Analysis and resulting themes were then reviewed by all investigators and consensus of themes was achieved.

FINDINGS

Patient data during the study period

There were 245 individual patients admitted to the study wards over the eight week period. Patient characteristics are presented in table 1. A cognitive screen within 48 hours of admission was documented in 129 cases (53%). Only 14 patients had a cognitive screen near discharge (6%). Confusion was noted in the records of 81 patients (33%), with delirium diagnosed in 19 cases (8%). Restraints were used in 16 cases (7%). Psychopharmacologic therapy was used in 130 cases (53%). Many of these patients were taking a combination of benzodiazepines, antidepressants or antipsychotics. Fifty patients (20.4%) had an indwelling urinary catheter inserted during their hospital admission. Nine falls and one incident of injury were recorded in the month pre-intervention.

Table 1. Demographic characteristics of patients at point of admission to ward

Characteristic	**Total sample n=245**
Female n (%)	141 (58)
Age (years), M (IQR)†	83 (76, 88)
Admission living situation, n (%)	
Community with family or carers	109 (44)
Community alone	81 (33)
Residential facility	46 (19)
Other	9 (4)
Admission diagnosis, n (%)	
Falls, falls related injuries	61 (25)
Cardiac, respiratory	65 (27)
Functional decline	17 (7)
Confusion	23 (9)
Urinary tract infection, constipation, dehydration	41 (17)
Stroke	10 (4)
Other	38 (16)
Average length of stay in hospital (days), mean+SD	13.7 (13.5)

†M=Median, IQR= Interquartile range

Staff baseline data

Staff expressed a need for education specific to acute care. In baseline focus group participants endorsed provision of self-paced, flexible learning and opportunities to reinforce learning in clinical practice.

> *'Sometimes it is good to do things in the comfort of your own home and at your own speed....sometimes you think it's all good and then you've forgotten...so having a hard copy is good.'*

More senior staff expressed a level of frustration at frequently being asked questions by junior staff. Participants identified time as the biggest barrier to ongoing education. There was no overlap in staff handovers, making it difficult to set aside time for professional development.

> *'They say you're supposed to be able to do it within your work hours but you never are. At the end of your shift most people just want to go home.'*

Staff reported being unaware of best practice guidelines for the management of delirium. Ward leaders cited time constraints, minimal additional resources and difficulty retaining experienced staff as recurring challenges. The mean staff attitude score at pre-test was 3.5 (5 point Likert scale).

Family feedback

Family surveys were left in patient folders/bed trays for 236 (96%) of patients. In the other nine cases (4%) there was no next of kin identified, or the patient was inaccessible. Of the 236 surveys distributed, only five (2.1%) were returned to the study team. Three family members consented to follow-up phone interview and two were interviewed. One family praised the hospital for its excellent level of care and ability to preserve patient dignity, while the other perceived the admission as a very negative experience, particularly in relation to the appropriateness of communication. Both families cited important aspects of care in an acute care setting to include vigilance in monitoring for infections or other complications that may exacerbate the admitting problem, treating people as individuals rather than medical problems, conducting interventions with a caring attitude and wherever possible, providing reassurance and reorientation:

> *"There is no substitute for a listening ear and a comforting and accepting presence for the patient. It shows an important level of humanity."*

Outcomes

Out of 60 eligible staff, only six of the 26 staff who consented to participate completed the education intervention and returned pre and post test surveys. All participating staff chose to complete the education modules in hard copy rather than online. One contributing factor for this was lack of Internet access provided for junior staff at this workplace. The education officer generally engaged two to three staff at each visit. Individual staff engagement occurred each time staff were approached by the educator, but few active approaches to the educator were made by staff. Staff that completed the module reported improved self efficacy in distinguishing between dementia and delirium and in managing patients with delirium.

> *'It's hard to be assertive if you're not confident but if you're confident you can be a bit more assertive and say "no I know this is right or wrong".'*

Staff also felt that the intervention impacted upon patient care on the ward, with staff trying different strategies before utilising medication to manage delirium.

> *'Showing us how it can work in reality!'*

Staff reinforced that time was the biggest barrier to participation in the education.

> *'It is difficult – it all revolves around staffing and time.'*

The average staff attitude score at post-test was 3.6 (p=0.12). There were also no significant differences between the pre and post test knowledge scores. Five falls were recorded in the month post- intervention across the two acute care wards and there were two incidents of injury.

DISCUSSION

Main findings

Our audit data confirm that acute aged care staff frequently care for confused older people with complex needs (such as the monitoring of psychotropic polypharmacy). Our data tended to validate participants' perception of a need for education: we found evidence that many cases of delirium/acute confusion may remain undiagnosed, since confusion was frequently referred to in patient notes, but specific diagnoses were found infrequently. In comparison, restraints and psychopharmacology (which are risk factors for delirium) were used relatively frequently. Staff working in acute aged care reported need and enthusiasm for education resources. However, uptake of the package and use of support from the education resource officer was unexpectedly low. Data from some more senior staff members suggested that ongoing education of junior staff may be viewed as an extra duty and not part of core clinical duties.

Importance of findings

Although there is substantial evidence regarding the potential benefits of e-learning (Childs et al 2005) our data emphasise that staff development utilising online learning may not be suitable whilst hospital information technology resources are constrained. Other researchers have recognised time to be a significant barrier (Inouye et al 2000). Given the recurrent focus on time as a barrier to participation in education, protected time to complete modules may be required to improve adherence. The study found that recognition of learning needs by management and staff in this project did not equate to engagement, implying that future education intervention projects need to be viewed as part of clinical duties and fully supported by management and senior staff. Embedding education as part of clinical practice may require future interventions to explicitly address aspects of organisational culture such as leadership, communication and teamwork. Regular staff turnover is also reported by other authors (Inouye et al 2000) and is a challenge which should be accounted for in definitive projects.

Patients changing ward locations, and thus environments, were observed frequently in this project. This suggests that an intervention restricted to geographic wards may have limited effectiveness. The results also suggest engagement of families needs to be more direct and this may require resources for project staff to speak with family members and personally distribute survey questionnaires and invitations to participate in interviews.

Results in context of other studies

Since the landmark studies focusing on preventing functional decline among older people requiring acute care (Inouye, Acampora, et al 1993), there have been several different approaches to improving the care of confused older people requiring acute hospital admission. There is evidence that involvement of families in care continues to be sub-optimal (Bauer et al 2011). Australian data (Moyle et al 2011) also indicate substantial knowledge deficits and absence of a clear strategy to involve families in care, and suggest that care models may emphasise patients safety at the expense of their well-being and dignity. Some projects have focused on involving families in falls prevention interventions (Ryuet al 2009). Although the importance of families is now consistently acknowledged, the data highlight the difficulty of successfully engaging families.

Similarly, the concept of ward 'champions' in acute care of confused older people has also matured (Allen and Close 2010). Strategies such as identifying multiple local ward champions, and involving 'front line' staff in implementing education interventions, may help to overcome the challenges we observed, and increase participation in educational interventions. The concept of practice redesign (as opposed to an educational intervention per se) appears to be successful, but requires substantial buy-in from participants, and support from researchers (Day et al 2009). Other groups have focused on segregated environments to care more appropriately for people identified to have dementia (Zieschang et al 2010). The utility of this approach in populations such as ours, is uncertain given that a substantial proportion of the population are confused, or at high risk of delirium. (Foster et al 2010).

Strengths

Although a small pilot study, this work has several strengths. The authors tested a generic intervention, relevant to people with both chronic confusion (dementia) and acute confusion (delirium). The study was pragmatic and is likely to be generalisable to the 'real world' facing future researchers. The authors piloted use of a range of objective measures and used mixed methods to collect both qualitative and quantitative data. To the authors knowledge, these data are novel, comprising the first outcomes evaluation of this educational package.

Limitations

As an initial pilot feasibility study the authors restricted this study to the nursing team. Future studies need to consider how to engage the multi-disciplinary team. Frequent ward and hospital transfers limited access to notes. Very few families returned the F-involve survey (the authors recognise that many surveys may not have been passed to family), and even fewer consented to a follow-up telephone interview. Those that did respond had strongly held beliefs regarding their experiences, which are unlikely to be representative (volunteer bias).

CONCLUSION

Staff recognised the need for, and were generally enthusiastic about, ongoing education regarding care of confused older people in the acute care setting. Time constraints were cited as a major barrier to education, and uptake of the education intervention was low in spite of the numbers of confused patients on the ward. Organisational commitment to continuous improvement and recognition of the role education plays in quality care is required.

RECOMMENDATIONS

Future interventions need to be designed specifically to be relevant to the acute care setting, working to overcome barriers, and harnessing the facilitators relevant to that sector (such as availability of managers and staff development personnel). Organisational support (such as providing acute care staff with protected paid time to complete the education) may be required to improve adherence.

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Utilisation of a Native American nursing conceptual framework: implications for practice and research

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Native American, nursing, conceptual framework, practice, research

ABSTRACT

Objective
To explore how Native American nurses and non-Native American nurses perceive how the Nursing in the Native American Culture conceptual framework can be utilised in nursing practice and research.

Setting
The Eleventh Annual Indian Nursing Education Conference in Eau Claire, Wisconsin in the United States of America (USA).

Participants
A total of 50 female and six male participants who were Native American nursing students, Native American nurses, and non-Native American nurses who were nursing educators and/or delivered health care to Native American populations.

Main outcome measures
Participants were placed into 14 small groups and were asked "What is the usefulness of the Native American Nursing conceptual framework in guiding nursing practice and research?" The small groups were allotted 45 minutes to dialogue and answer the research question. Each group recorded field notes of their discussion.

Results
Overall themes emerged from the data that relate to the usefulness of the conceptual framework for nursing practice and research which include: (a) serves as a cultural foundation in practice, (b) supports and guides the value for personal and professional growth, (c) guides research when investigating and exploring Native American phenomenon that are health related, and (d) guides the development of cultural appropriate nursing and health care resources.

Conclusions
The Nursing in the Native American Culture conceptual framework should be used as a guide when planning and implementing health care and research with Native American populations. Health care providers and researchers should utilise the conceptual framework to establish trust and commitment to deliver care and conduct research in a culturally respectful manner.

INTRODUCTION

Nurses who are Native American, also known as American Indian, Alaskan Native, Native Hawaiians, and Indigenous Americans, practice the art and science of nursing in a unique manner. The availability of Native American conceptual frameworks and theories for use as guiding frameworks for research and nursing practice is sparse. Thus, there is a dearth of Native American culturally appropriate and culturally sensitive nursing models suitable to guide nurses in their nursing practice, research, education, and administration. As a result, both Native American nurses and non-Native American nurses working with indigenous populations often use non-Native American models that are not appropriate. Concepts such as spirituality, balance, harmony, circular, oneness, non-interference, humility, respect, honour, visionary, tradition, connectedness and self-determination are concepts that Native American people understand and should be included in nursing models that guide care for Native Americans Nurses require models that utilise Native American concepts and contain cultural knowledge, beliefs, values and traditions. When Native American principles are used as a basis for practice, models appropriate for use with Native American populations emerge.

Moreover, nurses need culturally specific Native American information to assist with practice approaches. Weaver (1999) found that nurses need various information to assist them in providing culturally appropriate nursing care to Native Americans. These include knowledge about: (a) cultural factors, (b) health beliefs, (c) diversity among Indigenous nations, (d) historical facts, (e) skills in listening and communication, and (f) proficiency in being open-minded and non-judgmental.

Native American nurses constitute only 0.3% of the 2,909,357 total registered nursing population in the USA (Office of Minority Health 2010). Yet in many nursing research and practice settings, there is little acknowledgement of the perspectives of the first inhabitants of the USA. Native American nurses have been noted to approach the art and science of nursing in a distinct manner based upon and within their cultural worldview and philosophy (Struthers and Littlejohn 1999). The Nursing in the Native American Culture conceptual framework describes how Native American nurses approach the profession of nursing (Lowe and Struthers 2001). The need to describe and explore the nature and essence of Native American nursing has been addressed during annual Native American nursing summits. A total of 395 Native American nurses, non-Native American nurses, and nursing students who provide care to Native American people participated in a study to describe how nursing in the Native American culture is delivered and practiced (Struthers and Littlejohn 1999). Figure 1 depicts the seven dimensions of caring, traditions, respect, connection, holism, trust and spirituality that emerged from the data.

Figure 1: Model of the dimensions of Nursing in the Native American culture.

Figure 2 displays the seven dimensions and their various characteristics and components.

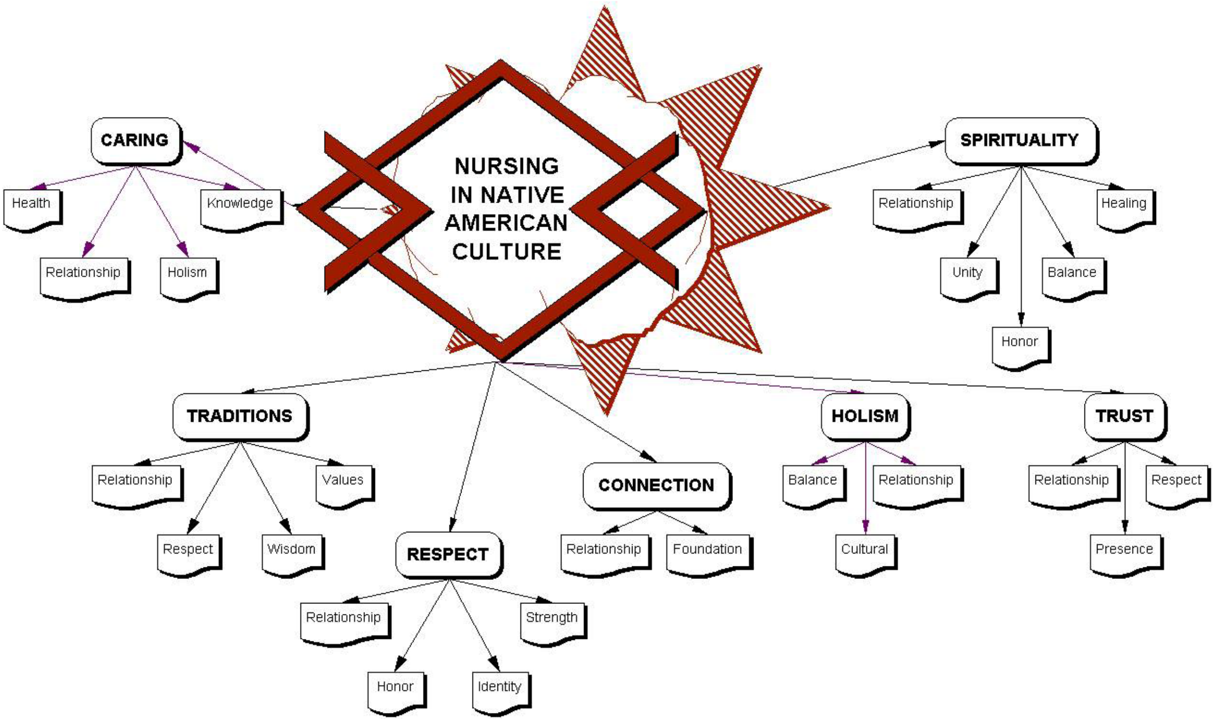

Figure 2: Model of the dimensions and characteristics of Nursing in the American culture

The dimension of caring embodies characteristics of health, relationships, holism, and knowledge. The characteristic of health relates to humor, forming partnerships, fearlessness, dignity, passion, and sensitivity. The characteristic of relationship includes being nonjudgmental, using presence, unconditionality, trust, partnership, nurturing, connecting, and love. The characteristic of holism pertains to healing the body, mind, and spirit. The characteristic of knowledge involves listening, validating self and others, instinctiveness, and reflecting.

The dimension of traditions includes the four characteristics of relationship, respect, wisdom, and values. The characteristic of relationship includes acknowledging family, community, tribe, and communing. The characteristic of respect involves elders, acceptance, privacy, and sensitivity. Wisdom relates to strength, knowledge, learning and discovery, and exploring. The characteristic of values includes Native medicine, old ways, ceremonies, and rituals.

The dimension of respect includes the characteristics of relationship, honour, identity, and strength. The characteristic of relationship refers to presence and compassion. The characteristic of honour involves elders and stories. Identity as a characteristic is further described as awareness, acknowledgment, and defining. The characteristic of strength entails the components of learning, listening, trusting, and understanding.

The dimension of connection includes the characteristics of relationships and foundation. The characteristic of relationships involves honouring all people, the past, the present, the future, harmony with nature, honouring the nursing profession, sharing and anticipating, and exploring similarities and differences. The characteristic of foundation relates to building, healing, taking risks, creating togetherness, cohesiveness, unfolding, interrelating with all, weaving, and transforming.

The dimension of holism comprises the characteristics of balance, culture, and relationship. The characteristic of balance involves silence, male, female, non-compartmentalisation, flowing with harmony, and pursuing peace. The characteristic of culture relates to spirituality, beliefs, and healing. The characteristic of relationship involves interacting nonverbally, honour, being nonjudgmental, a common language, trust, family, and community.

The dimension of trust consists of the characteristics of relationship, presence, and respect. The characteristic of relationship pertains to responsibility to self and others. The characteristics of presence relates to sharing and breaking barriers. Respect as a characteristic involves confidentiality and integrity.

The dimension of spirituality embodies the characteristics of relationship, unity, honour, balance, and healing. The characteristic of relationship comprises touching, learning, and utilising traditions. The characteristic of unity relates to transcending boundaries and pursuing oneness. The characteristic of honour involves the appreciation and respect. Balance as a characteristic involves destiny and centring oneself with Mother Earth and caring for self. The characteristic of healing relates to gifting, praying, and resonating with the Great Mystery.

Together, these dimensions, characteristics and components define and elaborate a conceptual framework of nursing in the Native American culture. Figure 1 depicts the model of the conceptual framework that is formed in a circle which indicates the circular holistic world view of the Native American culture. The roundness portrays the interrelatedness, intertwining, and interlacing of all seven dimensions. Figure 2 displays the dimensions and how their characteristics are categorised. The central symbol portrays a sunrise which illustrates a new beginning in Native American culture.

REVIEW OF THE LITERATURE

Only a few nursing studies within the last 20 years have used the fundamental knowledge of Native American culture as a foundation and as a guide to conduct research and the delivery of health care. An example of an appropriate theoretical framework for Native American families is reflected in the use of the Indigenous concept of harmony to describe the ‘harmonising’ approach indigenous families use in caring for their children with middle ear infection (Wuest 1991). By harmonising the care, the families were able to progress towards healing their child’s illness instead of trying to control the outcome of the illness.

Struthers (2000) described the spiritual order of traditional Native American systems and how this concept was a base for the meaning and essence of the lived experience of Ojibwa and Cree women healers. This study identified seven themes that illuminate the healing art of Indigenous women healers and documented how nurses can employ these traits in their role as a holistic healer. In another study, Nichols (2004) developed a conceptual framework of Native American philosophy that serves as a guide to study Cherokee mothers. Seven subtle patterns of infant care, that relate to sources of family strength and resiliency, emerged from the data which is unique and distinctly different from other non-Native American models. Lowe (2005, 2002) used the concept of self-reliance to investigate the Cherokee way of life. The Cherokee self-Reliance Model emerged from the ethnographic data which is a model that is harmonious with the worldview of the Cherokee culture. The promotion of the self-reliance of the Cherokee has been found to promote the holistic health of the Cherokee. The model has been used to guide several school-based substance abuse and HIV/AIDS prevention/intervention studies for Cherokee adolescents (Lowe et al 2011; Lowe et al 2009; Lowe 2008, 2006). The findings from these studies provide examples of how Native American knowledge is utilised to develop culturally appropriate research and nursing models, which can serve to guide nursing practice for Native American populations. While this is a great beginning, the need for nurses to have accessible Native American nursing models to guide their practice and research looms large.

A few Indigenous frameworks related to cultural health beliefs and values have been developed such as the Indigenous School Health framework developed by a collaborative effort by several Indigenous representative from around the world to design a common framework for school health programs for Indigenous schools and communities (National Collaborating Centre for Aboriginal Health, 2010). Another Indigenous framework, the Maori health model of Te Whare Tapa Wha, depicts the concept of 'te whare tapa wha' which illustrates the four dimensions of Maori well-being (Mason Durie 1998).

Concepts within nursing models that are not Native American specific are not always appropriate for Native American populations. Concepts such as spirituality, balance, harmony, circular, oneness, non-interference, humility, respect, honour, visionary, tradition, connectedness and self-determination are concepts that have meaning and understanding to Native American people. While some studies use these concepts in models and research, a significant gap exists. Very little attention has been given to the identification and development of culturally appropriate Native American concepts within nursing models that guide nursing education, practice and research (Lowe and Crow 2009; Crow 1993). It is evident that nurses continue to need culturally appropriate models to assist them in caring for Native American populations. The purpose of this study was to explore how Native American nurses and non-Native American nurses perceive how the Nursing in the Native American Culture conceptual framework can be utilised in nursing practice and research.

METHOD

Research Design

This study used the focus group method for collecting data. Focus groups are a useful means of data collection particularly where little is known about the phenomenon of interest. Focus groups provide an excellent method for obtaining insights, perceptions, and attitudes of people in a dynamic group interaction setting. The exploration and discussion of a selected topic within a comfortable, permissive environment to obtain insider perceptions, feelings and thoughts can be done by using the focus group methodology (Krueger and Casey 2009). As a methodology that can be sensitive to cultural variables, focus groups are being increasingly used in cross-cultural research (Winslow et al 2002).

Sample

Demographic details for the participants are shown in table 1. The age of the participants ranged from 22 to 55 years and above. Of the 56 participants, 50 were female and 6 were male. Educational levels varied including: (a) nursing students, (b) Bachelor of Science (BSN) nurses, (c) Master of Science (MSN) nurses, and (d) Doctoral (PhD) nurses. The participants included: (a) Native American nursing students enrolled in nursing programs in Arizona, Florida, Montana, North Dakota, Oklahoma, and South Dakota; (b) Native American nurses; and (c) non-Native American nurses who are nursing educators and/or deliver health care to Native American populations. Participants were asked to identify if they were Native American or another race. Fifty participants identified as being Native American and six participants identified as being Caucasian.

Table 1: Demographic profile of participants (n = 56)

Gender	Age	Race	Educational level
Female = 50	37(66%) = 20-40 years	Native American = 50	Student = 28
Male = 6	11(20)% = 41-54 years	Caucasian = 6	BSN = 13
	8(14%) = 55 + years		MSN = 11
			PhD = 4

Procedure

The setting for this study occurred at the Eleventh Annual Indian Nursing Education Conference in Eau Claire Wisconsin in the USA. The purpose of the conference was to address: (a) leadership, (b) culturally congruent strategies to enhance recruitment and retention of Native American nursing students, (c) Native American healing practices, (d) nursing care, (e) reducing health disparities, (f) the incorporation of Native American health and wellness concepts into nursing care plans for Native American people.

A 90 minute plenary session was conducted on the third day of the conference in a lodge nestled in a picturesque rural setting. This particular session was titled 'The Utilisation of a Native American nursing conceptual framework'. The session was facilitated and moderated by two researchers who are the authors of the conceptual framework.

At the beginning of the session, the overall objectives and the importance of each Participants' contributions were reviewed. The nursing in the Native American culture conceptual framework was introduced and explained through handouts and visual aids. These included the seven dimensions of: (a) caring, (b) tradition, (c) respect, (d) connection, (e) holism, (f) trust, and (g) spirituality.

Fourteen small groups were formed among the 56 participants. All of the 56 participants were asked to take a piece of folded paper from a container. Each paper had a number from 1-14 which was dispersed equally among 56 pieces of paper. Participants with the same number created one small group. The average number of participants in each small group was four. This increased the potential for participation, input and discussion by everyone versus one large group. Also, this provided an equal dispersion among participants representing different tribes, gender, age, and the inclusion of a non-Native American participant.

The participants were conference attendees who were: (a) Native American nursing students, (b) Native American nurses, and (c) non-Native American nurses who deliver health care/education to the Native American population and/or were interested in Native American health issues. Written consent to participate in the study was obtained from all of the participants. Demographic data was collected that revealed multiple tribes across the USA were represented.

Each small group was asked to answer the following question: "What is the usefulness of the Native American nursing conceptual framework in guiding nursing practice and research?" The small groups were allotted 45 minutes to dialogue and answer the research question. Each small group recorded field notes of their discussion. Following the group discussions, a plenary session with all of the 56 participants was conducted. The field notes were summarised from the discussions that occurred among the participants. These were recorded on a flip chart and individual small group field notes were given to the researchers to be used as data. Analysis of the data was conducted by the moderators who debriefed immediately after to review how the process evolved and discuss what the research participants had said during the small group discussions and in the following plenary session. Using content and theme analysis, themes and associating quotes that emerged from the data were reviewed and discussed collaboratively (Krueger and Casey 2009).

FINDINGS

The small group discussions yielded information that provides an expanded view of how to use the Nursing in the Native American Culture conceptual framework in relation to nursing practice and research. Using content and theme analysis, two overall themes relating to nursing practice and two overall themes relating to nursing research emerged from the information obtained from the participants (Miles 1990; Spradley 1980). The overall themes that describe how the conceptual framework is and can be utilised in nursing practice include: (a) serves as a cultural foundation in practice, and (b) supports and guides the value for personal and professional growth. The overall themes that describe how the conceptual framework is and can be utilised in nursing research include: (a) guides research when investigating and exploring Native American phenomenon that are health related, and (b) guides the development of culturally appropriate nursing and health care resources.

Serves as a cultural foundation in practice

Findings from the data revealed the conceptual framework provides a cross-cultural foundation that can be utilised by all nurses, including Native American nurses and non-Native American nurses. For example, participants stated:

> *This conceptual framework can be used as a tool for any nurse to better understand other cultures. The seven dimensions can be applied and used when providing care to any culture.*
>
> *This provides a holistic view of people and stimulates nurses to consider the culture of their patients.*

Every small group specifically reported that the conceptual framework is useful for the provision of culturally appropriate nursing care to all people of the various Native American tribes. Examples of remarks by participants include:

> *It [conceptual framework] can also be used to provide cultural sensitive training for non-Native American nurses regarding Native American nursing and culture.*
>
> *This will help all nurses when providing care to Native American clients and their families.*
>
> *Non-Native nurses can be assisted with understanding Native American thought processes.*
>
> *The necessary outcome of providing cultural, relevant and competent care can be enhanced and facilitated by the use of the conceptual framework.*

Supports and guides the value for personal and professional growth

Participants in each group also reported discussion concerning the ability to provide culturally competent care effectively as a result of using the conceptual framework was of “high personal and professional value”. Particularly, the value of personal and professional growth was noted extensively. For example, participants remarked that:

> *The conceptual framework provides an avenue for nurses to seek the balance between spirituality and nursing practice … the value of treating the whole person. This can be done within the nurse/client relationship, by respecting the client and family, making connections, honouring traditions, and forging trusting relationships.*

Participants noted these to be intricately interlaced within the conceptual framework and it “provides nurses with an ability to grow both as a person and as a nurse”.

Participants also related that personal and professional growth also occurs within the areas of an “internal practice philosophy and an external practice philosophy”. The participants noted, “the two must be congruent to have Indigenous oneness”. The internal practice philosophy was described as the “use of Indigenous traditions such as the use of feathers, dream catchers, tobacco, sage, sweet grass and a sacred place from which to operate”. This was further explained and discussed in relation to maintaining centeredness, balance, harmony, and wholeness that emanates from the spirit. Participants discussed and described the philosophy of ‘external practice’ as relating to ‘the importance of the physical setting such as design, lighting, fresh air, and pleasant sounds’. In particular, the ‘availability and use of silence is a necessary component of the external aspect’. The participants noted that the conceptual framework provided for the ‘integration of the internal and external practice philosophies’ and thus the ‘intention of providing Indigenous care’ [culturally competent care] is operationalised.

Participants reported that job satisfaction and thus the recruitment and retention of nurses would also be enhanced as a result of personal and professional growth. The participants who were Native American remarked that using the conceptual framework to practice in an 'Indigenous holistic manner' would facilitate their growth by 'validating them as Native American nurses'.

Guides research when investigating and exploring Native American phenomenon that are health related

Participants noted the conceptual framework had use with guiding nursing research. As a starting point, the conceptual framework can be used to guide research when investigating and exploring Native American phenomenon that are health related. The conceptual framework can serve as a guide to give meaning and understanding to indigenous terms, concepts, and cultural constructs of Native Americans. Participants stated:

> *Many times research of Native people is approached from a framework that is not congruent with the culture of Native Americans.*
>
> *A term or concept might be interpreted or mean something different in another culture and if not used correctly, it could be misleading when used in a research project.*
>
> *The dimensions of respect and trust are very important to understand when doing research with Native people.*

Guides the development of cultural appropriate nursing and health care resources

Participants also reported research that has been guided by the conceptual framework would be useful in the development of cultural appropriate nursing and health care resources. These resources were noted by participants to be in the form of:

> *Materials that guide cultural competent care to Native American clients, families and communities.*
>
> *Definitions of indigenous terms, concepts, and cultural constructs and their applicability to practice.*
>
> *Materials that explain and describe the appropriate use of non-western treatment and care modalities and interventions.*

Participants also noted the conceptual framework could be used to study outcomes of health care delivery modalities. Studying the effects of using the conceptual framework to provide care in comparison to using western bio-medical frameworks/models/theories was also suggested. The participants remarked "this would help in validating the use of a cultural appropriate conceptual framework". Other suggestions by participants related to the use of the conceptual framework to investigate the outcomes of care that has been guided by an integrated approach of using both the conceptual framework and western bio-medical frameworks/models/theories.

DISCUSSION

The participants noted the value of the conceptual framework in relation to the assurance of cultural appropriateness and attention necessary in nursing practice and research. This value has also been noted by several nursing scholars (Purnell and Paulanka 2008). The conceptual framework was perceived as providing meaning to cultural concepts so nurses can provide health care and conduct research in a cultural competent and proficient manner which is necessary in a world of multiple worldviews (Leininger and McFarland 2002).

The conceptual framework was also perceived to have value in providing a structure for how to use cultural knowledge in both practice and research. The preservation of Indigenous values, beliefs, and traditions derived from an Indigenous Native American worldview should be maintained during the provision of health care and conducting research among Native Americans.

CONCLUSIONS

There are many unique challenges when providing health care and conducting research among Native American communities. It is imperative that the delivery of health care and research be done in a manner that is culturally appropriate to the needs of the Native American community where care is being delivered or where research is being conducted (Nichols et al 2002). The conceptual framework can be used as a guide when planning and implementing health care or a research project with Native American populations. Participants noted that the conceptual framework dimensions of ‘respect’ and ‘trust’ can be a very helpful guide. Health care providers and researchers can utilise the conceptual framework to establish trust and commitment to deliver care and conduct research in a culturally respectful manner.

RECOMMENDATIONS

Nurses conducting research that involves Native American participants and Native American health issues, should be expected to use the conceptual framework to inform their work. Nurses who work among a Native American population should utilise the conceptual framework as a guide for cultural appropriateness when addressing the health care needs both in practice and research.

Additionally, further research should be done on each of the seven dimensions, characteristics, and components of the conceptual framework to further delineate their usefulness to nursing practice and research. The applicability of the conceptual framework to other Indigenous and Aboriginal populations around the world should also be explored. Further studies could explore the conceptual framework’s application in an actual clinical setting. These efforts would enhance the development of the conceptual framework in its journey towards becoming an evolving theory.

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Adolescents' perceptions about their weight and practices to lose weight

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KEY WORDS

adolescents, body weight, perception weight, Turkey

ABSTRACT

Purpose
This descriptive study aimed to determine perceptions of adolescents about their weight and practices to lose weight.

Methods
A convenience sample of adolescents (*n*=703) in grades 9 through 12 completed a questionnaire assessing demographic characteristics, perceptions about their weight, practices to lose weight and their information sources for losing weight. These students were then weighed and had their height measured. Body mass index (BMI) was calculated.

Results
According to the measured BMIs, 11.2% of students were underweight, 74.1% were a healthy weight, 6.4% were overweight and 8.2% were obese. Of the adolescents, 13.1% perceived themselves as underweight, 65.0% perceived themselves as having a healthy weight, 19.7% perceived themselves as overweight, and 2.2 % perceived themselves as obese. There was poor agreement between measured BMI and adolescents' perceptions ($p < .05$). Of the adolescents, 33% had tried/were trying to lose weight.

Conclusion
The study determined that there are differences between the real weights and self-perceived weights of adolescents. School training programs should include information on proper body weight and form, and healthy methods of weight loss.

INTRODUCTION

People's perceptions of their own weight can change. While some perceive their weight correctly, others do not. Among the misperceptions there are those who perceive their weight as normal although they are under the weight they really should be, and others who perceive their weight to be normal although they are overweight. This perception is determined by individuals' nutritional habits and physical exercise (Brownie 2006; Brener et al 2004; Desmond et al 1986). The greatest variations in weight perception are found among adolescents (Güneş and Altınok 2010; Cheung et al 2007; Desmond et al 1986).

Weight perception is one of the motivating factors for weight control behaviours and it is a better predictor than actual weight for adolescents to diet or exercise (Cheung et al 2007; Brener et al 2004). Several studies determined that individuals who perceive themselves as fat exhibit more behaviours intended to lose weight (Güneş and Altınok 2010; Brener et al 2004; Desmond et al 1986). Weight behaviours are multifaceted and complex, and their etiology is multi-factorial. Some behaviours are causative for overweight or obesity, some develop as a response, and some are associations. These behaviours vary from healthy practices to extreme forms of self-medication with diet pills, laxatives, diuretics, herbal therapy or purging. In the study conducted by Günes and Altinok (2010), 81.5% of the participating students stated that they exercise for weight control, while 53.2% stated that they diet. It was determined that 29.6% of the male students and 19.3% of the female students tried unhealthy and even dangerous weight control behaviours, such as diuretics, laxatives, weight-loss pills, powders and teas, and intentional vomiting.

Some research has been carried out on the perceptions of adolescents of their own weight (Rhoades et al 2011; Cheung et al 2007; Brener et al 2004; Barton et al 2004; Desmond et al 1986). However, research examining both the perceptions and the methods used to lose weight among adolescents is limited (Güneş and Altınok, 2010). So, in this descriptive study, the aim was to determine adolescents' perceptions about their weight and also their practices to lose weight.

METHODS

Study design

There are eighty-one public high schools in the Ankara District in Turkey. For this study, one public high school was selected randomly from Ankara. In this high school, grades 9–12 included 29 classes and comprised the setting for the study. All adolescents who agreed to participate in the study were enrolled in the study sample.

There was a total enrolment of 895 students in the school. Two students left the school, and one student had a chronic illness, so, 892 students made up the study sample. Three students did not want to participate in the study, and 41 students were absent from school during the study. For this reason, data were collected from 848 students. One hundred and forty-five of the 848 students had missing data, so the data from 703 students were evaluated (participation rate was 78.8%).

Data Forms

The data were collected using a single form. The form was developed by researchers based on the available literature (Güneş and Altınok 2010; Cheung et al 2007; He and Beyhon 2006; Brener et al 2004; Desmond et al 1986). The form consisted of 15 questions and collected the sociodemographic characteristics of the adolescents (age, gender, education level), their perceptions about their weight, practices used to lose weight and information sources about losing weight. The weight perceptions of adolescents were elicited with the sentence "I believe that my weight is . . .". Four options were given: Less than healthy weight (underweight), healthy, more than healthy weight (overweight) and much more than healthy weight (obese). Three questions were asked to determine the practices used to control weight. The first gave three options: Do they want to lose weight, gain weight or maintain their weight? The second gave two options: Have they tried or/are trying to lose weight (yes or no)? The third question asked: What methods have you used to control your weight? Also, 'other' option was added at the end of each question. The form was given to the adolescents before the anthropometric measurements were taken.

Before the study, the forms were given to 10 adolescents from another high school in Ankara, Turkey to evaluate the clarity of the questions. According to the pre-evaluation of the questions, no alterations were required. Those adolescents' data were not included in this study.

Written informed consent was given by the adolescents. Students who did not want to participate in the research were excluded from the study. The study was approved by the review board of the Ministry of Education. Data collection was performed in November 2012.

Data Collection

Anthropometric Measurements: Anthropometric measurements were done by researchers. Before the measurements, adolescents were asked to take off their shoes, coats or heavy belongings. Weight was measured with a portable scale, and the obtained value was rounded to the nearest 0.1 kilogram (kg). Height measurements were done with students standing in an upright position next to the stadiometer. When measuring the adolescents' height, the obtained value was rounded to the nearest 0.1 centimetre (cm).

Body mass indexes were calculated as weight in kilograms divided by the square of height in meters. Considering the age and gender, students' BMIs were assessed according to percentile curves which Neyzi and his colleagues (2008) developed for Turkey. In the BMI percentile curve, it was assumed that those who were:

a) more than the 94th percentile were obese;
b) between the 85th and 94th percentiles were overweight;
c: between 5th and 84th percentiles were a healthy weight; and
d) less than 5th percentile were underweight (CDC, 2013).

Statistical analysis

The data were evaluated using the SPSS 12.0 program (Statistical Package for Social Science; Chicago, IL, USA). Frequency and percentage distributions related to the data were given. The relation between variables measured categorically was examined via the Chi-square test. For comparisons between groups, the Mann-Whitney U test for two groups, and the Kruskall-Wallis H test for three or more groups, were used for continuous variables. Cohen's Kappa test was used to analyse the inter-rater agreement. Kappa values over .75 were considered as excellent, .40 to .75 as fair to good, and below .40 as poor. A p value of < 0.05 was considered statistically significant.

RESULTS

Table 1 shows the descriptive characteristics of adolescents in the study. The average age of the students was 15.9 ± 1.17 years, and the majority of these were female (56.8%) (table 1).

According to measured BMIs, it was found that 11.2% (*n*=79) of students were underweight, 74.1% (*n*=521) were a healthy weight, 6.4% (*n*=45) were overweight, and 8.2% (*n*=58) were obese. According to the perceptions of the adolescents, it was found that 13.1% (*n*=92) of the adolescents considered themselves to be underweight, 65% (*n*=447) of adolescents considered their weight to be healthy, and 19.7% (*n*=139) of adolescents considered themselves to be overweight.

Table 1: Characteristics of the adolescents (*n*=703)

Characteristics	*n*	%
Adolescent age M (SD)	703	15,9±1,17
Adolescent gender		
Female	399	56,8
Male	304	43,2
Measured BMIs of adolescents		
Underweight	79	11,2
Healthy weight	521	74,2
Overweight	45	6,4
Obese	58	8,2
Perceptions about their weight		
Underweight	92	13,1
Healthy weight	457	65,0
Overweight	139	19,7
Obese	15	2,2

Table 2: Comparison of BMIs of adolescents and weight control measures (*n*=703)

	Measured BMIs of adolescents				
	n (%)	*Mean±SD*	*Min.- Max. Score*	*Test**	*p value*
Tried/trying lose weight					
Tried/trying	232 (33,0)	23,42±2,95	15,3-37,0	25545	0,000 [σ]
Not tried/ trying	471 (77,0)	20,44±3,5	13,7-34,2		
Preference about their weight					
Gain weight	172 (24,4)	19,1±2,3	13,7-32,8	220,61	0,000 [σ]
Lose weight	242 (34,4)	23,8±3,7	15,3-37,0		
Maintain weight	289 (41,2)	20,7±2,3	14,8-30,9		
Information sources to control weight					
Adults					
Yes	144 (20,4)	23,3±3,9	15,35-35,8	24976,5	0,000 [σ]
No	559 (79,6)	20,9±3,1	13,72-37,02		
TV/internet					
Yes	102 (14,5)	22,97±4,1	15,35-35,80	22881,0	0,000 [σ]
No	601 (85,5)	21,15±3,2	13,72-37,02		
Peers					
Yes	69 (9,8)	22,9±3,6	15,81-32,65	15448,0	0,000 [σ]
No	634 (90,2)	21,2±3,3	13,72-37,02		
Journals/books/written materials					
Yes	63 (8,9)	22,40±3,7	15,35-35,80	16393,0	0,014 [σ]
No	640 (91,1)	21,32±3,4	13,72-37,02		
Health Professionals					
Yes	61 (8,6)	23,15±4,6	15,35-37,02	14818,8	0,002 [σ]
No	642 (91,4)	21,25±3,2	13,72-35,80		

*Group comparisons Mann Whitney-U test for two groups and Kruskall-Wallis H test for three groups.

[σ] Significant at p < 0·05

Table 2 shows a comparison of adolescent BMIs and weight controls. It was found that 33% (*n*=232) of adolescents had tried/were trying to lose weight. Average BMI values were significantly higher in adolescents who tried to lose weight than in ones who did not try (U=25545; *p*=0.000). Two hundred and eighty nine (41.2%) adolescents preferred to maintain their weight. Average BMI values were found to be more elevated in adolescents who wanted to lose weight than in those who wanted to maintain or gain weight (H=220,61; *p*=0.000).

It was found that adolescents preferred adults (parents, family members, and teachers) and the TV/internet rather than health professionals as information sources for losing weight. Average BMI values were found to be higher in adolescents who received information from adults, TV/internet, peers, written material and health professionals (36.8% medical doctor, 27.3% dietician, 20% nurse, 15.7% pharmacist) than in those who did not (*p*<0.05).

It is not shown in table 2, but the number of adolescents who tried to lose weight was found to be statistically higher in girls than in boys (χ^2=34,586; *p*=.000). Adolescent age and socioeconomic level was not found to be statistically related with attempts to lose weight (*p*>0.05).

Table 3: Adolescents' measured BMIs and weight perceptions

	Measured BMI					
	Underweight	***Healthy weight***	***Overweight***	***Obese***	***Cohen's Kappa***	
Perception of BMI by adolescents	*n* (%)	*n* (%)	*n* (%)	*n* (%)	Kappa	*p*
Underweight	36 (45,5)	55 (10,5)	0 (0,0)	1 (1,8)	0,279	0,031$^{\sigma}$
Healthy weight	42 (53,2)	385 (73,9)	19 (42,2)	11 (18,9)		
Overweight	1 (1,3)	76 (14,6)	25 (55,5)	37 (63,7)		
Obese	0 (0,0)	5 (1,0)	1 (2,3)	9 (15,6)		
Total	79 (100,0)	521 (100,0)	45 (100,0)	58 (100,0)		

σ *Significant at p < 0·05*

Table 3 shows that there was poor agreement between measured BMI and adolescents' perceptions (*p*<.05). In the study, 42 of 79 students who were underweight (53.2%) considered their weight to be healthy. Nineteen of 45 adolescents who were overweight (42.2%) considered themselves to be of a healthy weight, and 63.7% of obese adolescents perceived themselves as overweight (χ^2 = 268,894; *p* = .000). Four hundred and fifty-five of 703 adolescents (64.7%) classified their weight status accurately.

Table 4 presents a comparison of BMIs and methods used by adolescents to lose weight. Average BMIs were found to be statistically higher in adolescents who used physical activity, diet, herbal therapy and vomiting to lose weight than in those who did not use such methods (*p*<0.05). Use of medication to lose weight did not cause significant differentiation in BMIs of adolescents (*p*>0.05). However, statistically this was not found to be important: BMIs of adolescents who used medications were higher than BMIs of those who did not use medications.

It is not shown in table 4 but physical activity (χ^2 = 214,4; *p*=.000), diet (χ^2=182,568; *p*=.000) and herbal therapy (χ^2=22,566; *p*=.000) methods were used more in adolescents who wanted to lose weight than in adolescents wanting to maintain or gain weight.

Table 4: Comparison of BMIs and methods used to lose weight (*n*=703)

Methods used to lose weight	n (%)	Mean±SD	Min.- Max. Score	Mann Whitney U Test	*p* value
Physical activity					
Yes	169 (24,0)	23,4±3,7	15,3-37,0		
No	534 (76,0)	20,8±3,1	13,7-34,2	24900,0	0,000
Diet					
Yes	140 (19,9)	23,9±3,9	15,3-37,0		
No	563 (80,1)	20,8±3,0	13,7-35,8	19911,5	0,000
Herbal					
Yes	17 (2,4)	24,6±4,7	17,7-35,8		
No	686 (97,6)	21,3±3,4	13,7-37,0	3364,0	0,003
Throwing up					
Yes	13 (1,8)	23,6±3,7	17,2-29,7		
No	690 (98,2)	21,4±3,4	13,7-37,0	2793,0	0,020
Medication					
Yes	10 (1,4)	22,0±2,9	19,4-29,4		
No	693 (98,6)	21,4±3,5	13,7-37,0	3068,0	0,538

DISCUSSION

In terms of weight control, individuals' self-perception of their bodies is important, and especially so for adolescents. Due to the period they are in, adolescents are more concerned with their bodies and appearance, and their perceptions and attitudes in this regard affect their nutritional habits and physical activities (Erkan 2011; Story et al 2002; Neumark-Sztainer and Hannan 2000; Cash and Pruzinsky 1990; Kaplan et al 1988).

Perception of weight is how an individual feels about their weight. So, perceptions of weight will vary among people (Güneş and Altınok 2010; Cheung et al 2007; Brener et al 2004; Neumark-Sztainer and Hannan 2000; Desmond et al 1986). In the study carried out by Brener et al (2004), it was reported that while 42.9% of adolescents perceived their weights correctly, more than half had misperceptions. While approximately three-quarters of the adolescents participating to our study had healthy weights, based on their BMI, only just over half of the adolescents perceived their weights as being healthy. This revealed the differences between the measured body mass indexes of the adolescents and their perceptions about their weight (table 3). According to Brener et al (2004), this is due to the tendency of adolescents to perceive their weights as either below or above a normal weight. Many other studies also support our study findings on this point (Güneş and Altınok 2010; Cheung et al 2007; Brener et al 2004).

While most adolescents are over-sensitive about their physical appearance and body weight, in general, females want to lose weight, while males want more muscle, and therefore want to gain weight. Skipping meals, using diet pills, laxatives, diuretics and going on strict and starvation diets in order to control body weight, or lose weight, negatively affect both growth and health (Manal et al 2010). In the present study, the weight reduction efforts of the adolescents with high BMIs were found to be statistically higher than those of the adolescents with low BMIs (table 2). In the study conducted by Güneş and Altinok (2010), it was stated that individuals describing themselves as overweight made an effort to lose weight. In our study, it was determined that adolescents perform physical activities, diet, use herbal remedies, throw up and use medication in order lose weight (table 4). Güneş and Altinok's (2010) study supported our findings. The adolescents participating in our study indicated that exercising is the method they used the most for weight control.

Adolescents' healthy-life behaviours are strongly influenced by their social environments, which include family, friends, and peer networks. Interpersonal processes and relationships within the family and with friends, neighbours, and acquaintances, all have a substantial impact on food choices, eating behaviours and a sedentary life-style. Interpersonal influences can affect healthy-life behaviours through mechanisms such as modelling, reinforcement, social support, and perceived norms (Manal et al 2010; Story and Neumark-Sztiiner 2002). In our study the sources of information on weight control were put in the order of adults, TV/internet, peers, books/magazines and health professionals, an order that was found to be statistically significant (table 2). Health professionals, such as doctors, nurses and dieticians, have important roles in initiating protective work in this area, encouraging individuals to adopt positive life behaviours, enabling weight loss in a safe and effective way, and acting as consultants in weight management programs (Fabricatore and Wadden 2003). In our study, the least utilised source of information was found to be the health professionals, and health professionals were not even included as a source of information. This suggests that health professionals need to be more knowledgeable and sensitive on this matter.

Nurses have important roles to play in starting health promotion activities, in encouraging positive life behaviours, in consulting and advocating for weight management programs (AMA 2014; Toruner and Savaser 2010; Murray et al 2010 Yurt 2008). On the other hand, school health nurses could give correct messages to children and adolescents by conducting healthy life programs in schools, and by collaborating with the family and school (Murray et al 2010).

CONCLUSION

In conclusion, the study determined that there are differences between the measured weights and self-perceived weights of adolescents. Based on these results, the participating adolescents were informed of their correct BMI value, and trained in the importance of healthy-life behaviours, and in the health problems that can be caused by eating disorders, together with the solutions. Counsellors of students who were determined to be significantly over or underweight, according to the BMI percentile values calculated from the anthropometric measurements, were contacted so that they could inform the students' parents. In addition, the staff of the community health centre, of which the school is a member, were informed regarding the findings of the study. School training programs should include information on correct body weight and form, and healthy methods of weight loss.

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The effect of light therapy on the sleep quality of the elderly: an intervention study

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KEYWORDS

elderly, light therapy, nursing, sleep quality

ABSTRACT

Objective
The study was conducted to determine the effect of light therapy on the sleep quality of older adults.

Design
This interventional study was conducted with a single group pre-test, post-test model.

Setting
The study was conducted in a nursing home in Ankara, Turkey.

Subjects
Twenty-four older adults with poor sleep quality were included in the study.

Intervention
During the study procedure, a 10,000 Lux light was administered continuously for a half-hour duration in the morning over a one-month period.

Main outcome measures
The main outcome measures included global and subcomponents of sleep quality, which were assessed by the Pittsburgh Sleep Quality Index, and were repeatedly measured at the baseline, pre-intervention (four weeks at baseline), post-intervention (at the end of intervention/eight weeks at baseline), and follow-up (four weeks at intervention).

Results
At the end of light therapy intervention and during the four-week follow-up period, the global sleep quality scores were found to be higher compared with pre-intervention and baseline scores ($p < 0.001$). The ‘daytime dysfunction’ and ‘sleep latency’ sub-scores were found to be the most positively changed, whereas the change in ‘duration of sleep’ sub-score was less.

Conclusion
Light therapy has been shown to be effective non-pharmacological therapy for improving sleep quality among healthy elders.

INTRODUCTION

Sleep problems are frequently observed among older adults. While the prevalence of sleep disorders is 20–40% for the population in general, this rate rises to 50% in people who are 65 years and older (Mathews et al 2004). Sleep problems are characterised by reduction in the duration, quality, or efficiency of sleep. Problems among older people may involve sleeping early, waking up early, a decrease in sleep duration, taking longer to fall asleep, frequently waking up at night, and sleeping in the daytime (Voyer et al 2006; Zee and Bloom 2006; Van Someren 2000).

Different factors can influence the sleep pattern of elderly people, for example, changes in physiological, psychological, emotional, cognitive, and social status; chronic disorders and treatments; economic and physical deficiencies; and changes of place (Vitiello 2006; Zee and Bloom 2006). Furthermore, it is generally acknowledged that sleep disorders in the elderly usually emerge due to the disturbance of the circadian rhythm, which is regulated on a 24-h basis with light intake during daytime, meal hours, physical activity, and social interactions (Aminoff 2008; Kryger et al 2000; Van Someren 2000).

Conditions such as living in institutions, physical handicaps, and a decrease in retinal sensitivity prevent the elderly from receiving enough light and may lead to problems in circadian rhythm regulation (Figueiro et al 2008; Alessi et al 2005; Hood et al 2004). Shochat et al's (2000) study reported that the elderly who are independent in their daily activities receive light for an hour during the day; however, this light intake is reduced to 10 minute for those living in institutions.

Circadian rhythm disorders are regulated by means of light therapy. The main principle of light therapy is circadian rhythm and melatonin secretion regulation (Sloane et al 2007; Terman 2007; Chesson et al 1999). The light received in the daytime stimulates photoreceptors and the suprachiasmatic nucleus through the retina and forces melatonin secretion in the pituitary gland to take place at night (Wu and Swaab 2007; Montgomery and Dennis 2002; Mishima et al 2001).

Research about light therapy mostly focused on sleep-wake disturbances such as jet lag and shift-work adaptation, depression, and managing behavioral disturbances and other nocturnal sleep disruptions in the elderly (Gammack 2008; Montgomery and Dennis 2002). Many studies proved that light therapy effectively improves the sleep quantity in the elderly (Montgomery and Dennis 2002). For the treatment of sleep problems, light should be used with a volume of 2,500–10,000 Lux for 30 minutes to 2 hours in the morning or in the evening (Montgomery and Dennis 2002; Chesson et al 1999).

Considering the problems it causes, inadequate and low-quality sleep is a very serious issue for the elderly. Since nurses are key members of the health team and are likely to be the first to detect problems in patients, influence drug decisions, and actively implement non-pharmacological treatments, their role is particularly important in monitoring and treating sleep problems (Hoffman 2003). It is also very important for nurses to remain up-to-date regarding the latest non-pharmacological approaches available to help the elderly improve their duration and quality of sleep.

AIM

The study determines the effect of light therapy on the elderly living in nursing homes.

METHODOLOGY

Sampling

The study was conducted as an intervention study to determine the effect of light therapy on the elderly living in nursing homes. The number of the elderly to be included in the sample was calculated as at least 12 using the Number Cruncher Statistical System and the Power Analysis and Sample Size program in repeated measures variance analysis (α: 0.05). Taking into consideration possible losses during the study, 24 literate individuals 65 years and older participated. Individuals were eligible if they were suffering from poor sleep quality (Pittsburgh Sleep Quality Index (PSQI) score higher than 5), were independent in daily activities, and were not using hypnotic drugs or drugs that might influence sleep[1]. All subjects diagnosed with Parkinson's disease, depression, psychiatric disorders, cognitive disorders, active disorders that might influence sleep quality, and communication problems were not included in the study.

Data collection

Data were collected via a general questionnaire, weekly follow-up form, and the PSQI. The general questionnaire collected socio-demographic data and clinical and sleep features. The clinical and sleep features investigated the elderly's chronic diseases, medications, exercise, participation in institutional activities, light intake during daytime, lighting of room and noise exposure during sleep, smoking/alcohol consumption, and sleep problems.

The weekly follow-up form gathered information related to changes in health condition, treatment, and conditions (such as experience of loss and mourning) leading to intensive stress.

The PSQI measured sleep quality. The PSQI is a self-administered questionnaire with 19 questions and 7 components: subjective sleep quality, sleep latency, sleep duration, sleep efficiency, sleep disturbances, use of sleep medications, and daytime dysfunction. Global score is calculated as 0–21, with higher scores indicating lower-quality sleep. This study used the Turkish validated version of the PSQI (Agargün et al 1996), and the subcomponent 'use of sleep medication' was not included in the evaluation due to inclusion criteria.

Intervention

This single-group pretest/posttest model (before trial test model) intervention study was carried out in three stages: pre-intervention, intervention, and post-intervention. In the four weeks prior to light therapy, the elderly were visited once a week and were monitored using a weekly follow-up form. At the beginning and end of this stage, the sleep quality was measured via the PSQI. At the intervention stage, which was based on the guideline given in the Cochrane database, groups of 2–6 participants were exposed to light with a volume of 10,000 Lux for 30 minutes every morning for 30 days. The light therapy was arranged so that the equipment was at eye level at least 30 centimetres from the individual. The participants were asked not to look directly at the light (Chesson et al 1999). Light was administered with a specially designed light box (Britelite6 Box, Apollo Health), sized 7.1 × 11.0 × 17.4 cm, with cool-white fluorescents and full spectrum and 10,000 Lux light intensity. During the intervention period, the elderly were also assessed using a weekly follow-up form, while the PSQI was administered at the end of the light therapy. At the last, post-intervention stage, which was four weeks following the light therapy, the participants were readministered the PSQI.

Data analysis

All analyses were conducted with SPSS 11.5. Friedman's test and Wilcoxon's Paired Sample Test with Bonferroni adjustment used in data assessment. The study participants' sleep quality was measured at the beginning, prior to light therapy, at the end of light therapy, and one month later. The gradual change in sleep quality was analysed using Friedman's Test; the changing group was identified using the Wilcoxon Paired Samples Test with Bonferroni adjustment. The between-group differences were calculated using the Mann-Whitney U Test.

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[1] Drugs That Might Influence Sleep: central nervous system medications (benzodiazepines, melatonin, antiepileptic agents, antidepressants, central nervous system stimulants), atypical antipsychotic agents, anticholinergics, cardiac medications (beta adrenergic blockers, alpha adrenergic agonists, diuretics), pulmonary medications (methylxanthines, corticosteroids) (Kamel and Gammack 2006; Zee and Bloom 2006).

ETHICAL CONSIDERATIONS

The University's Research Ethics Committee approved the study protocol (LUT 09/19-15). Written consents from the institution and the elderly were obtained prior to the study.

FINDINGS

Study participants had a mean age of 79.95 (±3.49) years and received daylight for 75.41 (±68.46) mean minutes; the majority were female (66.7%) and single (83.3%) (table 1). Of the elderly, 41.7% never participated in institutional activities; 45.8% went out of the institution weekly, 70.8% exercised; 66.7% slept in a lighted/ dim place; 70.8% were not exposed to noise; and 87.5% had at least one chronic disorder and used medications (table 1). In addition, 79.2% stated that they experienced sleep problems. Self-reported sleep problems were early and frequent awakening, unrefreshing sleep, and trouble falling asleep.

Table 1: Basic Socio-Demographic, Clinical and Sleep Characteristics of Patients (n:24)

Characteristics	n (%)
Age, years (mean, SD)	79.95±3.49
Institutional stay, years (mean, SD)	4.89±2.03
Female Male	16 (66.7) 8 (33.3)
Primary School Secondary School University	7 (29.2) 14 (58.3) 3 (12.5)
Single/Widow Married	20 (83.3) 4 (16.7)
Having Diseases Not Having Diseases	21 (87.5) 3 (12.5)
Exercising Not Exercising	17 (70.8) 7 (29.2)
Participating in Institutional Activities Not Participating in Institutional Activities	14 (58.3) 10 (41.7)
Light Intake During Day, Minutes (mean, SD)	75.41±68.46
Sleeping in Dark Place Sleeping in Lighted/Dim Place	8 (33.3) 16 (66.7)
Exposed to Noise During Sleep Not Exposed to Noise During Sleep	7 (29.2) 17 (70.8)

In the weekly follow-ups with the elderly, change was observed in four (16.6%) individuals' general health and in two (8.3%) individuals' treatment; three (12.5%) people experienced a stress-induced condition and one individual (4.2%) experienced a loss.

The global sleep quality mean scores in our study were 12.80 for the first measurement, 12.87 at the beginning of light therapy, 3.95 after therapy, and 4.87 one month after therapy. The difference between the scores shows that sleep quality increased with light therapy (figure 1).

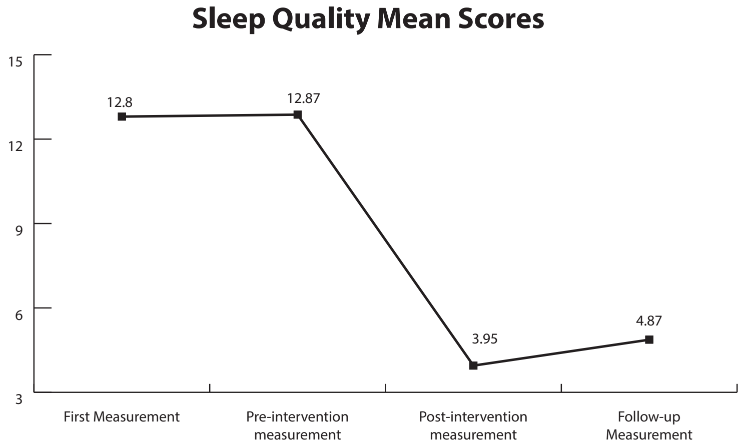

Figure 1: Global Sleep Quality Scores in Repeated Measurements

Table 2: Pittsburgh Sleep Quality Index Scores in Repeated Measurements (n:24)

PSQI Subcomponents	Pre-intervention Measurement	Post-intervention Measurement	Follow-up Measurement	Significance	
	X±SS	X±SS	X±SS	X^2	p
Subjective Sleep Quality	1.75±0.60	0.50±0.51	0.66±0.48	39.970	<0.001
Sleep Latency	1.54±1.06	0.33±0.48	0.37±0.49	36.105	<0.001
Sleep Duration	2.29±0.95	1.04±0.62	1.08±0.58	39.377	<0.001
Sleep Efficiency	1.91±1.13	0.75±0.44	0.87±0.61	27.382	<0.001
Sleep Disturbance	2.16±0.63	1.16±1.00	1.50±0.97	43.053	<0.001
Daytime Dysfunction	1.20±1.31	0.16±0.38	0.37±0.49	18.681	<0.001
Global Sleep Quality	12.87±4.26	3.95±1.75	4.87±1.96	44.571	<0.001

Light therapy had an effect on all subcomponents of the PSQI except ‘daytime dysfunction’ when comparing pre-intervention mean score with post-intervention mean score ($p < 0.001$), whereas the comparison of pre-intervention and post-intervention scores with follow-up scores showed no significant differences (table 2). In the ‘daytime dysfunction’ subcomponent, pre-intervention and post-intervention mean scores were found to be significant compared with follow-up scores ($p < 0.001$) (table 2).

Although not shown in the table, according to the percentage calculation of mean score changes between measurements of sleep quality subcomponents, the most change was found in ‘daytime dysfunction’ (84.5%) and ‘sleep latency’ (82.4%) subcomponents, and the least was found in the ‘sleep duration’ (53.8%) component.

The between-group differences were not found to be statistically significant in terms of the person’s age, sex, educational status, and length of stay in the institution ($p > 0.05$).

The within-groups’ change in pre-intervention and post-intervention mean scores resulted from the 80–86 and 74–79 age groups, males, and in those who were diagnosed with an illness and who used drugs ($p<0.001$). Change in pre-intervention and follow-up mean scores resulted in the female elderly with secondary school education ($p < 0.001$).

All groups’ pre-intervention, post-intervention, and follow-up mean scores regarding features that might influence sleep decreased; the change in all groups’ mean global scores was found to be statistically significant ($p<0.05$). However, those who received daylight for 30–60 minute and who did not go out of the institution had significantly different ‘subjective sleep quality’ subcomponent mean scores ($p < 0.05$), whereas a gradual change in ‘sleep efficiency’ and ‘daytime dysfunction’ mean scores was found to be significant in the group receiving daylight for two to four hours ($p < 0.05$).

Further statistical analysis found differences among ‘subjective sleep quality’, ‘sleep duration’, ‘sleep disturbance’, ‘sleep latency’, and ‘sleep efficiency’ subcomponents pre-intervention, post-intervention, and follow-up mean scores to be significant in the group that slept in lighted/dim environments at night ($p < 0.001$). In the same group, the difference between the ‘daytime dysfunction’ subcomponent’s pre-intervention and post-intervention mean scores was also found to be statistically significant ($p < 0.001$).

DISCUSSION

The present study showed that, for elderly people, light therapy could significantly improve sleep quality and its subcomponents for up to one month after therapy. This study found the ‘daytime dysfunction’ and ‘sleep latency’ sub-scores to be the most positively changed, whereas the change in the ‘duration of sleep’ sub-score was less significant.

In previous studies conducted in Turkey, sleep quality scores of the elderly varied between 7.4 and 13.14, similar to this study (Fadiloglu et al 2006; Demirli 2005; Agargün et al 1996).

In Figueiro et al (2008) study, there was a five-point decrease in sleep quality scores following light therapy. Fetveit and Bjorvatn (2004), in their study on 11 nursing home residents exposed to light therapy with a volume of 8,000 Lux (two weeks, two hours), observed an improvement in sleep efficiency, decrease in sleep latency, and increased total period of wakefulness after the therapy. Fetveit and Bjorvatn also found that a change in sleep efficiency was preserved in the fourth week follow-up post-treatment.

In this study, elderly's subjective quality, duration, efficiency and latency of sleep and also daytime function were improved. Light therapy was found to increase subjective sleep quality in Ho et al (2002) study, sleep duration in Sloane et al (2007) study on the therapy's effect on sleep and activity, and time spent in bed and melatonin secretion (from 7.5 ± 2.6 pg/mL to 13.3 ± 9.2 pg/mL) in Wakamura and Tokura's (2001) study.

In contrast to the previous studies, this study shows that daytime dysfunction improves in the long term. This may be related to the decrease in daytime naps and the time spent falling asleep, and an increase in uninterrupted sleep, and the fact that they feel more rested because they have slept for longer periods. In addition, the good health status of the majority of the individuals in the sample may account for this result. The elderly who slept better were perhaps more able to carry out their daily activities more easily (Young 2009). In this study, the 'sleep duration' subcomponent changed the least. Decrease in sleep latency is expected to increase sleep duration, while in the present study, the low amount of change in sleep duration might stem from the subjective assessment of sleep duration. This result might also be related to the fact that the elderly may have felt rested with little sleep due to increased sleep quality.

Kabayashi et al (1999) study of ten elderly women exposed to light therapy with a volume of 8,000 Lux found that continuity of sleep improved with therapy, while waking up during sleep and naps in the daytime decreased. Kokhasa et al (2000) study on the male elderly revealed that time spent in bed and the frequency of waking up at night decreased after treatment. In the present study, it was found that the effectiveness of light therapy continued one month later in women ($p < 0.001$).

Research showed that the effectiveness of the treatment continued after the follow-up even in individuals who did not participate in institutional activities ($p < 0.001$). This effect lasted longer in the group that exercised and received daylight for 30–60 minutes. Hood et al (2004) state that light and activity influence sleep quality independently from other factors. Montgomery and Dennis (2003) state that an exercise program including a 30–40-minute walk leads to a decrease of 3.4 in the sleep quality score. King et al (2008) illustrated specific improvement in sleep duration, sleep disturbance, and daytime dysfunction; while Singh et al (1997) demonstrated improvement in all subcomponents of sleep quality. Alessi et al (2005) state that non-pharmacological interventions carried out in the daytime (exercise, social activity, etc.) decrease naps in the daytime, improve quality of life, and thus lead to improvement in sleep quality. The findings of those studies, together with those of the present study, reveal that participation in social activities increases social interaction, feeling of wellness, and level of life satisfaction. Furthermore, going out of the institution increases physical activity and benefits from the daylight, thus leading to continuity of sleep quality for a longer time.

Results from the one-month follow-up of the present study indicated that treatment effectiveness (global score, subjective sleep quality, sleep duration, sleep disturbances, sleep latency, and sleep efficiency scores) remained in the elderly who slept in lighted/dim environments ($p < 0.001$). Decrease in light intake leads to changes in the time and amount of melatonin secretion. Figueiro et al (2008) state that regular daylight intake in the daytime and decreasing light intake at night is essential for regulating melatonin secretion. In this research, it is thought that light therapy applied in the daytime may increase melatonin secretion in earlier hours and thus maintain longer periods of more optimal sleep quality.

CONCLUSION

Based on results, this study adds evidence to the hypothesis that light therapy has, after continuous four-week half-hour 10,000 Lux interventions and at a four-week follow-up, an impact on the global sleep quality and its subcomponents, in particular the participants' 'daytime dysfunction' and 'sleep latency' subcomponents. Also, those effects are beneficial and recommended for seniors, females, and those with diseases.

RECOMMENDATIONS

For nurses, activities such as assessment of sleep problems and encouraging the elderly who live in institutions to benefit from daylight are recommended. Further studies are needed with various groups to generate intervention results.

LIMITATIONS

Several limitations should be considered when interpreting the findings of this study. The healthy independent sample of the study, and self-reported sleep quality, duration, and depth may not be truly representative. The other limitations are the small sample size, institutionalised elderly, and the implementation period. The study was done during summer. This may have an altering effect on the improvement of sleep quality. Therefore, this study's results cannot be generalised to all elderly population.

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Burnout levels in neonatal intensive care nurses and its effects on their quality of life

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KEY WORDS

neonatal intensive care unit, nursing, burnout, quality of life

ABSTRACT

Objective
The purpose of this study was to investigate burnout levels of nurses working in a neonatal intensive care unit (NICU) and the effects of burnout on their quality of life.

Design
This was a descriptive and correlational study. The researchers obtained data using a questionnaire to uncover the demographic and occupational characteristics of the nurses, and conducted face-to-face interviews via the Maslach Burnout Inventory (MBI) and the World Health Organization Quality of Life -BREF (WHOQOL-BREF).

Setting
The NICU of two state hospitals located in the north of Turkey.

Subjects
A total of 80 nurses.

Main outcome measures
Levels of burnout experienced.

Results
The score means of emotional exhaustion, depersonalisation and personal accomplishment were 14.90±5.53, 3.87±2.77 and 11.43±4.63, respectively. The results showed the nurses had burnout at moderate levels with regard to emotional exhaustion and personal accomplishment, and low levels of depersonalisation. In addition, the study showed a significant negative relationship in many sub-scales of the burnout and quality of life scale.

Conclusion
The nurses experienced moderate burnout in emotional exhaustion and personal accomplishment. The study found that, as burnout level increased, the quality of life of the nurses decreased. It is suggested that several measures must be taken to prevent burnout in nurses.

INTRODUCTION

Nursing is a stressful profession (McVicar 2003) and after a certain amount of time, this stress begins to emerge, initially as self-esteem issues, depression, physical complaints, and sleep disorders (Arikan and Karabulut 2004). Consequently, when nurses have experienced this stress over a lengthy period, they are exposed to burnout (Barutcu and Serinkan 2 008). One clinical psychologist, Freudenberger (1974), has defined burnout as a state characterised by physical and psychological fatigue, disappointment, underachievement, tiredness, and the desire to leave work, and it is more common in those individuals who have client-facing jobs. According to Maslach et al (1997), who asserted that long-term occupational stress leads to burnout, the latter refers to a state in which a professional detaches themselves from the purpose and specific meaning of their profession, and in which they are no longer interested in the people they serve. The authors defined this popular psychological phenomenon as “a syndrome of emotional exhaustion, depersonalisation, and reduced personal accomplishment that can occur among individuals who do ‘people work’ of some kind” (Maslach and Jackson 1986).

Burnout is generally observed in individuals who have an occupation that provides people with support services, those who work for a long period of time in an environment in which emotional demands are high, and who work in professions that have high idealist and servicing values (Balcioglu et al 2008; Maslach and Schaufeli 1993). The group at the highest risk in terms of burnout is nurses, who are the individuals that spend the most time with care-receiving patients, provide 24-hour care and exert the most manpower (Barutcu and Serinkan 2008; Beckstead 2002).

Nurses, who spend the majority of their time at work, are working in an environment that is directly related to human lives and does not tolerate mistakes. Therefore, they are confronted with numerous stressors, such as the extensive use of technology, communication with many people, frequent encounters with death, conflicts within their team, irregular and long working hours, a race against time and a heavy workload. These stressors make nurses more prone to burnout (Kaya et al 2010; Alimoglu and Donmez 2005; Beckstead 2002; Sayil et al 1997).

Previous studies have shown that work-related stress differs, depending on the different work environments (Ebrinc et al 2002; Foxall et al 1990). Intensive care units, in particular, are extremely different working environments for nurses, who play an essential role within the healthcare team. These units are isolated, special areas of health organisations, and are equipped with sophisticated devices. The health personnel that work in such units have particular aims and skills, and work with a rapidly changing and heavy workload (Kavakli et al 2009). Intensive care nurses have a heavier workload and more responsibilities than nurses working in other wards (Bakker et al 2005); they are frequently faced with situations in which they must make quick decisions in the event of patients requiring first aid or an emergency response (Kavakli et al 2009). This being the case, these nurses are constantly faced with stress and burnout in their work environments, and those experiencing burnout distance themselves from their patients and their occupational responsibilities (Bakker et al 2005; Demerouti et al 2000). Consequently, they display negative behaviour, such as distancing themselves from their work, quitting their job, changing jobs frequently, going into work late and constantly getting signed off from work. Extensive burnout may lead to issues that affect the individual’s quality of life, such as psychosomatic disorders, marital and family issues, insomnia and alcohol and drug abuse (Arslan et al 1996).

An individual’s quality of life includes their physical functions, their state of mind, their familial relationships, their communication with society and their level of environmental interaction. Moreover, it shows how much these situations affect the functionality of the individual (Testa and Simonson 1996). Many difficult processes that have originated at their workplace result in nurses experiencing burnout, and therefore, their quality of life is negatively affected. As a result, burnout, a problem that concerns many areas of the service industry, is a hidden threat. It decreases the quality of health services and leads to economic losses. The purpose of this study was to investigate the level of burnout in neonatal intensive care unit (NICU) nurses and the effects of burnout on their quality of life.

METHOD

Design

The researchers performed this descriptive and correlational study at the NICU of two state hospitals, located in the northern region of Turkey, between July 2010 and September 2010.

Sample

The study population initially consisted of 85 NICU nurses. The entire population of the NICUs were used in this study, rather than taking a sample group. However, five nurses were excluded as they did not wish to participate and were on annual leave. Therefore, the sample represented 94% of the NICU nurse population at the two hospitals.

Data Collection Instruments

The data was obtained utilising a semi-structured questionnaire (12 questions), in order to collect the demographic variables and working conditions of the nurses, according to the literature (Kaya et al 2010; Kavlu and Pinar 2009; Bakker et al 2005; Demerouti et al 2000), and the Maslach Burnout Inventory (MBI) and the WHO Quality of Life-BREF (WHOQOL-BREF). Data was also obtained using the face-to-face interview method and interviews lasted approximately 10-15 minutes.

Maslach and Jackson (1981) developed the MBI, and Cam (2001) adapted its validity and reliability to create a Turkish version for use with our group of nurses. The scale has three sub-scales; emotional exhaustion (9 questions), depersonalisation (5 questions), and personal accomplishment (8 questions), and has 22 statements that have a quintette Likert-type scoring system, which ranges from 0 to 4 (Cam 2001). The three sub-scales are examined separately, and there is no cut-off score for the scale or sub-scales. High emotional exhaustion and depersonalisation scores, and low personal accomplishment scores indicate high burnout level (Cam 2001). In the validity and reliability study that Cam (2001) conducted in 135 individuals, the Cronbach alpha values for emotional exhaustion, depersonalisation and personal accomplishment were 0.81, 0.70 and 0.77, respectively. In the present study, these values are 0.78, 0.55 and 0.76, respectively.

The WHOQOL-BREF is a summarised version of the original 100-questions WHO Quality of Life Scale (WHOQOL), and consists of four domains: physical health (7 questions); psychological (6 questions); environment (8 questions); and social relationships (3 questions), and two general statements, quality of life and general health. The general statement scores are not added to the domain, and they are separately assessed. The WHOQOL-BREF has a Likert-type scoring system, ranging from 1 to 5, while the scores for every sub-scale range from 4 to 20. When the scores obtained from the sub-scales increase, quality of life increases (Testa and Simonson 1996). Eser et al (1999) conducted a study to measure the validity and reliability of the Turkish version, and the Cronbach alpha values for physical health, psychological, environmental and social relationships were 0.83, 0.66, 0.73 and 0.53, respectively. In the present study, the Cronbach alpha values are 0.81, 0.70, 0.75 and, 0.60, respectively.

Ethical Considerations

Before the research began, official written permission was obtained from the hospitals in which the study was conducted. All participants were informed of the study's aims, and their informed written consent was obtained.

Analysis

Statistical analyses was performed using a statistical software program, SPSS (SPSS Inc., Chicago, IL, USA) for Windows (version 10). Data analysis included percentage, mean value and standard deviations, and the Mann-Whitney u test, the Kruskal-Wallis test, Pearson's correlation analysis and Cronbach's alpha coefficient were used. For all analyses, a *p* value of less than 0.05 was considered statistically significant.

FINDINGS

Table 1 illustrates the distribution of score mean of MBI sub-scales for the nurses working at the NICUs. As can be seen, the score means of emotional exhaustion, depersonalisation and personal accomplishment were 14.90±5.53, 3.87±2.77 and 11.43±4.63, respectively. That is, the nurses had a moderate level of emotional exhaustion and personal accomplishment, while they had a low level of depersonalisation.

Table 1: The burnout sub-scale score means of nurses

MBI	Number of items	Mean±SD	Min-Max Scores	Lower-Upper Scores
Emotional exhaustion	9	14.90±5.53	3-27	0-36
Depersonalisation	5	3.87±2.77	0-13	0-20
Personal accomplishment	8	11.43±4.63	1-22	0-32

As shown in table 2, 37.5% of the nurses were aged between 20 and 29 years, 41.3% were associate graduates, 81.3% are married, 66.3% had children and 53.8% had a monthly income that was equivalent to their expenditure. When the mean scores were analysed, it was found that those nurses aged 36 years and older had a low level of burnout in the sub-scale of personal accomplishment, which indicates there are significant differences between personal accomplishment mean scores according to participant age groups ($p<0.05$, table 2).

It was also found that 35.0% of the nurses had working experience totalling 15 years and more, 41.3% had been working at the NICU between two and four years, 62.5% were working at Level II-III NICU and 76.3% were working night shifts at the clinic. Although 65.0% had not chosen to work in NICU, they nevertheless worked there, and 70.0% of the participants were partly satisfied with their career (table 3). The nurses working at Level I ($p=0.042$) and those unsatisfied with their job ($p=0.000$) suffered from emotional exhaustion to a greater degree; while those in the age group 36 and over ($p=0.044$), those with at least 15 years' experience ($p=0.006$) and those who had been working at the unit for over five years ($p=0.003$) suffered from burnout on the personal accomplishment sub-scale. These results were statistically significant (table 3).

The mean scores for the nurses' quality of life with regard to physical health, psychological health, the environment and social relationships were 24.40±4.77, 18.26±2.74, 26.25±4.09 and 10.26±2.02, respectively. In addition, there was a significant negative relationship between the burnout and quality of life sub-scales, with the exception of the relationship between the depersonalisation-environment and the personal accomplishment-social relationships (table 4).

DISCUSSION

The nurses that participated in this study showed a moderate level of burnout in the sub-scales of emotional exhaustion and personal accomplishment, and a low level of burnout in the sub-scale of depersonalisation. Based on the sub-scale burnout definitions that he gave in 1974, Freudenberger indicated that nurses suffered moderate burnout, their level of despair, tension and anxiety increased moderately, their level of success

Table 2: The Socio-Demographic Characteristics and Distribution of Burnout Scores of Nurses

Variable	**n**	**%**	**Emotional exhaustion Mean±SD**	**Depersonalisation Mean±SD**	**Personal accomplishment Mean±SD**
Age					
20-29	30	37.5	15.43±5.19	3.93±2.76	13.16±4.47
30-35	29	36.2	15.44±5.72	4.41±2.71	10.75±4.33
36 and over	21	26.3	13.38±5.70	3.04±2.78	9.90±4.68
Statistics and significance			KW =1.690 df=2 p=0.430	KW =3.655 df=2 p=0.161	KW =6.258 df=2 p=0.044
Education					
High Scholl	8	10.0	15.62±6.50	3.37±2.19	13.75±3.57
Associate graduates	33	41.3	13.93±5.63	3.48±2.77	10.27±5.04
University	30	37.4	16.33±5.46	4.16±2.94	11.93±3.92
Postgraduate	9	11.3	13.00±3.74	4.77±2.68	12.00±5.61
Statistics and significance			KW =4.689 df=3 p=0.196	KW =2.604 df=3 p=0.457	KW =4.925 df=3 p=0.177
Marital status					
Married	65	81.3	14.80±5.71	3.76±2.85	11.01±4.36
Single	15	18.7	15.33±4.82	4.33±2.41	13.26±5.47
Statistics and significance			MW-U=464.00 p=0.771	MW-U=410.50 p=0.339	MW-U=373.00 p=0.157
Children					
Yes	53	66.3	14.41±5.57	3.50±2.60	10.96±4.42
No	27	33.7	15.85±5.42	4.59±2.99	12.37±4.98
Statistics and significance			MW-U=611.00 p=0.286	MW-U=568.50 p=0.132	MW-U=611.50 p=0.288
Economic status					
Income<expenditure	8	10.0	13.25±3.69	4.50±2.97	12.87±5.61
Income=expenditure	43	53.8	15.37±6.25	3.25±2.54	11.46±4.49
Income>expenditure	29	36.2	14.65±4.79	4.62±2.90	11.00±4.65
Statistics and significance			KW=1.381 df=2 p=0.501	KW=4.921 df=2 p=0.085	KW=0.787 df=2 p=0.675

and self-confidence decreased moderately, and they suffered a slight dip in their career. Another outcome was that nurses were not cold-hearted about their jobs, they cared, they put their heart into their work, as opposed to merely physically carrying out their tasks, and they treated patients as people and not just as objects. Kaya et al (2010), and Kavlu and Pinar (2009) also indicated that nurses suffered from moderate burnout, similar to results of the present study.

The present study proved that, with regard to personal accomplishment, burnout level increased with age. Studies that have focused on the effect of age on personal accomplishment have shown varying results. Ebrinc et al (2002) concluded that personal accomplishment decreased as individuals got older, and Sinat and Kutlu (2009) indicated that the level of personal accomplishment was higher in young adults. These results are similar to those obtained in the present study. In contrast with these results, Kaya et al (2010), Kocabiyik and Cakici (2008), and Taycan et al (2006) indicated that nurses became more competent in their job with increasing age; previous experiences changed their outlook on life, they became more mature when faced with certain situations, they gained experience, and level of personal accomplishment burnout decreased.

Table 3:The Occupational Properties and Distribution of Burnout Scores of Nurses

Variable	n	%	Emotional exhaustion Mean±SD	Depersonalisation Mean±SD	Personal accomplishment Mean±SD
Years in nursing					
1-6	27	33.8	16.33±5.56	4.14±2.97	13.85±4.55
7-14	25	31.2	15.40±5.01	4.20±2.27	10.60±3.94
15 or more	28	35.0	13.07±5.61	3.32±2.98	9.85±4.47
Statistics and significance			KW=4.479 df=2 p=0.107	KW=2.841 df=2 p=0.242	KW=10.349 df=2 p=0.006
Years on the NICU					
1	23	28.7	15.43±5.81	4.39±2.99	14.30±4.47
2-4	33	41.3	15.36±4.94	3.69±2.43	10.96±4.06
5 or more	24	30.0	13.75±6.06	3.62±3.03	9.33±4.31
Statistics and significance			KW=0.740 df=2 p=0.691	KW=1.127 df=2 p=0.569	KW=11.414 df=2 p=0.003
Department of the NICU					
Level-I	23	28.7	15.86±4.84	4.08±2.82	11.52±3.98
Level II-III	50	62.5	15.12±5.73	3.98±2.78	11.90±4.70
Management	7	8.8	10.14±4.22	2.42±2.37	7.85±5.27
Statistics and significance			KW=6.343 df=2 p=0.042	KW=2.266 df=2 p=0.322	KW=3.282 df=2 p=0.194
Working period					
Day shifts	19	23.7	13.84±6.57	3.26±2.32	10.57±5.59
Night shifts	61	76.3	15.22±5.18	4.06±2.88	11.70±4.31
Statistics and significance			MW-U=491.50 p=0.318	MW-U=510.50 p=0.432	MW-U=529.50 p=0.570
Chose to work at the NICU					
Willingly	28	35.0	14.60±5.01	4.10±2.65	11.92±4.66
Unwillingly	52	65.0	15.05±5.83	3.75±2.84	11.17±4.64
Statistics and significance			MW-U=701.00 p=0.785	MW-U=662.00 p=0.502	MW-U=675.00 p=0.592
Job satisfaction					
Satisfied	15	18.8	9.80±4.00	2.80±2.30	9.53±5.26
Unsatisfied	9	11.2	22.75±3.94	6.25±4.71	12.88±3.65
Partially satisfied	56	70.0	15.63±4.95	3.98±2.66	11.71±4.52
Statistics and significance			KW=21.176 df=2 p=0.000	KW=3.767 df=2 p=0.152	KW=3.876 df=2 p=0.144

Table 4: The relationship between the sub-scale scores of burnout and the quality of life of nurses

	WHOQOL-BREF			
MBI	**Physical health**	**Psychological**	**Environment**	**Social relationships**
Emotional exhaustion	r= -0.425**	r= -0.570**	r= -0.527**	r= -0.423**
Depersonalisation	r= -0.366**	r= -0.259*	r= -0.072	r= -0.326**
Personal accomplishment	r= -0.352**	r= -0.283*	r= -0.403**	r= -0.135

*p<0.05, **p<0.01

No statistical significance was found when the burnout scores of the nurses were compared according to their education level, marital status, number of children and monthly income. Previous studies on the effect of socio-demographic variables on burnout have shown various results. In a similar manner to the present study, Taze indicated (2008) there was no significant difference between burnout levels, according to level of education, marital status, number of children and monthly income. Kaya et al (2010) also discovered marital status did not affect burnout level. Metin and Gok Ozer (2007) indicated that level of education did not affect level of burnout; however, they discovered a significant relationship between motherhood, monthly income and burnout levels. Şahin et al (2008) and Taycan et al (2006) found that marital status had an effect on the level of burnout, and Barutcu and Serinkan (2008) indicated there was a significant difference between burnout and the depersonalisation sub-scale on the basis of motherhood and monthly income level. Moreover, the increase in the level of burnout regarding personal accomplishment based on years of experience and years at the NICU was statistically remarkable. Similarly, Taze (2008) also indicated the level of burnout on the personal accomplishment sub-scale increased according to increased age and years of experience in intensive care unit nurses. Kocabiyik and Cakici (2008), and Demir et al (2003) showed that the level of burnout on the personal accomplishment sub-scale decreased as occupational experience increased, which is contrary to the findings in this study.

It was also found nurses at management level had less emotional exhaustion, compared with the other nurses in the NICU. The ward nurses and intensive care nurses suffered from more emotional exhaustion due to nursing duties, long working hours, and the number of patients per nurse. Kaya et al (2010) Barutcu and Serinkan (2008), Metin and Gok and Ozer (2007) also indicated nurses in intensive care and emergency suffered more from emotional exhaustion, compared with the nurses in other departments, due to a greater workload and more complicated patients.

Moreover, in the present study, the nurses that were unhappy in their working environment experienced a greater amount of emotional exhaustion. This result is in accordance with the previous studies: Taze (2008) indicated that unhappy nurses that work in intensive care and emergency suffered from a higher level of emotional exhaustion, compared with nurses who worked in other departments; Sayil et al (1997) discovered that work-related issues caused burnout; and Yavuzyilmaz et al (2007) showed nurses who were unsatisfied with their working conditions had a higher emotional exhaustion score.

Unlike other studies, the relationship between level of burnout and the quality of life of the nurses was investigated, and observed a significant negative relationship between the two variables; as emotional exhaustion increased, quality of life decreased on all sub-scales, and when depersonalisation increased, quality of life decreased, with regard to the physical and psychological health and social relationships. Moreover, as burnout increased at the personal accomplishment level, quality of life decreased with regard to physical and psychological health and environment. Kavlu and Pinar (2009) indicated that quality of life and job satisfaction decreased with an increase in burnout. Lerner et al (1994) asserted there was a negative relationship between work-related tension and quality of life. The results of the present study are similar to those of previous studies.

LIMITATIONS OF THE STUDY

This study was conducted with 80 nurses working at two state hospitals, using non-parametric tests to analyse the effects of socio-demographic and occupational characteristics on their level of burnout and their life quality. In order to use parametric tests for analysis, larger sample groups are required. In addition, the working conditions for state hospitals, private hospitals, and university hospitals are very different in Turkey. It is believed that these different working conditions may produce results that are different from those obtained in this study. It is suggested that similar studies are conducted at different types of hospitals.

CONCLUSIONS

In this paper, the burnout level of nurses working in NICUs and the effects of burnout on their quality of life is reported. It was found that nurses had a moderate level of emotional exhaustion and personal accomplishment, and a low level of depersonalisation. It was also observed that nurses at management level, and those unhappy in their working environment, had greater emotional exhaustion. Moreover, the results showed that burnout at the personal accomplishment level increased with nurse age and the number of years working in a NICU. Additionally the quality of life of the nurses decreased as their burnout level increased.

The following suggestions are made:

- in order to increase the quality of nursing care, the factors causing burnout in the workplace must be determined, and precautions must be taken to minimise these;
- orientation programs, including training on how to cope with stress, must be planned for nurses starting work at the NICU;
- the burnout level of nurses and the reasons behind this must be defined and resolved at certain intervals;
- the nurses working in the NICU must be recognised for their hard work, via appreciation, honours, promotions, training achievements or experience awards;
- to prevent the adverse effects caused by working in the NICU for a long period of time, working plans in the form of staff rotation must be established;
- working hours must be rearranged according to workload;
- psychological consultancy services must be made available for NICU nurses; and
- social opportunities must be provided for NICU nurses.

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