# Using Drawings to Facilitate Communication of Non Arabic and Non English Speaking Patients in Al Madinah Health Care Sector

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**Abstract:** Health care personnel are facing difficulty in communicating with non-Arabic and non-English (NANE) speaking patients, especially during the Hajj and Umrah seasons. This is apparent in all areas of health care, including the outpatient clinics, emergency rooms and hospital wards. The main goal of communication is to get the right information through to ensure understanding of the patient's background, and in the delivery of medications, patient care, health education and other areas of health management. Communication between health care personnel and patients is, therefore, considered as a crucial element for patient safety and quality health care. This research focuses on bridging the communication needs between patients and health care givers at three hospitals in the city of Madinah, through the use of a health communication booklet containing illustrative drawings. The research employed a cross sectional descriptive method. Data were collected through two sets of interviews based on Likert scale questionnaires, directed to doctors, nurses and patients in the three selected hospitals. The first questionnaire was an exploratory investigation of communication needs which was used to inform the design of an illustrative booklet as a communication aid. The second questionnaire considered evaluations of the usefulness of the booklet in facilitating communication. It is expected that the results of this research will facilitate communication between patients and health professionals, and thereby improve patients' health care, especially during the Hajj and Umrahseasons, in Madinah, and perhaps in Saudi Arabia.

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**Keywords:** Communications with patients; health illustrations; drawings for communication; health language barrier; use of drawings to communicate with patients.

## Introduction

In all health care facilities, from outpatient clinics, accident and emergency departments, medical or surgical wards, through to intensive care areas, health care staff need, to communicate with their patients. Among the main objectives are obtained and conveying information such as medication orders, treatment regimes and understanding of health education. Communication is crucial in the two way interaction and interchange of thoughts and information from staff to patients and vice versa. As such, communication forms a critical element of patient safety and quality care (Schyve 2007). The Joint Commission (Joint Comm. Perspectives 2008) also states it to be the responsibility of the health organizations to take action to address and meet the patient's right and need for effective communication.

## Problem Statement

Health care organizations must ensure effective, patient-centered communication with patients from diverse populations. Currently health care organizations are encountering NANE visitors and elderly patients with language barriers, which increases the complexity of communication in the hospitals. For Saudi Arabia, the problem is intensified during the pilgrimage seasons, when the kingdom is host to an influx of visitors from all over the world.

Unclear communication can cause the whole health care encounter to fall apart (Robinson *et al* 2006). If inappropriately addressed, it can result in increased risk of errors in health care and inefficient utilization of health care resources. It is essential for patient safety that steps are taken to promote effective communication. To appropriately evaluate, diagnose, and treat NANE individuals and elderly, appropriate communication methods need to be developed and empirically examined.

## The Research Aim and Objectives

The general aim of the current research is to achieve safe and high quality health care by meeting specific health communication needs of the NANE speaking elderly.

Specific objectives can be stated as follows:

1- Determine the communication needs of the elderly NANE speaking patients requiring health care.
2- Develop communication material in the form of a booklet of illustrative drawings to address the communication needs of the

elderly NANE speaking patients requiring health care.

3- Evaluate the effectiveness of the material in reaching the targeted group.
4- Develop and distribute communication material to all hospitals in the Madinah region and in the Kingdom of Saudi Arabia

**The Significance of the Research**

This study has the breakthrough potential of improving patients' health care especially during the Hajj and Umrah seasons in the Madinah region and perhaps in the Kingdom of Saudi Arabia.

**Literature Review**

**Research Background**

***Madinah, the Holy City***

Madinah, being the second holy city of the Islamic world, is visited by pilgrims from all over the world as it has sanctity in the hearts of Muslims. It is the location of Dar al-Hijra, the place of revelation and the resting place of the Messenger of Allah [Peace be Upon Him (P)] and the holy mosque. It also housed the first Islamic society and out of the Islamic armies, Madinah emerged as the first capital of Islam. The multiple virtues of Madinah include the many "hadiths" or sayings of the Prophet (Barry 1423, p.65).

***Local Health Situation***

Like any other growing cities in the world, the population of Madinah comprises a mix of age groups. More than 29.4% of the population arenon-Saudis, reflecting the impact of external migration in the growth of Madinah's population (Al Reewathy 1417).

A large number of health care staff in Saudi Arabia are non-Arab speaking but are generally able to converse in English, while most local patients speak Arabic. However, the influx during the hajj season comprises patients from all over the world, many of whom speak neither Arabic nor English. During the pilgrims' stay, some become ill, requiring hospitalization, especially the old and infirm. As a result, within the health care facilities, there are diverse populations of non-Arabic and non-English speaking patients with non-Arab speaking staff. With such a population mix, language barriers in patient communication are a significant problem.

Communication breakdown could cause miscommunication, increased risk of medical errors and, in the worst case fatality (Early 2003). With this issue in mind it is imperative that a universally acceptable communication method be developed to ease multi language patient and staff understanding.

**Communication and What It Entails**

Communication is a complex process and is stated to go beyond the interchange of thoughts and information, as it involves speaking and listening, watching nonverbal cues to what is being communicated and interpretation within the culture of each party (Guion 2008). The outcome could be either understanding and acceptance or the non-understanding and rejection of the ideas being communicated. Given the multiple cultures and languages of both patients and health staff, the communication problem could be compounded.

**Common Sensory Changes in the Elderly**

The complexity of the communication process can be further complicated by old age. The normal aging process commonly involves sensory loss, decline in memory and slower processing of information (Guion 2008, Medlineplus, Britannica). Unclear communication can cause misunderstanding of orders or health instruction, leading to multiple problems. The literature identifies that with older adults, decline in eyesight and hearing is common. By 40 years of age, vision begins to decline and by 70, poor vision is common. The loss of elasticity in the lens of the eye results in increased density and rigidity, a flattening of the convexity of the cornea causing presbyopia or "old eye", disabling the patients from reading small print (Guion 2008, Medlineplus). The yellowed lens of the aging eye makes distinguishing dark colors difficult. Dark brown, black and blue may appear to run together. Lens rigidity diminishes visual acuity, causing words to appear blurred (Guion 2008).Loss of elasticity in the iris, decrease in pupil size, and increased opacity in the lens combine to reduce the amount of light into the eye and increase the sensitivity to glare from sunlight and bright artificial light. Bright light from a source such as a bedside light, window, or light above a bedside sink with mirror, may further diminish patients' ability to see (Guion 2008, Medlineplus).

Hearing impairment, too, is a normal part of the aging process due to the thinning and fibrosis of the tympanic membrane (Medlineplus). Presbycusis, or age-related hearing loss, results in the inability to distinguish high-pitched frequencies caused by degenerative changes in the eighth cranial nerve, cochlea, auditory nerve pathways, and cilia. This results in the decreased ability to distinguish between consonants. Aging ears may not be able to distinguish between consonants composed of high frequency tones such as *f, s, g, z,* and *t,* and combined consonants *ch*and*sh* (Guion 2008, Medlineplus). Elderly patients without cognitive deficits require directions to be given slowly and distinctly to facilitate recall.

**Why Address Language Barriers in Hospitals?**

Addressing the language barrier could be a means of improving quality and safe patient care. A study shows that communication barriers result in

misuse of services (Wiebe 1997). In other cases, the lack of effective communication results in inappropriate use of prescribed medications or the patient's inability to comply with follow-up instructions (Haug 1987). Language and communication barriers have caused unnecessary intubations in trauma patients (Beisecker 1988), with a higher risk for serious medical events (Halter 1999, Ostuni & Mohl 1994). The American Health Lawyers Association states that, "*Without a comprehensive strategy for assisting individuals with language inadequacy, the risks of missed diagnoses, delay of care, and concomitant malpractice exposure increase for hospitals and health care providers* (Boswell *et al*2007).

Nonverbal communication could be another way of communication with the elderly NANE speaking adults. However, on its own, nonverbal communication has its drawbacks as some pertinent questions regarding patients' needs and requirement can not be addressed (Wiebe 1997).

**Comments on Literature Review**

***Health Communication Research Using Pictures***

Houts *et al* (2006) identified nineteen studies in health education that investigated the effects of adding pictures to written or spoken texts studies. Included in this review were primarily experimental-control group designs with random assignment to groups .Outcome measures were largely self-report, As a result, they have proposed hypotheses rather than conclusions from this review and they stated that more research is needed on all the topics discussed, especially on the conditions that maximize pictures' effects. The results of this review showed that pictures can, in most instances, provide significant benefits. These include markedly increased attention to and recall of health education information.

Another paper evaluating communication, swallowing and feeding in Intensive Care also recommended likewise (Batty 2009). Pictures have been found to be very effective in enhancing communication. Their purpose to provide critical care nurses with an update on aspects of communication, swallowing and feeding in the ICU. The paper focused on each area in relation to the current evidence base and factors of "best practice". It was generally agreed that simple modes of communication, e.g. writing/gesture/pictures can be very effective.

Evelyn (2005) highlighted awareness about communication with various patients including strategies to assist in improving communicative effectiveness. This article reviewed several published strategies and one of the conclusions was that pictures tend to assist in patient comprehension and communication, which directly impacts service delivery and quality of care.

Harmsenetal. (2008) examined the differences in the evaluation of the medical encounters between patients having different cultural backgrounds. 663 patients were interviewed from 38 general practices in Rotterdam (The Netherlands). The results showed that in general, patients seemed fairly satisfied. It is concluded that next to communication aspects, physician awareness about the patient's cultural views is very important during the consultation, especially when dealing with immigrant patients. It was recommended that medical students and doctors be trained and become aware of the relevance of patients' different cultural backgrounds. It was also recommended that facilities be offered to bridge the language barrier, by making use of interpreters or cultural mediators.

Comprehensive peer reviewed research studies in health education, psychology and education were reviewed to assess the effect of pictures on health communication (Moll 1986). The study involved use of educational booklets about osteoarthrosis. The sample was 404 patients with osteoarthrosis and 233 control subjects .Moll used psychometric and perception tests and tasks, questionnaire scoring procedures and Computometrics. The main findings were that the pictures in booklets enhance communication overall. This indicates that pictures can play an important role in improving patients' comprehension. Moll claimed all patients can benefit, especially those with a low literacy level. The suggested implications for practice included: 1. Usethe simplest drawing or pictures possible. 2. Minimize distracting details in pictures. 3. Include people from the intended audience to design the pictures. 4. Have health professionals plan the pictures, not artists. 5. Evaluate the effects of pictures to include systematic evaluation of their effects in clinical settings.

Based on the lessons learned from the studies reviewed above, this study investigates the effect of using pictures as a facilitating tool, to improve communication between patients and health care staff from different lingual and cultural backgrounds. Following an exploratory phase intended to identify communication needs, a set of simple illustrative drawings was designed. In the second phase of the study the effects of using the pictures were systematically evaluated in hospital settings.

**Research Design**

The present study investigated the potential to improve communication in health care, especially where patients cannot comprehend or relay lingual information, using pictures as a strategy to facilitate the communication and measuring their effectiveness.

A cross sectional descriptive research method was employed. The study was conducted in two phases: the exploratory study and the main study. To determine the communication needs of the elderly NANE proficient patients requiring health care, in phase 1 (exploratory) doctors and nurses in the Madinah region were interviewed using a Likert scale questionnaire (see Appendix 1). The questionnaire proposed important areas of health care which should be represented as communication drawings.

In phase 2, following booklet production, interviews data, were used to obtain health care professionals' evaluation of thecommunication material consisting of drawings in relation to the following topics:

**Table 1 Topics of communication needs used in the drawings**

| | | | | | | |
|---|---|---|---|---|---|---|
| Doctors | Health Complaints | Past Medical History | Drugs patients on | Past Surgical History | Animal/bird rising | Allergies |
| Nurse | Activities of Daily living (day-to-day care) | Personal hygiene | Medication | Mobility | Oxygenation | Nutritional requirements |
| | Elimination | Wound care | Vital signs | Specimen Taking and Investigations | | |

The current study deals with patients from all over the world coming to Madinah to perform Hajj or Umrah. As recommended by the studies reviewed above; doctors should address the different cultural backgrounds of such patients in addition to find an effective way of communication in case of lingual barriers. The present study entailed production of a booklet to address the lingual barrier, which could be used later in the future to measure health care satisfaction among patients with different cultural and asthenic backgrounds.The aim was to develop health communication drawings in relation to the determined communication needs in B5 booklet form to assist in NANE patient communication.

**The ExploratoryStudy**

The sampling populations were the medical doctors and the nursing staff in Uhud, Madinah Maternity and Children and King Fahd Hospitals.

A quantitative questionnaire (questionnaire 1- see Appendix 1) was distributed to doctors and nurses to determine communication needs.Questionnaires were distributed to 114 nurses and 43 doctors in the three hospitals. Table 2provides a description of the sample who participated in the exploratorystudy.

Atotal of twenty four(55.8%) doctors of the sample were consultants and 19 (44.1%) were specialist. 46 (40.7%) nurses had obtained a diplomain nursing, 38 (33.6%) weregraduate nurses and the rest were specialists, consultants and certificate holder nurses. 37.2 % were trained in Philippines and 21% in Saudi Arabia, while the rest trained in Indonesia, India, Iraq, Sudan and Pakistan.

**Table 2 The Sample of the exploratorystudy.**

| Hospitals | Doctors | | Nurses | | Total |
|---|---|---|---|---|---|
| | Female | Male | Female | Male | |
| King Fahad Hospital | 4 | 12 | 22 | 14 | 52 |
| Madinah Maternity and Children | 10 | 12 | 65 | 3 | 90 |
| Uhud Hospital | 2 | 3 | 8 | 2 | 15 |
| Total | 43 | | 114 | | 157 |

According to experience, 60% had more than 15 years working in health care. 30% had been working more than 10 years and the rest of the sample had worked for less than 5 years.

The questionnaire asked respondents to express their level of agreement or disagreement on a list of items (e.g. symptoms and procedures) proposed for inclusion in the planned communication aid, and to suggest others if necessary.

The outcomes of the exploratory study were used to guide development of the communication material. Most responses showed agreement on the list of communicative needs; 95% of the sample noted these needs as very important and important. Some doctors and nurses also suggested additional communication needs as presented in the following tables:

**Table 3Communication needs added by medical staff**

| | | | |
|---|---|---|---|
| Doctors | Bleeding | Abdominal pain | Blooded cough |
| | Back pain | Chest pain | Loss of consciousness |
| Nurses | Shaving hair | Cutting nails | Wash face |
| | Wash hands | Suppositories | |

All the previous recommendations and suggestions were taken into account in the drawings and addedto the questionnaire in the main study.

**Healthcare Interpreter Services**

The researcher visited Sydney, Australia, to find out about the medical care services provided tonon-English speaking patients. The aim was to collect more information to assist in the identification of communication needs and development of a communication aid.

The health care interpreter service provides interpreting services to Sydney West Area Health service facilities. The main aim of providing

interpreting services is to help patients from a culturally and linguistically diverse background to access health care by providing professional and confidential interpreting services. This service is free except for tourists or working people. It includes 120 languages. Interpretations can be done orally (face to face – phone interpreting) or in writing (translation – translate report – leaflet –instruction for medication). It could be done by video conferencing (long distance) for rural areas.

Translators may also attend home visits with doctors. They attend an orientation programme on how to deal with patients (staff orientation). It is not allowed for family and relatives to translate. The interpreters are well trained and must havea (NATTI) national authority translating license.

Health care interpreters are to be used in all health care situations where communication is essential, including:

Admission / initial assessment; Consent for operations, procedures, treatment and research; Identifying correct patient; Correct procedure and correct site; High –risk/life threatening; Counselling; Death of patient/client and bereavement counseling; Discharge procedures and referrals; Explanation of medication; Day surgery; Health education and promotion programe; Medical instructions; Medical histories, assessments and treatment plans; Mental health review tribunals and magistrate enquiries; Pre-operative and post-operative instructions; Psychological assessment; Treatment or counseling for sexual assault, physical and emotional abuse; Speech therapy; and Procedures relating to organ/tissue donation.

The main aim of the visit was to collect more information to support the identification of communication needs and development of research materials.

**The Main Study**

The feedback from the exploratory study and experiences gained from the visits to hospitals in Australia were taken into account.

**Procedures before the study**

The main study procedures involved the following stages:-

**Booklet preparation**

1. Looking for suitable pictures from various sources matching the communication needs.
2. Visiting hospitals to recognize medication facilities, tools, equipment, and other relevant items.
3. Taking photos of medical facilities and needs for communication.
4. Recruiting an artist and showing the photos that were taken, to inform drawings to match the communication needs.
5. Arranging meetings to modify, add, and delete drawings, to enhance and develop the booklet.
6. Scanning the modified drawings and arranging them into groups.
7. Using computer software to develop and make the drawings clear.

**Getting permission**

The first step in conducting any study is obtaining permission. When the drawings and the questionnaire were ready for use, the researchers worked to get permission to apply the questionnaire and test the validity of the drawings. Unfortunately, the researchers found difficulty in getting permission to enter the hospitals. It took about two weeks of procedures before permission was eventually granted.

**Applying the questionnaire**

The main hospitals in Al-Madinah Al-Munawwarah, are Ohud Hospital, King Fahad Hospital, and Madinah Maternity and Children's Hospital. In view of the research purposes, Madinah Maternity and Children's Hospital was substituted with Alansar hospital and participants from the Islamic university, where foreign patients are found. Although permission for the research was granted, it was difficult for doctors and nurses to participate in viewing the drawings and filling in the questionnaire because they were busy in their duty and participation would take approximately 15 minutes. Most of them liked the aim of the research and confirmed their need for the booklet, so we decided to let them participate in their regular meeting after explaining the aims of the study. It was a good way to meet all of them and listen to their suggestions and recommendations, to enhance the drawings

**Instruments**

The instruments used were as follows:

1. A booklet of illustrative drawings designed in accordance with the outcomes of a **questionnaire 1**of the exploratory study.
2. A **questionnaire 2,** designed to collect data from patients, doctors and nurses, regarding their assessment of the value of the drawings in helping to communicate health needs.

To ensure a high return rate, the interview data collection method was used. Statistical analysis was carried out using descriptive frequencies, bivariate and multivariate analysis, using the SPSS.

**The sample**

The sampling populations were the patients, medical doctors and nursing staff in Uhud, Alansar, Islamic University and King Fahd Hospitals.

A universal sampling technique was used.

To evaluate the effectiveness of using a communication drawings booklet, a quantitative questionnaire was distributed to **70 doctors** and **nurses** and **45 patients,** who were also shown the

drawings in order to evaluate them. Figures1 and 2show the description of the health professionals, their sex, qualifications, places of training, and years of experience.

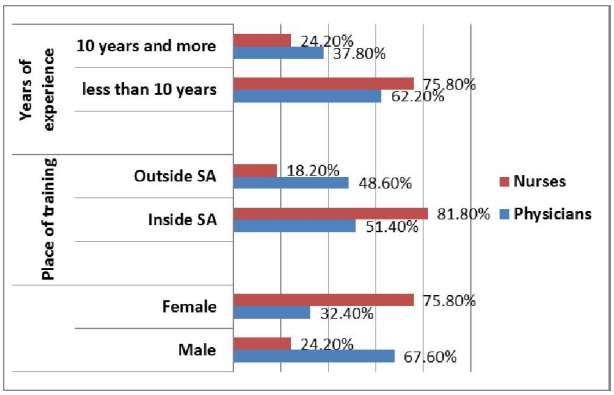



**Figure 1. General description of the participating doctors and nurses**

The findings revealed that most of the participating medical staff had less than 10 years of experience while the remainder of the sample had more than 10 years of experience. Almost half of the doctors trained outside the country while the other half received their training locally. Regarding gender, there were more female nurses than male nurses. In contrast, female doctors were fewer in number than male doctors. This situation is probably a reflection of cultural norms. Figure 2 indicates the distribution of the health professionals sample by qualification.

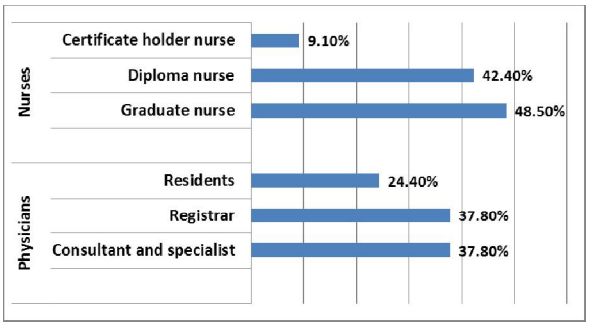



**Figure 2 Professional qualifications of physicians and nurses**

Forty nine percent of the nurses had received specialist nursing training and had met certain prescribed standards of education and clinical competence. 42% of nurses had undertaken the basic educational programme that is designed to prepare nurses for entry into practice, usually in 2 years. 9% of nurses hold a valid certificate of authority issued by the board to practise as a certified nurse.

Almost half of the doctors were registrars, consultants and specialists, while nearly a quarter of the doctors were residents.

Regarding the patient sample, it was difficult to find patients who could not speak Arabic and English, to participate in the study, and if some were found, as in Alansar hospital, they were elderly people and it was difficult to explain to them the purpose of the research . To solve these problems and find different nationalities, most of the sample was drawn from the Islamic University. "Currently more than 3,000 students are enrolled, about 450 of whom are foreign students drawn from more than 70 countries" (The Islamic University of Madinah, 2000). Figure 3 provides a profile of the patient group in the current study.

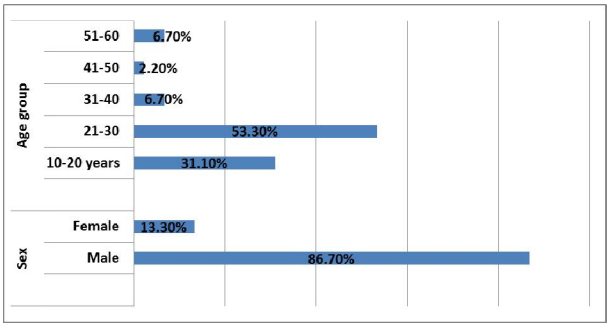



**Figure 3: Distribution of the participating patients by sex and age group**

As shown in the figure, more than half of the participants were males, aged between 18 – 31 years old. These were students at Islamic University, which explains the gender imbalance in the samples; because only males are eligible to enter the university. More details of nationalities and the mother tongues of the patients are provided in the following chart.

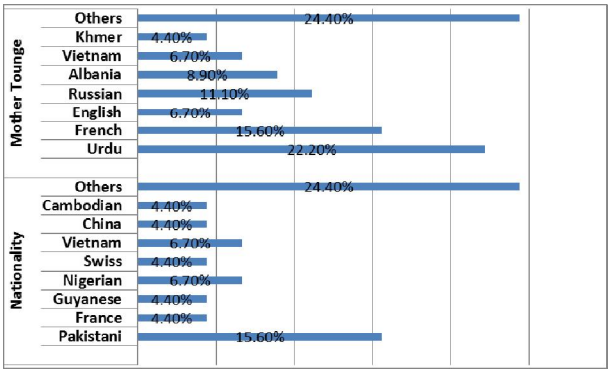



**Figure 4. Nationality and mother tongue of the studied patients**

## 3. Results

Mean scores for the items are tabulated in Appendix 2. The results obtained from the sample showed high means for all communication needs in general, between3- 4.69out of 5.,indicating that respondents agreed in perceiving these items as important communication needs, Examples of lowest and highest measure indicated in the following table:

**Table 4. Items with the lowest and highest mean scores**

| **Examples of the lowest item means** | | | | | |
|---|---|---|---|---|---|
| communication needs | N | Minimum | Maximum | Mean | Std. Deviation |
| hoarseness of voice | 115 | 0* | 5 | **2.95** | 1.49762 |
| Pain-Sites | 115 | 1 | 5 | **3.26** | 1.33828 |
| **Examples of the highest item means** | | | | | |
| X ray | 115 | 0 | 5 | **4.68** | 1.08 |
| Finger prick | 115 | 0 | 5 | **4.61** | 1.08 |
| *0 missing answer | | | | | |

In this table, N. indicates the total sample size, including medical staff (doctors & nurses) and patients. There were 115 in total. The lowest mean was for **hoarseness of voice** (2.95).

Moreover, Table 5 indicates frequencies of sample responses for that item. It is clear thatmore than half of the sample saw the drawing of **hoarseness of voice**as important;23 (20%) saw it as very important and 26 (22.6%) saw it as important,while27 (23.5%) of the sample saw it Not important at all and 21 (18.3%) saw it as Not very important.

**Table 5. Sample responses toward <u>hoarseness of voice</u>**

| **hoarseness of voice** | Frequency | Valid Percent |
|---|---|---|
| Missing answer | 1 | .9 |
| Not important at all | **27** | **23.5** |
| Not very important | **21** | **18.3** |
| Partially important | 17 | 14.8 |
| **Important** | **26** | **22.6** |
| **Very important** | **23** | **20.0** |
| **Total** | **115** | **100.0** |

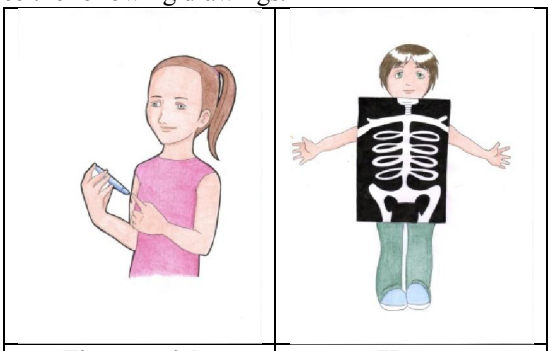
Another drawing with a low mean value was **pain site** (3.26). When the frequencies were examined, the results were as shown in the following table

Table 6. **Sample responses toward <u>Pain-Sites</u>**

| **Pain-Sites** | Frequency | Valid Percent |
|---|---|---|
| Not important at all | 18 | 15.7 |
| Not very important | 13 | 11.3 |
| **Partially important** | **29** | **25.2** |
| **Important** | **31** | **27.0** |
| **Very important** | **24** | **20.9** |
| **Total** | 115 | 100.0 |

It is clear from Table 6 that three quarters of the sample saw the current drawing Pain-Sites as important. 24 (21%) saw it as very important and 31 (27.6%) saw it as important, while only 18 (15.7%) of the sample saw it as Not important at all and 13 (11.3%) saw it as Not very important.

On the other hand, some items had high means, for example specimen taking and investigations e.g.**x-ray** (4.68) and **finger pricks** (4.61),reflecting strong positive feelings towards the relevance of the drawing to the respondents' communication needs. See the following drawings.



**Finger pricks** | **X-ray**

In fact, all the statistical analyses of responses to the questionnaire indicated that all the sample, the medical staff (doctors & nurses) and patients had in general positive attitudes towards the communication drawings. This report focuses on examples of particular items**, hoarseness of voice, pain site, finger pricks, and x-ray**, but similar points apply to the other drawings (for the remaining items, (see Appendix2).

## Discussion

In the previous section, the findings of the present study were presented from a statistical perspective. This paragraph provides a brief summary, interpretation and discussion of the findings, recommendations, and suggestions for further studies.

The aim of the study was to bridge language barriers between non English and Arabic speakers which impacted the complexity of communication in the hospitals and thereby posed a risk to safe and quality health care. The aim was to meet specific health communication needs of the NANE speaking elderly. The objectives were to:

1- Determine the communication needs of elderly NANE proficient patients requiring health care.
2- Develop communication material to address the communication needs of elderly NANE speaking patients requiring health care.

3- Evaluate the effectiveness of the material in reaching the targeted group and make any necessary modification.
4- Develop and distribute communication material to all hospitals in the Madinah region and in the Kingdom of Saudi Arabia

In addition, recommendations are made for developing the communication material and suggestions for further research are presented at the end of the discussion.

To achieve the main aim of the present study, two questionnaires were applied, before and after the design of communication drawings and the effectiveness of the drawings were assessed on a Likert scale. The instrument was piloted before the main study, to ensure reliability and validity. Results show high mean and significance of participants' responses. In the following paragraph the objectives of the study will be discussed.

**Determine the communication needs of the elderly NANE proficient patients requiring health care.**

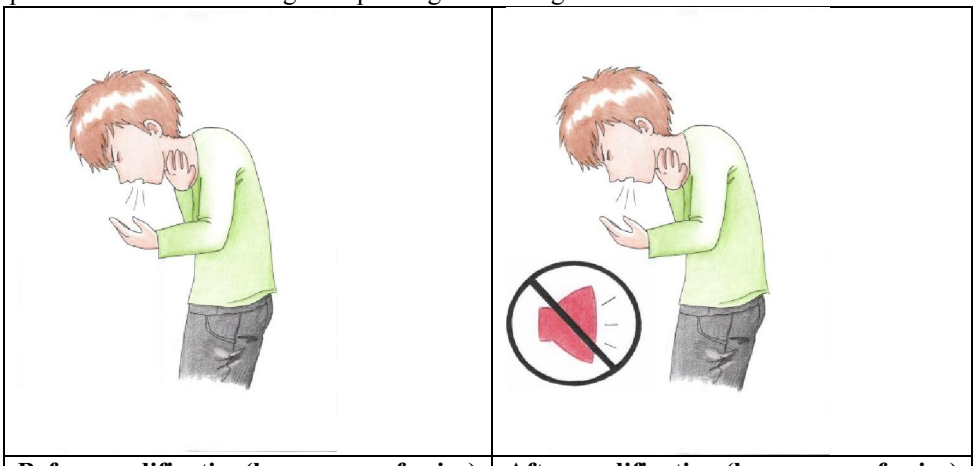
The main aim of conducting the exploratory study was to determine the communication needs of the elderly NANE proficient patients requiring health care. The result indicated that 95% of the participants showed agreement with the provided list of communicative needs. Some doctors added more communication needs, such as abdominal pain, blooded, cough, back pain, chest pain, and loss of consciousness. . Some nurses also added more communication needs,such as, shaving hair, cutting nails, washing face, washing hands, and suppositories. Elderly patients need to have a wide range of materials to lookat according to their needs and expectations. According to the staff experience, all the previous suggestions obtained in the exploratory study were taken into account in the drawings. Moreover, the researcher visited Sydney, Australia, to find out about the medical care services presented to patients who are non-English speaking patients. This suggested the need to add another booklet for drugs.

**Develop communication material to address communication needs of the elderly NANE speaking patients requiring health care.**

After the communication needs were determined, it was necessary to look for suitable pictures from various sources matching the communication needs. This required access to the Internet, visiting hospitals to recognize medications, facilities, tools, and equipments, and to take photos of medical facilities and needs for communications. Then an artist was recruited and shown the photos, in order to draw similar images matching the communication needs. According to Moll's finding (1986)"perception of pictorial style depends on its vehicle of presentation, cartoons being most effective in booklets, photographs overall". Meetings were held to modify, add, and delete drawings in order to enhance and develop the drawings. Finally, the drawings were scanned, and arranged into groups with letters and numbers. Moreover, according to the doctors' suggestions, another booklet for drugs was developed and classified according the name of the disease by taking photos of the medicine. This was presented as an appendix inside the booklet.

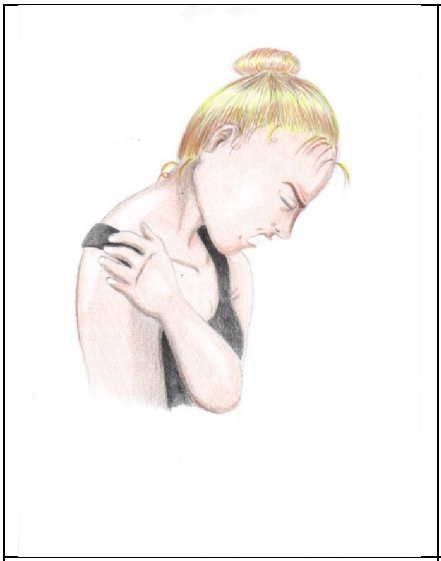
**Evaluate effectiveness of material in reaching targeted group with necessary material modification.**

The majority of the sample showed high mean scores for all communication needs, in general between3 - 4.69 out of 5. These are considered highly significant results. Examples of the lowest and the highest mean were explained in the findings. However, some of the sample indicated that the drawing did not show the meaning and they suggested modification. For example, for "hoarseness of voice" they suggested adding a mute symbol to the drawing to make it clear, as shown in the following figure:

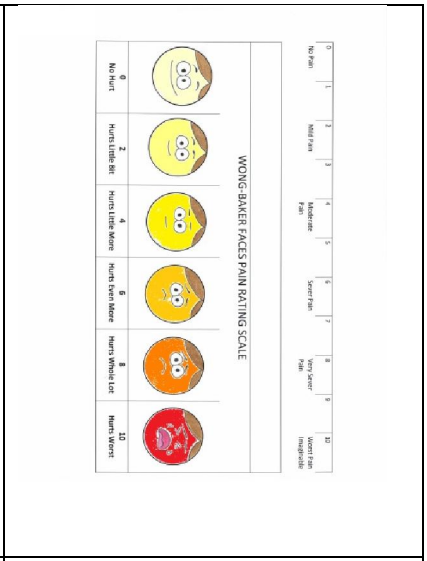


| Before modification(hoarseness of voice) | After modification (hoarseness of voice) |
|---|---|

During applying the questionnaire in the hospitals, the nurses indicated that they already used the Wong baker pain scale for pain assessment and suggested substituting it for the current drawing. Based on this idea, a pain intensity scale was drawn and added, as indicated in the following figure.



**Before modification (pain intensity)**




**After modification (pain intensity)**

All recommendations were taken into consideration in enhancing and developing the drawings to improve effectiveness for doctors, nurses and patients. Results obtained from the analysis are for final enhancement of the communication drawings booklet. It seems that the medical staff had difficulty in communicating with non-Arabic and English speakers, especially during Hajj and Umrah seasons and this has become a major concern as indicted by Klein (2005) "communication effectively with patients is a primary concern, in healthcare today". However, using interesting drawing materials will facilitate communication as Batty (2009) mentions "Simple modes of communication, e.g. writing/gesture/pictures can be very effective".

Concerning the last part of the questionnaire, which invited the respondents' comments about the drawings, they expressed strongly positive responses to the drawings. They found the cartoon drawings enjoyable and a useful way to help patients to improve and enhance their comprehension and communication. Their only criticism was that the female characters in the drawings should be wearing a hijab scarf on the head, in accordance with the Islamic culture. This was implemented on the cover of the booklet.

**Develop and distribute communication material to all hospitals in the Madinah region and in the Kingdom of Saudi Arabia**

Publication, distribution of material and dissemination

A very favourable response was received from all samples in the main study, both to the idea of using drawings to aid patient –self communication, and to the drawings themselves. The next step, therefore, is to distribute the booklet more widely, for use in actual clinical consultation. The first priority for distribution is Madinah and Makkah, since these cities receive a huge influx of pilgrims from all over the globe. Consideration should, however, also be given to communication needs in the Kingdom more generally, particularly in view of the large numbers of non-Arabic speaking health care professionals. It is proposed, therefore, initially to print 10,000 copies of the booklet. These will be distributed to hospitals in the Madinah region and around the Kingdom.

**Recommendations for Further Study**

Building on the foundation of the current research, two main areas of further study are suggested.

1- Since the present study evaluated the communication materials only through the opinions of health care professionals and patients, it would be describable to conduct a follow up study following a period of use of the booklet in actual clinical settings. Such a study of could survey staff and patients as to the usefulness of the booklet in practice and its cultural acceptability, as well as identifying any additional communication needs that may become apparent.
2- The present study focused on the needs of NATE elderly patients. Communication

difficulties are, however, not necessarily confined to these groups. Further research, therefore, might build on the work begun in this study by investigating the communication needs of other groups, with the aim of producing either segment-specific booklets or new sections to be added to the current booklet. Such a study might, for example, investigate communication needs related to maternity, obstetric and child health.

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Appendix 1. A questionnaireused to determine the communication needs of the patients requiring health care.

**Dear Doctors and Nurses**

**You are cordially invited to participate in this research entitled *Using Drawings to Facilitate Communication of Non Arabic and Non English Speaking Patients' in Al Madinah Health Care Sector*. The study objective is to achieve quality health care by meeting the communication needs of the Non Arabic and Non English speaking elderly.**

**Ten to fifteen minutes of your time will be required to fill in the questionnaires. The questionnaire consists of three parts which are as follows:**

Part I **is regarding your personal information. Please note that no names are required.**

Part II **is for Doctors to determine the importance of the listed medical health care components and the rating responses according to your opinion.**

Part III **is for Nurses to determine the importance of the listed nursing care components and the rating responses according to your opinion.**

**Thank you in advance for your kind cooperation in completing this form. If you have further suggestions or recommendations, do not hesitate to forward it to your interviewer. Your views and opinions will be treated in confidence and will service the purpose of research ONLY.**

**Research Team**

Questionnaires for Determining Communication drawings

Part I:

**Kindly fill in the following information by ticking or filling in the appropriate box.**

1. Sex
   □ **Male** □ **Female**
2. Professional qualification
   □ **Consultant** □ **Specialist** □ **Graduate Nurse**
   □ **Diploma Nurse** □ **Registrar** □ **Certificate holder nurse**
3. Place of Training
   □ **Saudi Arabia** □ **Indonesia** □ **Philippines**
   □ **India** □ **Others. Please specify: _____**
4. Years of experience working as a doctor/nurse.
   □ **less than 1 year** □ **more than 3 years**
   □ **more than 5 years.** □ **Others. Please specify number of years_____**

Part II.

For Doctors

**Help us determine the important area of health care which should be represented as communication drawings for the non-Arabic and non-English speaking health care patients.**

**Carefully examine each item. Now rate your responses. Give each item a rating indicating your opinion.**

**1-Not important at all 2-Not very important**
**3-Partially important 4-Important 5- Very important**

| No | Items | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|---|
| A | Effects | | | | | |
| **1** | **Pain - sites** | | | | | |
| **2** | **- intensity** | | | | | |
| **3** | **Fever** | | | | | |
| **4** | **Cough** | | | | | |
| **5** | **Dyspnoea** | | | | | |
| **6** | **Seizure/convulsions** | | | | | |
| **7** | **Loss of consciousness** | | | | | |
| **8** | **Vomiting** | | | | | |
| **9** | **Diarrhoea** | | | | | |
| **10** | **Nausea** | | | | | |
| | Other suggestions | | | | | |
| **11** | | | | | | |

| No | Items | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|---|
| B- | Past Medical History | | | | | |
| **1** | **Heart** | | | | | |
| **2** | **Lungs** | | | | | |
| **3** | **Kidney** | | | | | |
| **4** | **Stomach/Gastrointestinal** | | | | | |
| **5** | **Eyes/Ears** | | | | | |
| **6** | **Anaemia** | | | | | |
| **7** | **Fainting/Dizziness** | | | | | |
| **8** | **Rheumatic Fever** | | | | | |
| **9** | **Arthritis** | | | | | |
| **10** | **Tuberculosis** | | | | | |
| **11** | **High Blood Pressure** | | | | | |
| **12** | **Cancer** | | | | | |
| **13** | **Epilepsy** | | | | | |
| **14** | **Migraines** | | | | | |
| **15** | **Mental Disorder/Illness** | | | | | |
| **16** | **Asthma** | | | | | |
| **17** | **Diabetes** | | | | | |
| **18** | **Stroke** | | | | | |
| | Other suggestions | | | | | |
| **19** | | | | | | |

| No | Items | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|---|
| C. | Drugs patients on | | | | | |
| **1** | **- inhalation puff** | | | | | |
| **2** | **- antibiotics** | | | | | |
| **3** | **- antihypertensive** | | | | | |
| **4** | **- anti hyperglycaemic** | | | | | |
| | Other suggestions | | | | | |

| No | Items | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|---|
| D. | Drugs patients on | | | | | |
| **1** | **- inhalation puff** | | | | | |
| **2** | **- antibiotics** | | | | | |
| **3** | **- antihypertensive** | | | | | |
| **4** | **- anti hyperglycaemic** | | | | | |
| | Other suggestions | | | | | |
| **5** | | | | | | |

| No | Items | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|---|
| E | Past surgical history | | | | | |
| | **- types of operation** | | | | | |
| | Other suggestions | | | | | |

| No | Items | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|---|
| F | Animal raising | | | | | |
| | **- types of animal** | | | | | |
| | Other suggestions | | | | | |

| No | Items | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|---|
| G | Allergies | | | | | |
| | **- Causes of allergies** | | | | | |

| | | | | | | |
|---|---|---|---|---|---|---|
| | **- types of allergies** | | | | | |
| | Other suggestions | | | | | |
| **1** | | | | | | |

| No | Items | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|---|
| H | Diagnoses | | | | | |
| **1** | **- chest infection** | | | | | |
| **2** | **- gastro enteritis** | | | | | |
| **3** | **- cardiac disorder** | | | | | |
| **4** | **- urinary tract infection** | | | | | |
| **5** | **- peptic ulcer** | | | | | |
| | Other suggestions | | | | | |
| **1** | | | | | | |

Further Recommendations or Suggestions

_____
_____
_____
_____

_____

Part III-For Nurses

**Help us determine the important area of nursing health care which should be represented in communication drawings for the non Arabic and non English speaking health care patients.**

**Carefully examine each item. Now rate your responses. Give each item a rating indicating your opinion.**

1. **Not important at all**
2. **Not very important**
3. **Partially important**
4. **Important**
5. **Very important**

| No | Items | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|---|
| A | Personal hygiene (Activities of daily living) | | | | | |
| **1** | **- oral toilet** | | | | | |
| **2** | **- bed bath** | | | | | |
| **3** | **- hair shampoo** | | | | | |
| **4** | **- shower** | | | | | |
| **5** | **- change of clothing** | | | | | |
| **6** | **- change of bed sheets** | | | | | |
| **7** | **- combing hair** | | | | | |
| **8** | **- tooth brushing** | | | | | |
| **9** | **- Hair shaving** | | | | | |
| | Other suggestions | | | | | |
| **10** | | | | | | |

| No | Items | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|---|
| B | Medications | | | | | |
| **1** | **- Oral medications** | | | | | |
| **2** | **- intramuscular** | | | | | |
| **3** | **- intradermal** | | | | | |
| **4** | **- inhalation** | | | | | |
| **5** | **- sublingual** | | | | | |
| **6** | **- intravenous** | | | | | |
| **7** | **- subcutaneous** | | | | | |
| | Other suggestions | | | | | |
| **8** | | | | | | |

| No | Items | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|---|
| C | Mobility | | | | | |
| **1** | **- sit up** | | | | | |
| **2** | **- walk** | | | | | |
| **3** | **- lifting using hoist** | | | | | |
| **4** | **- stand** | | | | | |
| **5** | **- using cane/crutches** | | | | | |
| **6** | **- using wheelchair** | | | | | |
| | Other suggestions | | | | | |
| **7** | | | | | | |

| No | Items | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|---|
| D | Oxygenation | | | | | |
| **1** | **- using masks** | | | | | |
| **2** | **- using nasal cannula** | | | | | |
| | Other suggestions | | | | | |
| **3** | | | | | | |

| No | Items | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|---|
| E | Nutritional requirements | | | | | |
| **1** | **- drink** | | | | | |
| **2** | **- eat** | | | | | |
| **3** | **- Ryle's tube feeding** | | | | | |
| | Other suggestions | | | | | |
| **4** | | | | | | |

| No | Items | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|---|
| F | Elimination | | | | | |
| **1** | **- toilet** | | | | | |
| **2** | **- use of bed pan/urinal** | | | | | |
| **3** | **- vomit** | | | | | |
| **4** | **- suction** | | | | | |
| | Other suggestions | | | | | |
| **5** | | | | | | |

| No | Items | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|---|
| G | Wound care | | | | | |
| **1** | **- wound dressing** | | | | | |
| **2** | **- removal of stitches/clips/drainage tubes** | | | | | |
| | Other suggestions | | | | | |
| **3** | | | | | | |

| No | Items | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|---|
| H | Vital signs | | | | | |
| **1** | **Taking temperature** | | | | | |
| **2** | **Blood pressure** | | | | | |
| **3** | **Pulse and respiration** | | | | | |
| | Other suggestions | | | | | |
| **4** | | | | | | |

| No | Items | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|---|
| I | Specimens taking and investigations | | | | | |
| **1** | **- sputum** | | | | | |

| | | | | | | |
|---|---|---|---|---|---|---|
| **2** | **- blood specimen** | | | | | |
| **3** | **- urine C/S** | | | | | |
| **4** | **- finger prick** | | | | | |
| **5** | **- swab oral/rectal/wound** | | | | | |
| **6** | **- x ray** | | | | | |
| **7** | **- stool/faeces** | | | | | |
| | Other suggestions | | | | | |
| **8** | | | | | | |

Further Recommendations or Suggestions

_____
_____
_____
_____

Appendix 2 Mean scores calculation for all items listed

| Descriptive Statistics | N | Minimum | Maximum | Mean | Std. Deviation |
|---|---|---|---|---|---|
| **Pain-Sites** | **115** | **1.00** | **5.00** | 3.2609 | **1.33828** |
| **Intensity** | **115** | **.00** | **5.00** | **3.8870** | **1.24791** |
| **Fever** | **115** | **.00** | **5.00** | **4.1565** | **1.20373** |
| **Cough** | **115** | **.00** | **5.00** | **4.3826** | **.98749** |
| **hoarseness of voice** | **115** | **.00** | **5.00** | 2.9478 | **1.49762** |
| **Seizure/Convulsions** | **115** | **.00** | **5.00** | **3.5478** | **1.42806** |
| **Loss of Consciousness** | **115** | **.00** | **5.00** | **3.5391** | **1.42217** |
| **Vomiting and** | **115** | **1.00** | **5.00** | **4.6870** | **.70543** |
| **bloody vomitig** | **115** | **.00** | **5.00** | **4.4174** | **1.04279** |
| **Diarrhoea** | **115** | **.00** | **5.00** | **3.7478** | **1.39450** |
| **Nausea** | **115** | **.00** | **5.00** | **3.6348** | **1.32009** |
| **headache** | **115** | **.00** | **5.00** | **3.8870** | **1.21947** |
| **bleeding** | **115** | **.00** | **5.00** | **4.2000** | **1.10977** |
| **abdominal pain** | **115** | **.00** | **5.00** | **4.1391** | **1.02501** |
| **bloody cough** | **115** | **1.00** | **5.00** | **4.2087** | **1.01303** |
| **back pain** | **115** | **1.00** | **5.00** | **4.5652** | **.78506** |
| **chest pain** | **115** | **1.00** | **5.00** | **4.2696** | **.86168** |
| **Heart** | **115** | **1.00** | **5.00** | **4.1565** | **1.03102** |
| **Lungs** | **115** | **.00** | **5.00** | **3.8522** | **1.13357** |
| **Kindey** | **115** | **.00** | **5.00** | **3.7913** | **1.28073** |
| **Stomach/Gastronitestinal** | **115** | **.00** | **5.00** | **4.0870** | **1.03080** |
| **Eyes/Ears** | **115** | **2.00** | **5.00** | **4.4174** | **.84793** |
| **Anaemia** | **115** | **1.00** | **5.00** | **4.0174** | **1.05117** |
| **Diabetes** | **115** | **1.00** | **5.00** | **3.9217** | **1.20050** |
| **High Blood Pressure** | **115** | **.00** | **5.00** | **4.1130** | **1.15292** |
| **Asthma** | **115** | **1.00** | **5.00** | **4.5043** | **.85197** |
| **Arthritis** | **115** | **1.00** | **5.00** | **3.9391** | **1.00251** |
| **Cancer** | **115** | **1.00** | **5.00** | **3.6087** | **1.40610** |
| **Rheumatic Fever** | **115** | **.00** | **5.00** | 3.2000 | **1.40924** |

| Descriptive Statistics | N | Minimum | Maximum | Mean | Std. Deviation |
|---|---|---|---|---|---|
| Epilepsy | 115 | 1.00 | 5.00 | 3.6522 | 1.27763 |
| Migraines | 115 | 1.00 | 5.00 | 4.0870 | 1.02225 |
| Mental Disorder/lllness | 115 | 1.00 | 5.00 | 4.0522 | 1.09899 |
| previous operation | 115 | 1.00 | 5.00 | 4.1391 | 1.04199 |
| Contact with animals | 115 | .00 | 5.00 | 4.2000 | 1.09384 |
| Recent travel | 115 | 1.00 | 5.00 | 4.0435 | 1.15767 |
| Causes of allergies | 115 | 1.00 | 5.00 | 4.2261 | .94647 |
| food allergies | 115 | .00 | 5.00 | 4.3652 | 1.02024 |
| Oral toilet | 115 | 1.00 | 5.00 | 3.3478 | 1.36397 |
| Bed bath | 115 | .00 | 5.00 | 3.8174 | 1.26062 |
| Hair shampoo | 115 | 1.00 | 5.00 | 4.2261 | 1.10072 |
| Shower | 115 | 1.00 | 5.00 | 4.0261 | 1.11969 |
| Change of clothing | 115 | 1.00 | 5.00 | 4.4261 | .90864 |
| Change of bed sheets | 115 | 1.00 | 5.00 | 4.3739 | .91249 |
| Combing hair | 115 | 1.00 | 5.00 | 4.3913 | .96150 |
| Tooth brushing | 115 | 1.00 | 5.00 | 3.8696 | 1.23204 |
| hair shaving | 115 | 1.00 | 5.00 | 4.5217 | .84134 |
| wash hand | 115 | 1.00 | 5.00 | 4.5391 | .74087 |
| wash face | 115 | .00 | 5.00 | 4.2435 | .97864 |
| Cut Nails | 115 | .00 | 5.00 | 4.5304 | .86168 |
| Oral medications | 115 | .00 | 5.00 | 4.1391 | 1.03353 |
| Intramuscular | 115 | 1.00 | 5.00 | 4.0174 | 1.03435 |
| Intradermal | 115 | 1.00 | 5.00 | 4.3304 | .81350 |
| Inhalation | 115 | 1.00 | 5.00 | 4.2522 | 1.02464 |
| Sublingual | 115 | 1.00 | 5.00 | 4.1913 | 1.05876 |
| Intravenous | 115 | 1.00 | 5.00 | 4.3739 | .89306 |
| Subcutaneous | 115 | .00 | 5.00 | 3.9739 | 1.23161 |
| Suppository | 115 | .00 | 5.00 | 4.3565 | 1.01904 |
| Sit up | 115 | .00 | 5.00 | 3.7217 | 1.23933 |
| Walk | 115 | 2.00 | 5.00 | 4.4000 | .80350 |
| Lifting using hoist | 115 | .00 | 5.00 | 4.0174 | 1.16214 |
| Stand | 115 | 1.00 | 5.00 | 4.2522 | 1.01604 |
| Using cane /crutches | 115 | 1.00 | 5.00 | 4.5391 | .88146 |
| Using wheelchair | 115 | 2.00 | 5.00 | 4.6696 | .64511 |
| Using masks | 115 | 2.00 | 5.00 | 4.6087 | .69706 |
| Using nasal cannula | 115 | 1.00 | 5.00 | 4.6783 | .68246 |
| Drink | 115 | 2.00 | 5.00 | 4.4696 | .78720 |
| Eat | 115 | .00 | 5.00 | 4.5826 | .81631 |
| Ryle‘s tube feeding | 115 | .00 | 5.00 | 4.1217 | 1.20050 |
| Toilet | 115 | 1.00 | 5.00 | 4.5043 | .80974 |
| Use of bed pan /urinal | 115 | 1.00 | 5.00 | 4.4174 | .84793 |
| Vomiting | 115 | 1.00 | 5.00 | 4.4783 | .91141 |

| Descriptive Statistics | N | Minimum | Maximum | Mean | Std. Deviation |
|---|---|---|---|---|---|
| **Suction** | **115** | **.00** | **5.00** | **4.1391** | **.99901** |
| **Wound dressing** | **115** | **.00** | **5.00** | **4.4348** | **.85973** |
| **Removal of stitches** | **115** | **.00** | **5.00** | **4.2087** | **1.14322** |
| **Taking temperature** | **115** | **.00** | **5.00** | **4.4087** | **.99908** |
| **Blood pressure** | **115** | **.00** | **5.00** | **4.3913** | **1.02337** |
| **Pulse and respiration** | **115** | **.00** | **5.00** | **4.4783** | **.96743** |
| **height and weight** | **115** | **.00** | **5.00** | **4.3826** | **1.17416** |
| **Sputum** | **115** | **.00** | **5.00** | **4.0870** | **1.08065** |
| **Blood specimen** | **115** | **.00** | **5.00** | **3.9304** | **1.30936** |
| **Urine C /S** | **115** | **.00** | **5.00** | **4.2000** | **1.13323** |
| **Finger prick** | **115** | **.00** | **5.00** | 4.2696 | **1.07867** |
| **Swab oral /rectal /wound** | **115** | **.00** | **5.00** | **4.3478** | **.96467** |
| **X ray** | **115** | **.00** | **5.00** | 4.4261 | **1.07655** |
| **Stool/faeces** | **115** | **.00** | **5.00** | **4.3043** | **1.06930** |
| **Valid N (listwise)** | **115** | | | | |

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