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TABLE OF CONTENTS

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ADAPTATION TO SEXUAL DYSFUNCTION IN PATIENTS WITH CHRONIC RENAL FAILURE

Akhyarul Anam[1]*, Lestari Sukmarini[2], Agung Waluyo[2]

1. Nursing Program Faculty of Health Sciences, Universitas Jenderal Soedirman, Purwokerto 53152, Indonesia
2. Faculty of Nursing, Universitas Indonesia, Depok 16424, Indonesia

*E-mail: akhyarul.anam@unsoed.ac.id

Abstract

The prevalence of chronic renal failure in Indonesia tends to increase in the lower age group (45–54 years). Chronic renal failure may lead to impaired sexual function. A descriptive phenomenology study with in-depth interviews was carried out with 12 participants, and thematic content analysis was applied. Six themes were revealed, as follows: 1) adaptation process to sexual dysfunction experienced, 2) sexual dysfunction experience, 3) importance of fulfilling sexuality needs, 4) behavior in dealing with sexual dysfunction, 5) perception of the cause of sexual dysfunction, and 6) participants' expectation of health service related to sexual function. The experience of adapting to sexual dysfunction became a meaningful process through partner involvement. Similar research involving more heterogeneous samples would benefit further discourse.

Keywords: chronic renal failure, patient experience of the adaptation process, sexual dysfunction

Abstrak

Adaptasi terhadap Disfungsi Seksual pada Pasien Gagal Ginjal Kronis. *Prevalensi gagal ginjal kronis di Indonesia cenderung meningkat pada kelompok usia lebih muda (45–54 tahun). Gagal ginjal kronis sering menyebabkan gangguan fungsi seksualitas (disfungsi seksual). Penelitian ini bertujuan mendapatkan gambaran mendalam tentang pengalaman proses adaptasi pasien gagal ginjal kronis yang mengalami disfungsi seksual. Desain penelitian menggunakan deskriptif fenomenologi dengan wawancara mendalam. Dua belas partisipan diperoleh dengan teknik purposive sampling. Hasil penelitian ini teridentifikasi enam tema yaitu 1) proses adaptasi terhadap disfungsi seksual yang dialami partisipan, 2) disfungsi seksual yang dialami, 3) makna pentingnya pemenuhan kebutuhan seksualitas, 4) perilaku dalam menghadapi disfungsi seksual, 5) persepsi tentang penyebab disfungsi seksual, dan 6) harapan partisipan terhadap pelayanan kesehatan terkait fungsi seksualitas. Proses adaptasi yang dialami partisipan merupakan pengalaman yang sangat bermakna karena melibatkan dirinya sendiri dan hubungan interpersonal dengan pasangannya. Penelitian sejenis dengan sampel lebih heterogen diperlukan untuk memperkaya keilmuan.*

Kata Kunci*: disfungsi seksual, gagal ginjal kronis, pengalaman proses adaptasi pasien*

Introduction

The global prevalence of chronic renal failure was 13.4% (Hill et al., 2016), while it was 0.2% in Indonesia, with an increasing tendency in the lower age group (45–54 years) compared with the results in the previous period (Ministry of Health Republic of Indonesia, 2013). Chronic kidney failure disrupts sexual function/sexual dysfunction (Sunanto, Rompas, & Pondang, 2015). Sabanciogullari, Taskin Yilmaz, Güngör, Söylemez, and Benli (2015) reported that 85.6% of patients with chronic renal failure have sexual dysfunction. Factors that influence sexual function in both men and women include hormonal problems, nerve disorders, decreased energy, and side effects of drugs (Lessan-pezeshki & Ghazizadeh, 2008). Other factors are emotional feelings, such as worry, anxiety, or depression, which are considered to endanger dialysis (Basok et al., 2009; Tannor, Archer, Kapembwa, van Schalkwyk, & Davids, 2017; Tobing, 2006).

Changes in sexual function can cause complex problems, including physical and psychological issues that are influenced by internal and external factors (Sunanto et al., 2015). The response of each person will vary depending on the individual's perception of the stimulus of sexual dysfunction. Stimulus that takes place continuously to produce a sustainable response will result in individual adaptation patterns. The view of the importance of sexual function significantly affects intimacy and individual's relationship with his or her partner and, thus, his or her happiness in life (Hjelm, Bard, Nyberg, & Apelqvist, 2004).

Sexual dysfunction causes a feeling of unhappiness because sexual satisfaction is not fulfilled (Elvira, 2006). Sexual needs are important basic needs to be met, including physiological (i.e., biological sexual aspects) and psychological needs (i.e., the need to love and be loved). Fulfillment of sexual needs varies and depends on individual sexual desires (Hendranata, 2011).

In sexual needs are not met, individuals will respond by adapting to the problem. The response can be an adaptive sexual shift or ineffective response, depending on the individual (Alligood, 2015; Roy, 2009). However, little evidence is available on sexual dysfunction in patients with chronic renal failure, especially in Indonesia (Sunanto et al., 2015). Thus, it is necessary to explore how chronic renal failure patients in Indonesia adapt to conditions that represent adverse effects of the disease, especially sexual aspects.

Methods

This descriptive phenomenological study aimed to elucidate the experience of adaptation to sexual dysfunction in patients with chronic renal failure. Data were collected through in-depth interviews using semi-structured questions. This research was conducted by applying research ethics, that is, protecting participants, building trust, being honest during the research process, and preventing negligence that could negatively affect the institution's reputation. This study was approved by the Research Ethics Committee of the Faculty of Nursing, Universitas Indonesia with number 151/UN2.F12.D/HKP.02.04/2017.

The participants were selected by purposive sampling. The inclusion criteria were as follows: 1) chronic renal failure, 2) sexual dysfunction problems since diagnosis of chronic renal failure, 3) ability to communicate well using the Indonesian and/or Javanese language such that the researchers could understand them, and 4) willingness to participate in the research, as signified by signing informed consent form. An open-question interview was conducted at the participants' homes, which lasted 45–60 min.

Results

The study participants were seven men (45–67 years) and five women (33–47 years). The themes identified from the analysis process are described below:

Theme 1: Adaptation process to sexual dysfunction experienced by participants. The process of adaptation experienced in living life with sexual dysfunction was divided into two categories, namely, positive adaptation and negative adaptation. Positive adaptation was an individual's self-adjustment mechanism toward stimuli by using positive approaches, supporting their life goals, and not creating new problems. Most of the participants were found to have positively adapted, for example, by hugging their partner, accepting the situation, and dhikr or praying, as two participants stated:

> *"Yes, it doesn't have to be like that (sexual intercourse). Communication from conversation, giving love, then a physical method such as kissing, hugging, and others." (P3)*

> *"Well sometimes, sometimes once a month. For refreshing. Hehehe (laugh)." (P11)*

A negative adaptation is defined as an adaptation that was not in line with the human life

purpose, where the response damaged the integrity of the individual and created new problems. The participants felt their partners still expected sexual fulfillment, as they did before —the state of sexual dysfunction experienced by participants conflicted with the couple's desire to continue their sexual intimacy, so that the participants adapted negatively, such as via compulsion in relationships and leaving their partners to marry someone else. Other participants expressed that they still had sexual feelings, but they do not have the physical ability to act on them, so they only imagined sexual encounters. One participant stated,

> *"Sometimes I still serve my partner, sometimes I'm lazy. If I don't want to serve, the partner's response becomes less harmonious." (P9)*

Theme 2: Sexual dysfunction experience. Male and female participants experienced sexual dysfunction. A male participant with erectile function problems stated,

> *"Yes, difficulty waking up (erection) is the point." (P3)*

Another sexuality problem was about desire, as one male participant mentioned,

> *"[I] don't think about lust. Really. No. Now there is no lust at all." (P12)*

Theme 3: Importance of fulfilling sexuality needs. Participants interpreted the fulfillment of sexuality needs as crucial for both men and women. Through sexual activity, humans can give their partners a feeling of mutual affection, as in the following participant's expression:

> *"Yes, those sexual needs are significant. Life is like that, especially those who are husband and wife (married). If people are married, it is a form of expression of affection, love for his partner. Yes, it is a natural process; it is also important because of needs." (P12)*

Some other participants expressed a different interpretation. One thought more about the economic needs of the family and prepared for the future of his children. For other participants, sexual needs were only peripheral, and they prioritized the treatment for kidney failure that was being experienced, as one participant stated:

> *"Yes, I have not thought about it (sexuality) now. Now, I think about how can children survive. Thankfully, they can continue their studies, how can they live, and the financial continues to run smoothly." (P6)*

Theme 4: Behavior in dealing with sexual dysfunction. The participants had engaged in various behaviors to find a cure, such as visiting a doctor. One participant revealed,

> *"I depend on the doctor, all the doctors say. I only followed the doctor's instructions." (P7)*

Other participants choose non-medical treatment, but there were no results, as one participant revealed,

> *"Alternative medicine has also been done, in the Karanganyar district which was promoted massively on the radio, until I finished the treatment, I did not get results. Ha ha ha (laugh)." (P5)*

Half of the participants said they were resigned to and accepted having sexual dysfunction, as expressed in the following statement,

> *"Yes, 'Yes, now let go of me.' Thank God, my husband knows, he is not selfish." (P8)*

Theme 5: Perceptions of the causes of sexual dysfunction. This theme includes physiological changes, diseases, and physical conditions. One participant revealed,

> *"Yes, if Hb is under 10, you don't have much desire." (P7)*

Another cause perceived by most participants was illness. Some of the interviewees had kidney disease alone, while some had kidney disease, diabetes, and hypertension. One participant stated,

> *"What I experienced, I read, hypertension's influence on the reproductive function is incredible; hypertension causes impotence, you know." (P6)*

According to two participants, an ill feeling could influence desire. Sexual intercourse requires energy, as illustrated in the following quotation:

> *"Now I am not able to have sexual intercourse because of tired, fatigue, exhausted. When I was healthy, I was definitely still strong. Now it is not strong enough for sexual intercourse, because it feels hard to breathe (shortness of breath)." (P11)*

Theme 6: Participants' expectation of health service related to sexuality function. Health service for sexuality problems was important for patients with sexual dysfunction. Many patients were confused about how to access the service. One participant remarked,

> *"Clinics about sexual dysfunction are important, important, necessary. Here there aren't any yet? Let me know..." (P3)*

Discussion

Adaptation process to sexual dysfunction experienced by participants. Adaptation is a process of change accompanying individuals' response to changes in the environment, and it can have physiological and psychological effects that will produce behavior (Chatrung, Sorajjakool, & Amnatsatsue, 2015; Roy, 2009). In this study, most of the participants (75%) went through a positive adaptation process. Some need their partners to be able to adapt as well, engaging in activities like sleeping together, kissing, and hugging. Spiritual activity was part of the positive adaptation process in dealing with sexual stressors due to chronic kidney failure (Krägeloh, 2011). The participants performed spiritual activities, such as remembering God, dhikr, and surrendering their living conditions to God. Through his *grounded theory*, Walton (2002) found that participants sought dialog with God and reflected on the meaning and purpose of life to alleviate stress.

In their phenomenological study in Turkey, Yılmaz and Özaltın (2011) found that six participants considered their sexual dysfunction as destiny and God's will, so they resigned themselves to being grateful so that they could avoid despair and depression. In this study, 48.5% of the dialysis patients who experienced sexual dysfunction accepted their decreasing sexual function. They thought that old age also influenced the decline in sexual function.

The negative adaptation processes found in this study were the participants' self-sacrifice for their partners. Sexual problems are the primary cause of disappointment in marriage, and they can lead to divorce, which occurred in 17% of the cases (Syarifuddin, 2014). In contrast, in another study, a woman in Turkey experiencing sexual dysfunction since diagnosis of chronic kidney failure did not feel the slightest concern when left by her partner due to sexual dysfunction. Yılmaz and Ozaltın (2011) mentions that this is a family relationship factor in marriage, as the woman's husband was his cousin.

Sexual dysfunction experience. In this study, sexual dysfunction was reported in both men and women. This is consistent with the research of Finkelstein, Shirani, Wuerth, and Finkelstein (2007), who found that the incidence rates of sexual dysfunction in cases of kidney failure were almost the same in men and women. In men, sexual dysfunction mostly presents as erectile dysfunction and decreased sexual desire, whereas in women, only sexual desire problems are found. According to Finkelstein et al. (2007), approximately 65% of male dialysis patients have difficulty getting and maintaining

an erection. According to Drüeke and Massy (2010), erectile dysfunction in patients with renal failure can be caused by arterial atherosclerosis of the genital area, which inhibits dilation of the cavernous artery during the erection process.

Another sexual dysfunction is the lack of sexual desire, which was experienced by nine participants (four men and five women). Most of them (67%) stated that the desire to have sexual intercourse had dissipated entirely. Others said it had decreased, but sometimes, sexual desire would still arise. This is in line with the results of Basok et al. (2009), who reported that 50% of women with chronic kidney failure experienced decreased libido, decreased orgasm, and decreased coitus frequency. Uremia due to chronic renal failure can also reduce sexual desire, lower fertility, and cause vaginal dryness (Arslan & Ege, 2009).

Importance of fulfilling sexuality needs. Sexuality needs are natural needs that usually must be fulfilled. According to the participants, sexual relations are important because they are a means of expressing their affection to their partners and producing offspring. Fesharah (2006) described sexual needs as expressions of the feelings of two individuals who respect, pay attention to, and love each other, so that there is a reciprocal relationship between them. The aspect of sexuality has a vital role in maintaining intimacy with a partner.

Some participants thought that the sexuality needs of adults until old age were no longer oriented to sexual intercourse alone, but on how to live life with their partners as loyal friends. The feeling of mutual love and support for each other was more important than sexual biological needs. The larger view of sexuality needs is more on attention and a supportive attitude, mutual love, helping each other when in need, being happy together, and becoming lifelong loyal friends (Santos et al., 2012).

Behavior in dealing with sexual dysfunction. Approximately 25% of the participants only relied on medical treatment to cure their sexual dysfunction. This is line with the work of Thompson and Barnes (2013), who revealed that 52.4% of the patients with sexual dysfunction in the United States use medication to treat erectile dysfunction. Ho, Singam, Hong, and Zainuddin (2011) described the behavior of men in Asia in facing sexuality problems, where they expect more concrete medical solutions that will have positive effects that can be directly perceived, in contrast to the indirect effects of lifestyle changes, weight loss, and smoking cessation. However, women are more likely to accept the doctor's advice through counseling, and 80% of women in China check their health related to sexual and reproductive functions via health services. The likelihood of men in China to consulting with doctors about their sexual health problems is lower than that of women.

Moreoer, 25% of the participants used non-healthcare treatments, such as traditional medicine, Javanese medicine, and massage. Their attempts at treatment were not successful. According to Ho et al. (2011), many people resort to exploring various types of traditional, alternative, and spiritual healing practices after being frustrated with the results of modern medicine. Non-healthcare methods combine body, mind, and spirit, and healing is achieved through the concept of energy and not matter, unlike modern medicine. Dwiyanto (2008) argues that the Javanese cultural community still holds a strong custom regarding the issue of sexuality by refering to a book entitled *Serat Centhini* by King Pakubuwono V in 1814 AD which contains problems of marriage and sexuality. Some of the ingredients that are often used in treating sexual dysfunction are ginseng, peg earth plants, turmeric, salt, Java chili, and chicken eggs.

Perceptions of the causes of sexual dysfunction. Among the participants, the causes of sexual dysfunction are related to nutritional intake, blood laboratory results, kidney disease, diabetes, hypertension, and physical conditions. Two participants felt that there were food restrictions in chronic renal failure that caused sex-

ual dysfunction. According to Zhou, Liu, and Zhai (2007) and Guan et al. (2015), the adequacy of nutrition dramatically affects the quality of sperm, whereas a low intake of nutrients can reduce sperm quality and quantity. Foods that are needed to improve sperm quality are those that contain folic acid, magnesium, antioxidants, zinc, and selenium.

This study found that 25% of the participants thought that sexual dysfunction was caused by hormonal factors, hemoglobin, and blood creatinine levels. Ali et al. (2005) found that blood urea and creatinine levels were risk factors and had a significant negative correlation with the incidence of sexual dysfunction ($p= 0.001$), while hemoglobin levels had a significant positive relationship ($p< 0.001$). Men will have normal sexual function if the concentration of testosterone in the blood remains in the normal range of 2.8–11 ng/ml.

In this study, kidney problems were the most common causes of sexual dysfunction, affecting two men and two women. This is in line with the results of other studies, for example, Sabanciogullari et al. (2015) found that sexual dysfunction occurs in 40%–80% of patients with chronic kidney failure. Chronic kidney failure causes significant changes in the body's metabolic system, and one of the effects is anemia due to the disruption of erythropoietin production (Cibulka & Racek, 2007; Kim et al., 2014). Saglimbene et al. (2017) showed that fatigue due to anemia can also reduce sexual ability by 41%.

Participants' expectation of health service related to sexuality function. Most of the participants (67%) wanted attention from health services to address sexual dysfunction problems, which could be a polyclinic or consultation measure because it is an important part of health care. Participants thought that nurses should be proactive in communicating with patients about sexuality issues so that patients felt they received attention. According to Yee (2010), different perspectives on sexuality issues between health workers and patients are one of the reasons for not discussing sexuality issues. A positive perspective can be built from a comprehensive understanding and knowledge (Fesharah, 2006). This shows that nurses have not made an extensive contribution in helping patients overcome sexuality problems.

Ho and Fernández's (2006) findings supported the hypothesis that health workers do not provide adequate care for patients' sexual health. Up to 92% of health workers never broached this topic with their clients, and 86% admitted that they did not provide adequate care. Several influencing factors included lack of knowledge about sexuality, shame, culture, lack of experience in caring for patients, lack of understanding of religious belief regarding sexuality, and nurses feeling embarrassed in dealing with patients' sexual issues (Clarkson & Robinson, 2010).

Limitation of this study were the majority of participants from the Javanese tribe. Ethnic and cultural differences will influence attitudes, perspectives, and adaptations in dealing the problems.

Conclusions

In describing the process of adaptation to sexual dysfunction in patients with chronic kidney failure, the experiences of the participants can be considered varied, and they were classified as positive and negative. The process is significant because it involves both the patients and their interpersonal relationships with their partners. The participants hoped that health services would be able to provide the best service in attending to the problem of sexual dysfunction in patients with chronic renal failure. Subsequent research may focus on analyzing appropriate interventions in addressing sexual dysfunction in patients with chronic renal failure.

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EFFECTIVE ULTRASOUND THERAPY AND NEURAL MOBILIZATION COMBINATIONS IN REDUCING HAND DISABILITIES IN CARPAL TUNNEL SYNDROME PATIENTS

Ni Luh Nopi Andayani*, Ari Wibawa, Made Hendra Satria Nugraha

Physiotherapy Department, Faculty of Medicine, Udayana University, Denpasar 80232, Indonesia

*E-mail: nopiandayanifk@unud.ac.id

Abstract

Excessive activity in the hands and wrists over a prolonged period of time can cause repetitive strain injury, which leads to the occurrence of carpal tunnel syndrome. The purpose of this study is to determine the differences in the effectiveness of ultrasound therapy and neural mobilization interventions with ultrasound therapy and passive stretching in reducing hand disabilities in patients with carpal tunnel syndrome. It is an experimental study, using the pre- and post-test control group design. The sampling technique employed was simple random sampling, with a study sample comprising 30 people. The difference test with an independent t-test showed a significant difference between the control group and the treatment group (p= 0.000), with a decrease hand disability percentage of 7% in the control group and 15% in the treatment group. Based on the results, it can be concluded that the combination of ultrasound therapy and neural mobilization is more effective in reducing hand disability than a combination of ultrasound therapy and passive stretching in patients with carpal tunnel syndrome.

Keywords: carpal tunnel syndrome, hand disability, neural mobilization, passive stretching, ultrasound therapy

Abstrak

Kombinasi Ultrasound Therapy dan Neural Mobilization Efektif dalam Menurunkan Disabilitas Tangan pada Penderita Carpal Tunnel Syndrome. *Aktivitas yang berulang pada pergelangan tangan apabila berlangsung lama dapat menimbulkan repetitive strain injury yang berujung terhadap terjadinya carpal tunnel syndrome. Tujuan dari penelitian ini adalah untuk mengetahui perbedaan efektivitas intervensi ultrasound therapy dan neural mobilization dengan ultrasound therapy dan passive stretching dalam menurunkan disabilitas tangan pada pasien carpal tunnel syndrome. Penelitian ini merupakan penelitian eksperimental dengan menggunakan rancangan penelitian pre-test and post-test control group design. Teknik pengambilan sampel dalam penelitian ini dengan cara simple random sampling. Sampel penelitian pada penelitian ini berjumlah 30 orang. Uji beda selisih dengan independent t-test menunjukkan adanya perbedaan yang bermakna antara kelompok kontrol dan kelompok perlakuan (p= 0,000) dengan persentase penurunan disabilitas tangan sebesar 7% pada kelompok kontrol dan 15% pada kelompok perlakuan. Berdasarkan hasil penelitian dapat disimpulkan bahwa kombinasi ultrasound therapy dan neural mobilization lebih efektif dalam menurunkan disabilitas tangan daripada kombinasi ultrasound therapy dan passive stretching pada pasien carpal tunnel syndrome.*

Kata Kunci*: carpal tunnel syndrome, disabilitas tangan, neural mobilization, passive stretching, ultrasound therapy*

Introduction

In daily life, humans often carry out repetitive activities involving hands. Such excessive activity can trigger repetitive strain injury (RSI), and frequent injuries to the hands can lead to carpal tunnel syndrome (CTS). CTS is a median nerve neuropathy in the upper limbs caused by an increase in pressure on the carpal tunnel, which triggers pressure on the median nerve (Rambe, 2004). Based on data from the United States national health survey in 2010, the prevalence of CTS was recorded at 8% and those related to employment were 2.1% (Lim, Chee, Girdler, & Lee, 2017). The incidence of CTS is estimated to be 0.6% in men and 5% in women;

in the United States, there are 1–3 cases per 1,000 population per year. In the UK the incidence rate is higher, at 70–160 cases per 1,000 people, while in the Netherlands there are 2.5 cases per 1,000 people per year (Dewi & Khotimah, 2017).

Patients who experience hand disorders in the form of CTS can be given pharmacological and non-pharmacological therapy in an effort to reduce pain, which is one of the symptoms that patients suffer (Daryono, Wibawa, & Tianing, 2014). Non-pharmacological therapy to reduce pain includes the use of physiotherapy modalities such as ultrasound therapy (US) and exercise therapy in the form of neural mobilization and passive stretching. US and passive stretching are physiotherapy treatments that are commonly used clinically, while neural mobilization interventions are new methods of physiotherapy interventions.

Ultrasound therapy interventions whereby thermal effects provide local heat to joint capsules, tendons, ligaments or muscles can result in increased cell activity and vasodilation of blood vessels that provide added nutrients and oxygen, and also facilitate the transport of metabolic waste back to the heart, resulting in decreased tip irritation nociceptive nerve endings and consequently reduced pain. The effect of heat will increase tissue temperature, causing an increase in elasticity and reducing the viscosity of collagen fibers, thereby increasing the scope of joint motion. US will not affect the process of tissue repair, but will accelerate the process of fibrotic tissue repair by accelerating the induction of controlled inflammatory substances. This, in turn, will accelerate the process of proliferation and consequently the formation of new tissue, which will be followed by an increase in the pain excitatory threshold and a decrease in tissue adhesion. This will have an impact on pain reduction and increase flexibility as well as the range of motion of the joints of the arm, leading to increased functional activity ability and decreased disability (Prentice, 2009).

When the muscles are stretched and elongated, the strength of the strain is transmitted to the muscle fibers through the connective tissue (endomysium and perimysium) around the muscle fibers. Molecular interactions link these non-contractile elements to the contractile unit of the muscle, the sarcomere. During passive stretching, longitudinal and lateral force transduction occurs. When stretching is applied to muscle-tendon units, either quickly or over long periods, the primary and secondary afferents of intrafusal muscle fibers detect changes in length and activate extrafusal muscle fibers through alpha motor neurons in the spinal cord, thereby activating stretch reflexes and increasing (facilitating) tension in the muscles being stretched. Increased tension causes resistance to elongation and in turn is considered to promote the effectiveness of stretching procedures. When the stretch reflex is activated in the extended muscle, decreased activity (inhibition) of the muscle on the opposite side of the joints, referred to as autogenic inhibition, can also occur (Kisner & Colby, 2012).

Neurodynamic techniques can improve mechanical functions in nerve structures, such as tension and sliding functions. When the nerve structure experiences clamping and disrupts mobility, pain will occur along the nerve. Neurodynamic sliding techniques play a major role in improving blood circulation and axonal transport, as well as increasing nerve integrity and reducing the pressure caused by intraneural and extraneural fibrosis (Shacklock, 2005). Neural mobilization aims to mobilize peripheral nerve tissue and surrounding structures, thus affecting the mechanical properties of the peripheral nerves. Physiotherapy uses this technique for the management of different nerve tissue compression disorders and other disorders that may include neuropathic pain in order to restore the disrupted nerve tissue mechanical function. Many theories explain about the benefits of neural mobilization, including increased circulation within the nerve; axoplasmic flow; improved the viscoelasticity of nerve connective tissue; dispersion

of intraneural edema; reduction in sensitization from the dorsal horn; supraspinal sensitization; and improved nerve travel (ELDesoky & Abutaleb, 2016).

Methods

The Health Research Ethics Commission, Research and Development Unit, Faculty of Medicine Udayana University - Sanglah Hospital has provided ethical approval for this study with Number 2054/UN14.2.2.VII.14/LP/2018. It is an experimental study, with a randomized pretest and post-test control group design. The study sample was divided into two groups and chosen randomly. The research locations were several physiotherapy practice clinics in City X. The treatment was performed three times a week from October to November 2018.

The target population were all patients who had carpal tunnel syndrome while the accessible population involved in this study are all patients who have carpal tunnel syndrome in City X. The study population needed to meet the following inclusion criteria: (1) they were patients with carpal tunnel syndrome, male or female, and 30–50 years old; and (2) they volunteered to take part in the research by signing an informed consent form. The exclusion criteria included: (1) the presence of musculoskeletal injuries such as fractures, sprains and other injuries in the arm area; (2) experiencing of postural abnormalities and spinal structures; and (3) the presence of anatomical deformities or abnormalities in the hand. Finally, the drop-out criteria established were: (1) if the patient fell ill or was injured while the data collection was taking place; and (2) if the patient did not take part in the exercises more at least three times.

The sample selection was chosen by the consecutive sampling technique from patients indicated to have carpal tunnel syndrome, who were visiting the physiotherapy clinic in City X at the time of the study, and met the inclusion and exclusion criteria. The sample size was 30 people, who were divided into two groups by random allocation. The treatment group was given ultrasound intervention and neural mobilization, while the control group was given ultrasound therapy intervention and passive stretching.

In the study, ultrasound therapy was used at a frequency of 1 MHZ, with continuous current, at an intensity of 0.5W/cm2 for 1 minute. Passive stretching in relation to the carpal tunnel syndrome condition is a stretching technique performed by the therapist on the patient's hand; in this case, the stretching of the flexor wrist muscles. This position is held for 30 seconds and repeated four times, and the procedure is repeated three times per week. Neural mobilization exercises involve stretching or stretching actions on the nervous system and aim to help develop nerve tissue movements through joint movements, such as those of the shoulders, elbows, hands and wrists. The exercise consists of two movements: (1) glenohumeral abduction, wrist extension, and supination, and (2) elbow extension, wrist extension, and cervical counter lateral movement. The application is repeated three times per week, with each movement carried out for three sets with ten repetitions and held for three seconds at the end of the movement.

To measure the level of disability of the CTS patients, the Wrist and Hand Disability Index (WHDI) was employed, which is able to evaluate related problems. The questionnaire consists of ten assessment points, namely pain intensity, numbness and tingling, strength, sleep, writing or typing tolerance, self-care, work, homework, driving, and recreation/sports. Each point is valued on the scale of 0–5; a value of 0 means no interference, and a value of 5 is experienced by the high interference.

Results

Sample Characteristic Data. The sample characteristics based on age and sex can be seen in Tables 1 and 2. Table 1 shows that the treatment group had an average age of 37.80, with that of the control group 37.67. Table 2 shows that the subjects of the control and treatment groups were

Table 1. Distribution of Sample Data by Age

Characteristic	Average Value and Standard Intersection			
	Treatment group		Control group	
	Average	Standard Intersection	Average	Standard Intersection
Age	37.80	5.074	37.67	6.079

Table 2. Distribution of Sample Data Based on Gender

Characteristic	Treatment group		Control group	
	N	%	N	%
Male	1	6.7	3	20
Female	14	93.3	12	80

Table 3. Normality and Homogeneity Test Results for the Disability Values of Hands Before and After Intervention

Data Group	Test for Normality with the Shapiro-Wilk Test				Homogeneity results with Levene's test
	Treatment group		Control group		
	Average ± SD	p	Average ± SD	p	
WHDI Before	13.07±11.78	0.647	13.33±11.09	0.315	0.882
WHDI After	5.27±17.78	0.169	10.07±9.78	0.122	0.441
WHDI Difference	7.80±9.31	0.666	3.27±2.92	0.144	0.088

Table 4. Paired Sample T-Test Results

Data Group	Before Intervention Mean±SD	After Intervention Mean±SD	p
Control group	13.33±3.33	10.07±3.12	0.000
Treatment group	13.07±3.43	5.27±4.27	0.000

Table 5. Test Results for the Difference in Decreased Hand Disability after Intervention

	Group	Average±SD	n	p
Difference in Decrease in Hand Disability	Treatment	7.80±3.05	15	0.000
	Control	3.27±1.71	15	

dominated by females, with 12 (80%) in the control group and 14 (93.3%) in the treatment group.

Normality and Homogeneity Tests. Normality was tested using the Shapiro-Wilk test, while homogeneity was tested using Levene's test. Based on Table 3, the probability values for the two groups are normally distributed ($p > 0.05$) both before and after, and in terms of difference. The homogeneity results with Levene's test also showed homogeneous data on the value of the disability of the hands before, after, and in terms of difference ($p > 0.05$). Based on the results of the two tests, the study hypothesis was tested using the parametric statistical test.

Mean Difference Test for Reduced Disability of Hands Before and After Intervention. The mean decreases in the value of hand disability before and after the administration of intervention

Table 6. Percentage of Decreased Hand Disability

Analysis Results	Treatment group	Control group
Hand Disability Before Intervention	13.07	13.33
Hand Disability After Intervention	5.27	10.07
Difference	7.80	3.27
Percentage (%)	15%	7%

or exercise in both study groups was tested by a paired sample t-test. Based on Table 4, the average difference in the value of hand disability decreased in the control and treatment groups, with a value of p= 0.000 (p< 0.05), which means that there are significant differrences in the value of hand disability before and after intervention.

Test for the Difference in the Reduction in Hand Disability after Intervention in the Control Group and Treatment Group. A comparison of the mean difference in the decrease in hand disability was measured by the wrist and hand disability index (WHDI) in both groups; the treatment group was given ultrasound therapy and neural mobilization intervention, while in the control group the ultrasound therapy and passive stretching intervention was tested using the independent sample t-test.

Table 5 shows the results of the calculation of the difference in the decrease in disability in hands, with a p-value of 0.000 (p <0.05) in the difference before and after intervention. This shows that there was a significant difference in the decrease in hand disability between the ultrasound and neural mobilization interventions and the ultrasound therapy and passive stretching interventions. Table 6 shows that the percentage reduction in the average hand disability as measured by WHDI in the treatment group was greater than in the control group.

Discussion

The Effectiveness of the Combination of Ultrasound Therapy and Passive Stretching in Reducing Hand Disability in CTS. Based on the statistical test results of the decrease in hand disability before and after being given a combination of ultrasound therapy and passive stretching, p-value 0.000 (p< 0.05) means that there are significant differences in that group. This is in line with research by Awan, Babur, Ansari, and Liaqat (2014), who found that stretching the flexor retinaculum can reduce pain, improve paresthesia assessment scale scores, and increase muscle strength in CTS patients. Besides, Hafez, Alenazi, Kachanathu, Alroumi, and Mohamed (2014) established that stretching can increase the range of flexion and extension of the wrist joints and increase grip strength.

When the muscles are stretched and elongated, the strength of the strain is transmitted to the muscle fibers through connective tissue (endomysium and perimysium) around the muscle fibers. Molecular interactions link these non-contractile elements with the contractile unit of the muscle, the sarcomere. During passive stretching, longitudinal and lateral force transduction occurs. When stretching is applied to muscle-tendon units, either quickly or over long periods, the primary and secondary afferents of intrafusal muscle fibers detect changes in length and activate extrafusal muscle fibers through alpha motor neurons in the spinal cord, thereby activating stretch reflexes and increasing (facilitating) tension in the muscles being stretched. Increased tension causes resistance to elongation and in turn is considered to promote the effectiveness of stretching procedures. When the stretch reflex is activated in the extended muscle, decreased activity (inhibition) of the muscle on the opposite side of the joints, referred to as autogenic inhibition, can also occur (Kisner & Colby, 2012).

The Combination of Ultrasound Therapy and Neural Mobilization is Effective in Reducing Hand Disability in CTS. Based on the statistical

test results on the decrease in disability of hands before and after the combination of ultrasound therapy and neural mobilization, p-value 0.000 ($p< 0.05$), which means that there are also significant differences in the group. This is in line with research by Asal, Elgendy, Ali, and Labib (2018), who examined the effectiveness of neural mobilization in CTS patients, and the intervention was applied three times per week for two weeks. Significant improvements were seen in pain levels, together with improvement in upper limb function, as measured using the upper extremity functional scale (UEFS). Neurodynamic plays an important role in pain management and increases the mobility of nerve roots. When the nerve root is under pressure and microcirculation is disrupted, the pressure on the nerve root can cause edema and demyelination. Neurodynamic techniques involving short oscillations have been shown to reduce edema and thus reduce hypoxia and its symptoms (Cleland, Childs, Palmer, & Eberhart, 2006; Bertolini, Silva, Trindade, Ciena, & Carvalho, 2009).

Neurodynamic techniques can help reduce nerve compression, frictional force, and tension forces, thereby reducing mechanical sensitivity to the nervous system. Such techniques can also improve mechanical functions in nerve structures, such as tension and sliding functions. When the nerve structure experiences clamping and is impaired in terms of mobility, pain will occur along the nerve. Neurodynamic sliding techniques play a major role in improving blood circulation and axonal transport, as well as improving nerve integrity and being able to reduce the pressure caused by intraneural and extraneural fibrosis. During normal movement, nerve blood moves constantly along with distortion that occurs in blood vessels and nerves. When the nervous structure becomes irritated, there will be an increase in tension (neural tension) due to tissue fibrosis. It is known that some of the effects of nervous tension include reduced intraneural blood flow (by 8–15%), ischemia of nerve tissue, and decreased nerve conductivity. Neurodynamic techniques can improve the mechanical function of nerves in terms of flexibility through tension techniques, thus increasing the ability of nerve structures to withstand tension loads without producing tissue hypoxia (Shacklock, 2005).

The Combination of Ultrasound Therapy and Neural Mobilization is more Effective than the Combination of Ultrasound Therapy and Passive Stretching in Reducing Hand Disability in CTS. Based on the results of the statistical tests conducted, it can be seen that the results of the calculation of the difference in the decrease in hand dis-ability obtained a p-value of 0.000 ($p > 0.05$) in the difference between pre- and post-intervention. This means that there is a significant difference in the decrease in hand disability between ultrasound therapy and neural mobilization interventions and ultrasound therapy and passive stretching ones. The average percentage reduction in hand disability as measured by the wrist and hand disability index (WHDI) over one week shows that the reduction in the treatment group was greater than in the control group. Therefore, ultrasound and neural mobilization interventions are effective in reducing hand disability in carpal tunnel syndrome sufferers by 15%, whereas ultrasound interventions and passive stretching result in a 7% decrease. The results of this study are consistent with research conducted by Setiyaningrum (2015), who found that ultrasound and neural mobilization interventions were better than laser and neural mobilization in reducing disability in CTS cases.

The application dose of ultrasound therapy is based on the application of the frequency, mode and intensity application. At greater frequencies, more oscillation occurs and increased effort is needed for the sound waves to pass through molecular friction. This means that more energy is absorbed in superficial tissue and less is available for transmission to deeper tissue. Generally, the 3 MHz frequency is chosen, with a tissue target reaching 1–2 cm from the body surface, while the 1 MHz frequency is used for deeper tissue which is more than 2 cm from the skin surface. Ultrasound therapy is used to in-

crease tissue extensibility. Tendon tissue is a network that receives ultrasound therapy wave penetration faster because it has greater collagen content than muscle. Chan, in Michlovits, Bellew, and Nolan (2012), describes the effect of heating with an ultrasound therapy frequency of 3 MHz at an intensity of 1.0W/cm2 for 4 minutes on an uninjured patellar tendon. When the area is treated twice the effective radiating area (ERA) the average increase in temperature in the tendon is 8°C (14.4°F) shortly after being given therapy, which does not return to baseline for 20 minutes post-treatment, while the therapeutic area (4xERA) temperature rises by 5°C (9°F) and returns to the baseline after 15 minutes. When tissue temperature rises by 4°C (7.2°F), this condition is very important in improving the extension of connective tissue. It is suggested to do the stretching in this session or to be called the "window of opportunity." In this study, the application (2xERA) made the temperature rise by more than 4°C (7.2°F) after 4 minutes of therapy time, so it is best to stretch afterward.

As a result of various human movements, various types of mechanical stress are absorbed into the nervous structure. When nerves experience compressive, tensile or shear forces that exceed their capacity, circulation within the nerve and axoplasmic flow are blocked, which causes ischemia and impaired function. Compression of the peripheral nerves can cause motor and sensory dysfunction. Moreover, compression of nerve structures causes some changes in the microvascular circulation of the nerve and facilitates the release of several inflammatory mediators that cause pain. Consequently, adhesion is formed between the nerve roots and the structure of the injured tissue as a result of inflammation, which causes traps in the nerve structure. Besides, intraneural edema, nerve conduction blocks, and mechanical sensitization are associated with compression of nerve structures (ELDesoky & Abutaleb, 2016).

Various physiotherapy interventions such as exercise, manual therapy and electrotherapy have been used for the treatment of nerve compression. Neural mobilization aims to mobilize peripheral nerve tissue and surrounding structures so that it affects the mechanical properties of the peripheral nerves. Physiotherapy uses this technique for the management of different nerve tissue compression disorders, and other disorders that may include neuropathic pain, to restore the disrupted nerve tissue mechanical function. Many theories explain the benefits of neural mobilization, including increasing circulation within the nerve, axoplasmic flow, the viscoelasticity of nerve connective tissue, dispersion of intraneural edema, reduction of sensitization from the dorsal horn, supraspinal and supraspinal sensitization, and improving nerve travel (ELDesoky & Abutaleb, 2016). Other studies report that nerve mobilization has a hypoalgesic effect on c-fiber that sends pain signals after the application of several nerve mobilization techniques to the median nerve. Researchers believe that this hypoalgesic effect might be caused by inhibition of pain signals in the dorsal horn (Beneciuk, Bishop, & George, 2009).

Conclusions

Based on the results, it can be concluded that the combination of ultrasound therapy and neural mobilization is more effective in reducing hand disability than a combination of ultrasound therapy and passive stretching in patients with carpal tunnel syndrome.

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IMPROVEMENT IN PATIENTS' ABILITY TO CARE FOR ANXIETY AND IMPAIRED BODY IMAGE: A CASE REPORT OF ACCEPTANCE AND COMMITMENT THERAPY AND FAMILY PSYCHOEDUCATION

Rasmawati Rasmawati[1], Budi Anna Keliat[2*], Herni Susanti[2]

1. Faculty of Medicine and Health Science, UIN Alauddin Makassar, Gowa 92113, Indonesia
2. Faculty of Nursing, Universitas Indonesia, Depok 16424, Indonesia

*E-mail: ba_keliat@ui.ac.id

Abstract

Heart failure and hypertension are non-communicable diseases that are responsible for 70% of deaths worldwide and cause anxiety and impaired body image. Nursing interventions (therapy in general) and acceptance and commitment therapy increase patients' acceptance of the disease and commitment to alleviate anxiety and improve impaired body image. Meanwhile, family psychoeducation improves the family's ability to care for the patient. This case report presents two patients with heart failure and hypertension. The two patients experienced a decrease in symptoms on the cognitive aspects (difficulty concentrating, focusing on self, and decline body changes), affective aspects (worry, shame, and despair), physiological aspects (sleep disorders and appetite), and behavioral aspects (daydreaming, decreased productivity, and social difficulties). Patients who find difficulty enjoying daily activities and increasing their ability and commitment to overcome anxiety and impaired body image should receive nursing intervention, acceptance and commitment therapy, and family psychoeducation as part of nursing services.

Keywords: acceptance and commitment therapy, anxiety, family psychoeducation, hypertension, impaired body image

Abstrak

Peningkatan Kemampuan Klien Merawat Ansietas dan Gangguan Citra Tubuh: Laporan Kasus Acceptance and Commitment Therapy dan Psikoedukasi Keluarga*. Gagal jantung dan hipertensi merupakan penyakit tidak menular yang menjadi penyebab 70% kematian di dunia serta menyebabkan ansietas dan gangguan citra tubuh. Tindakan keperawatan ners dan ners spesialis Acceptance and commitment therapy diberikan pada klien agar dapat meningkatkan penerimaan terhadap penyakit dan komitmen merawat ansetas dan gangguan citra tubuh. Psikoedukasi keluarga dilakukan agar keluarga mampu membantu merawat klien dalam menghadapi penyakitnya. Metode yang digunakan berupa laporan kasus dalam bentuk case series pada dua klien dewasa dengan gagal jantung dan hipertensi. Hasil menunjukkan bahwa kedua klien mengalami penurunan gejala pada aspek kognitif berupa sulit konsentrasi, fokus pada diri sendiri, tidak menerima perubahan tubuh; afektif: khawatir, malu dan putus asa; aspek fisilogis: gangguan tidur dan tidak nafsu makan; perilaku: melamun, penurunan produktivitas; dan sosial: sulit menikmati kegiatan harian serta terjadi peningkatan kemampuan klien dalam menerima penyakit dan komitmen merawat ansietas dan gangguan citra tubuh. Pemberian tindakan keperawatan ners dan ners spesialis acceptance and commitment therapy serta psikoedukasi keluarga perlu dibudayakan dalam pemberian pelayanan keperawatan di unit umum.*

Kata Kunci*: acceptance and commitment therapy, ansietas, gangguan citra tubuh, hipertensi, psikoedukasi keluarga*

Introduction

Hypertension and heart failure are non-infectious diseases that cause 70% of deaths in the world (World Health Organization, 2017). The prevalence of hypertension is 25.8%, and it has become one of the 12 healthy family indicators as a minimum standard of health (Ministry of Health Republic of Indonesia, 2013, 2016).

Hypertension can cause physical disorders and mental health problems that affect the well-being and quality of life of patients (Hsu, Tsao, Chen, & Chou, 2014). About 59% of patients

with hypertension develop anxiety and impaired body image (Fatimah, Maideen, Sidik, Rampal, & Mukhtar, 2014; Hsu et al., 2014). In 2015, the estimated number of people who experienced anxiety reached 264 million, which has increased by 14.9% since 2005 (WHO, 2017).

The symptoms of anxiety and impaired body image are classified as physiological, behavioral, cognitive, and affective responses (Stuart, Keliat, & Pasaribu, 2016). Physiological responses include increased heart rate, hyperventilation, diaphoresis, insomnia, constipation, or diarrhea. Certain behaviors are performed repeatedly in a behavioral response. A cognitive response can be difficulty concentrating or thinking clearly about anything other than worry. Affective responses may include nervousness, anxiety, tension, and feelings of danger, panic, or fear (Legg, 2016).

Acceptance and commitment therapy (ACT) is a specialist nursing intervention that alleviates anxiety and improves impaired body image (Sharp, 2012). ACT focuses on changing the response of patients to stressors and not the unpleasant experience itself, with the eventual goal of the patient reconciling the problem and fostering a positive attitude to achieve life goals (Hayes, Strosahl, & Wilson, 2016).

Research has shown clinical improvement in anxiety disorders after ACT during an 8-month follow-up (Codd, Twohig, Crosby, & Enno, 2011). ACT can also improve the response to body image of patients with eating disorders (Masuda, Ng, Moore, Felix, & Drake, 2016), lowering dissatisfaction with body image and attitude maladaptation after a 1 month follow-up (Walloch, 2015).

Family involvement is important in patient recovery. The family plays an important role in the treatment process and provides moral support (Shields, Finley, & Chawla, 2012). Family psychoeducation is a nursing intervention allowing caregivers to provide appropriate care for patients and care for themselves (Caqueo-Urizar, Rus-Calafel, Urzua, Escudero, & Gutierrez-Maldonado, 2015). The existence of a caregiver accounted for 61.8% of hypertensive patient compliance (Yeni, Husna, & Dachriyanus, 2016). ACT combined with family psychoeducation increases acceptance and commitment and decreases anxiety and depression in patients with Human Immunodeficiency Virus/ Acquired Immune Deficiency Syndrome (HIV/AIDS) (Silitonga, Keliat, & Wardani, 2013)

The patients included in the study were those hospitalized in a public hospital ward and suffering from anxiety and impaired body image. Patients were selected using the following criteria: characteristics of the same disease (hypertension), experienced rehospitalization, and had an unpleasant experience. This study examined nurses specializing in ACT and family psychoeducation with the aim to decrease symptoms of anxiety and impaired body image and increase the patients' ability to overcome anxiety and impaired body image.

The nursing process used a modeling approach (Stuart) that describes stress adaptation to the whole disease, signs and symptoms, as well as the ability to form constructive coping strategies (Stuart et al., 2016).

Case Illustrations

This paper describes the cases of two patients with anxiety and impaired body image due to hypertension (the general state of each patient is illustrated in Table 1). The patients received nursing intervention as usual, and specialist nurses used ACT intervention and family psychoeducation for the caregivers to measure signs and symptoms.

Symptoms of cognitive, affective, physiological, behavioral, and social aspects; anxiety; and impaired body image were assessed. The patients' ability to address anxiety, impaired body image, reception, capability and commitment, and family abilities was examined using instruments from Stuart models that have not yet been

tested for validity and reliability.

Nursing interventions included usual and specialist nursing interventions. General nursing interventions for anxiety include 1) teaching the patient how to relax and take a deep breath, 2) management of anxiety with distractions, 3) positive thinking, and 4) management of anxiety with a spiritual technique. The nursing interventions for impaired body image included 1) identifying the healthy parts of the body, 2) identifying the affected parts of the body, 3) training the healthy and injured body parts, and 4) a positive affirmation for body parts.

Normal nursing interventions are given concurrently with specialist nursing interventions. ACT can be performed two to three times per meeting. ACT consists of 4 sections: section 1, reviewing the unpleasant experience; section 2, discussing the patients' response to an unpleasant experience; section 3, identifying together the impact of the response of an unpleasant experience and accepting the incident; and section 4, identifying the patients' values and how to commit and adapt the therapy to achieve the patients' objectives based on a shared value. All sections can be conducted simultaneously in the first meeting. The objectives of ACT are as follows: 1) to help patients accept an unpleasant experience, including illness; 2) to help patients identify the value and purpose of their life; and 3) to help patients identify ways to achieve their goals, including undergoing treatment, and commit to them.

Family psychoeducation is provided together with family education in as many as six sections or in three or five meetings. Section 1, identification of the health problems faced when caring for family members; section 2, taking care of the patients' health problems; section 3, stress management in the family; section 4, management of the burden on families; section 5, utilizing support systems; and section 6, evaluation of the benefits of family psychoeducation. Family psychoeducation is in accordance with the following functions of the family: 1) recognize family health problems; 2) decide to care for sick members; 3) care for family members; 4) create a therapeutic environment for sick members; and 5) use a health facility to care for sick members.

The assessment and implementation of patients included evaluating the signs and symptoms of

Table 1. Overview of Patient Circumstances

Name (Age)	History
Mrs. T, (57 years old)	Admitted to hospital 3 times for dizziness, blood pressure of 170/110 mmHg, decreased food intake, heartburn, nausea, and vomiting. *Medical diagnosis*: hypertension, dyspepsia, diabetes mellitus A history of hypertension for 10 years, diabetes mellitus 1 year. The unpleasant experience of the disease is not yet managed, repeated treatments for foot swelling, difficulty walking, invasive tools have been used *Nursing diagnosis*: pain, nutritional deficits, changes in cerebral tissue perfusion, anxiety, impaired body image *Length of stay*: 5 days
Mr. R, (21 years old)	Treated at hospital 3 times, for severe headache, blood pressure 160/100 mmHg, fainting and seizures when in the emergency room. *Medical diagnosis*: hypertension, cepalgia, meningoencephalitis History of the disease for three years, use of drugs Experiences pain and repeatedly hospitalized, frequent fainting, severe headaches, installation of invasive tool for the hospital (intravenous catheters) *Nursing Diagnosis*: pain, changes in cerebral tissue perfusion, anxiety, impaired body image *Length of stay*: 5 days

Table 2. Summary of Assessment and Nursing Measures Implementation: Patient 1

Signs and Symptoms	Patient Capabilities	Family Capabilities
Cognitive: difficulty concentrating, decreased learning ability, decreased perception field, focused on self, does not accept changes to the body, not satisfied with their health, feels negatively toward their body, helpless, disappointed. *Affective:* worry, feeling of insecurity, fear, sadness. *Physiological*: facial tension, sleep disturbances, pain, blood pressure 170/110 mmHg. *Behavior*: dreamy, reduced productivity, poor eye contact, tell the past about her body, lifestyle changes, refused treatment. *Social*: withdrawn, finds difficulty enjoying daily activities, mostly silent. Total Signs and Symptoms: 28	Capable of distraction, recognize injured body parts. Cannot relax, think positively, recognize healthy body, accept the body part affected, accept pain, identify values, and goals, or commit. Total capability of Patient: 2	Caregiver: husband has not recognized the problems of anxiety and impaired body image. Cannot make decisions in caring for the patient. Cannot care for the patient, modify the environment to care for the patient, or use health facilities to treat the patient. Total ability of family: 3

Implementation of Nursing Measures

Meeting (Day)	Nursing Implementation	Σ S	Σ PC	Σ CA
1	Patient: a. Validation of the ability to distract and worship; Management of body image: recognize the body is disturbed. b. Relaxation training: take a deep breath and think positively with five-finger hypnosis, identify healthy body parts, training the healthy body parts. Family: a. Identifying the health problems encountered in treating patients and exercising care for hypertension and anxiety.	22	4	3
2	Patient: a. Evaluation of signs and symptoms of anxiety and impaired body image. b. Validation of the ability to relax, distract, think positively, and worship. Body image management: exercise the healthy and injured body parts. c. Positive affirmation exercises. d. Accept changes in the body (leg swelling) and decreased health conditions, using the value that is owned and make a commitment to adhere to treatment. Family: a. Evaluation of family issues in care. b. Validation of the ability to know the problem and the decision to care for hypertension and anxiety. c. Exercise care for impaired body image, stress management through deep breathing, muscle relaxation, and load management with rest.	11	6	5
3	Patient: a. Evaluation of signs and symptoms of anxiety and impaired body image. b. Validation of the ability to relax, distract, think positively, and worship. Body image management: knowing healthy and affected body parts, train healthy and affected body parts, positive affirmations. c. Accept health condition, identify the value and purpose of their life, and be committed. d. Accept changes in the body (the installation of invasive tools), declining health conditions, use values and make a commitment.	3	10	5

Table 2. Summary of Assessment and Nursing Measures Implementation: Patient 1 (continue)

Implementation of Nursing Measures				
Meeting (Day)	Nursing Implementation	Σ S	Σ PC	Σ CA
3	Family: a. Evaluation of family issues in caring. b. Validation of the ability to know the problem and make the decision to care for the patient, treat hypertension, anxiety, impaired body image, stress and load management, create a therapeutic environment, and use health facilities for treating patients. c. Identify support systems, such as the youngest child, and health care. d. Evaluate the benefits of family psychoeducation.			

Note: S: Signs and Symptoms PC: Patient Capabilities CA: Caregiver's Ability

patients and the ability of patients and families before and after the nursing actions, as shown in Table 2.

Patient 1 showed decreased signs and symptoms after the nursing intervention, especially after the second and third interventions. However, at the end of the intervention, the patient showed signs and symptoms of cognitive decline in learning ability. The patient experienced difficulty in absorbing the information because of her age. The signs and symptoms of affective aspects were a feeling of sadness when the patient remembered her son had died, despite being able to accept that her daughter had died. For behavioral lifestyle changes, the patient must follow dietary rules and not eat high-glucose foods, which can increase blood pressure.

The ability of families also increased after nursing actions, and acceptance, capability, and commitment emerged after the third meeting. The patient accepted the pain of heartburn, accepted that her son had died, and received all forms of medical therapy. The caregiver treated her by adjusting her diet for hypertension and diabetes, and motivated the patient to seek treatment.

The signs and symptoms for patient 2 did not appear again after the nursing intervention. At the end of the meeting, the family's ability also increased. Acceptance of the disease occurred after the second meeting when he accepted his head pain condition. He was able to focus not only on his sick body but also on the healthy parts of his body and commit to the rules for treatment given after the third meeting.

Graphic 1 shows the signs and symptoms, the patients' ability, and the ability of the families after nursing.

Discussion

Unpleasant experiences before and during hospitalization were factors in anxiety and impaired body image reported by the patients. All patients revealed that the rehospitalization was the most unpleasant thing. The level of rehospitalization on cardiovascular disease was about 30% within a period of 30–90 days (Gheorghiade, Vaduganathan, Fonarow, & Bonow, 2013). Rehospitalization causes the patients to experience rejection and boredom in the face of their illness.

The first focus of the intervention is to decrease the signs and symptoms of patients in the form of cognitive, affective, and behavioral aspects after the administration of ACT therapy. Data obtained at the end of therapy showed that the patients had decreased signs and symptoms of anxiety and impaired body image. However, patients with signs and symptoms of cognitive and

Table 3. Summary of Assessment and Nursing Measures Implementation: Patient 2

Signs and Symptoms	Patient Capabilities	Family Capabilities
Cognitive: difficulty concentrating, decreased learning ability, focused on self, fear, does not accept change in the body, not satisfied with his health condition, powerlessness *Affective*: worry, insecurity, disappointment with their body, sad *Physiological*: facial tension, sleep disturbance, loss of appetite, impaired body functions, gloomy face, blood pressure 160/100 mmHg *Behavior*: alert, decreased productivity, ignoring medical therapy *Social*: finds difficulty enjoying daily activities Total Signs and Symptoms 21	Capable of distraction, recognize parts of the body that are disrupted. Cannot relax, think positively, recognize healthy body parts, receive the body part affected, identify values and goals, or commit. Total capability of Patient: 2	Caregiver: parents able to recognize anxiety in patient. Cannot identify issues of impaired body image. Can make a decision to treat. Can perform maintenance by providing a distraction, and invite patient to continue to pray. Can modify the environment in caring for the patient and use health facilities for treating the patient. Total ability of the family: 3

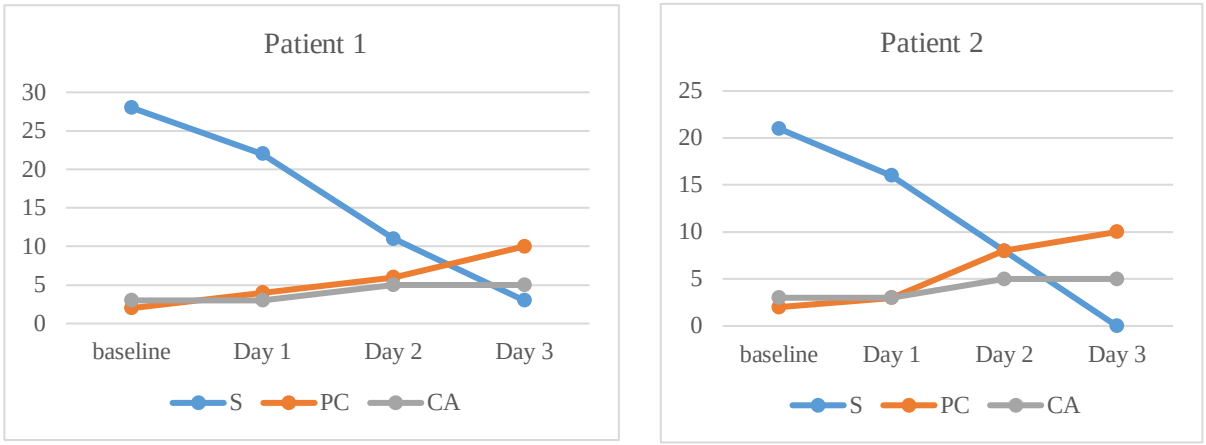
Implementation of Nursing Measures

Meeting (Day)	Nursing Implementation	Σ S	Σ PC	Σ CA
1	Patient: a. Validation of the ability to distract; management of body image; recognize the body is disturbed. b. Relaxation training: take a deep breath and think positively with five-finger hypnosis, the ability to worship. Family: a. Identifying health problems encountered in treating patients and exercising care of hypertension and anxiety.	16	3	3
2	Patient: a. Evaluation of signs and symptoms of anxiety and impaired body image. b. Validation of the ability to relax, distract, think positively, and worship; management of body image. c. Identify parts of a healthy body, exercise the body parts affected, practice positive affirmations. d. Accept declining health conditions, using the value and make a commitment to not misuse drugs again. Family: a. Evaluation of family issues in caring. b. Validation of the ability to know the problem and make the decision to care for hypertension and anxiety. c. Exercise care of impaired body image, stress management, and deep breathing.	8	8	5
3	Patient: a. Evaluation of signs and symptoms of anxiety and impaired body image. b. Validation of the ability to relax, distract, think positively, and worship; body image management; know the body, train body parts, positive affirmations, accept health conditions, identify the value and purpose of their life, and commit. c. Accept changes in the body (the installation of invasive tools) and focus on the conditions experienced, such as headaches; using the value that is owned and making a commitment to comply with treatment procedures.	0	10	5

Table 3. Summary of Assessment and Nursing Measures Implementation: Patient 2 (continue)

Implementation of Nursing Measures				
Meeting (Day)	Nursing Implementation	Σ S	Σ PC	Σ CA
3	Family: a. Evaluation of family issues in caring for the patient b. Validation of the ability to know the problem and make the decision to care for the patient, treat hypertension, anxiety, impaired body image, stress and load management, create a therapeutic environment, and use health facilities for treating the patient. c. Identify a support system: brother, wife, and health care affordability. d. Evaluating the benefits of family psychoeducation.			

Note: S: Signs and Symptoms PC: Patient Capabilities CA: Caregiver's Ability



Graphic 1. Changes in signs and symptoms as well as abilities after nursing implementation

affective aspects still persisted. This occurrence may be influenced by the clinical condition of the illness suffered and the relatively short follow-up time. The implementation of ACT for patients with eating disorders showed a decrease in symptoms and improvement in body image at 3 and 12 months follow-up after ACT (Masuda et al., 2016).

Recent studies on the various forms of psychopathology have indicated that intrapersonal processes, including the avoidance of experience, and interpersonal processes such as difficulty identifying and expressing emotions with others, are correlated with high levels of psychopathology. Results showed that intrapersonal and interpersonal variables are significant predictors of impaired body image (Callaghan, Duenas, Nadeau, Darrow, Van der Merwe, & Misko, 2012)

The second focus is to increase the patients' acceptance of the pain they are experiencing and commitment to treatments for anxiety and impaired body image. Data showed that ACT and family psychoeducation improved the abilities of patients and families. Patients showed increased acceptance and value in their life, the family, and a social sphere with a motivation and commitment to healing. According to Grumet and Fitzpatrick (2016), values can improve motivation and compliance to engage in treatment.

Work values also contribute to the creation of meaning and purpose that can positively improve the quality of life.

Family psychoeducation therapy provides families with care assistance to patients in accordance with the Orem model of nursing systems. According to Sulistiowati, Keliat, and Wardani (2014), cognitive and psychomotor ability increased significantly in families after family psychoeducation. Family psychoeducation can also increase family psychosocial support for patients with physical health problems (Rahayu, Hamid, & Sabri, 2011). It improves the patients' acceptance of the disease conditions and motivation to comply with a given therapeutic program.

Conclusions

This case report shows a decrease in symptoms of patients with anxiety and impaired body image in cognitive, affective, physiological, behavioral, and social aspects. The patients' ability to accept pain and commit to treatment for anxiety and impaired body image increased after ACT. The ability of the family to care for patients and to motivate patients and cope with the burden of caring also increased after family psychoeducation. This case report recommends the provision of nursing actions, specialist nurses, ACT, and family psychoeducation as part of nursing services.

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JOB DEMANDS–RESOURCES MODEL AFFECTS THE PERFORMANCE OF ASSOCIATE NURSES IN HOSPITAL

Khairunnisa Batubara, Bustami Syam*, Sri Eka Wahyuni

Faculty of Nursing, Universitas Sumatera Utara, Medan 20155, Indonesia

*E-mail: bustami@usu.ac.id

Abstract

Low nurses' performance is related with increased job demands and unprofessional job resources. This cross-sectional study aimed to analyze the effects of the job demands–resources model on the performance of associate nurses. The study population was composed of 126 nurses randomly selected. Data were analyzed using the multiple linear regression test. The results showed that job demands and job resources significantly affected the performance of associate nurses. A moderate or heavy level of job demands supported with good job resources will have a positive effect on nurse motivation; thus, nurse's performance remains good. Job demands must be balanced with job resources, which is important in formulating an organizational policy model that contributes to improving nurse performance.

Keywords: job demands–resources model, nurse performance

Abstrak

Model Tuntutan-Sumber Daya Pekerjaan Memengaruhi Kinerja Perawat Pelaksana di Rumah Sakit*. Kurangnya kinerja perawat berkaitan dengan tuntutan pekerjaan yang meningkat dan sumber daya pekerjaan yang tidak profesional. Penelitian ini bertujuan untuk menganalisis pengaruh job demands-resources model terhadap kinerja perawat pelaksana dengan menggunakan cross-sectional. Sampel dalam penelitian ini sebanyak 126 perawat ruangan rawat inap dan menggunakan teknik simple random sampling. Analisis dilakukan menggunakan persamaan regresi linier berganda. Hasil penelitian menunjukkan bahwa job demands-resources model berpengaruh terhadap kinerja perawat pelaksana. Tuntutan pekerjaan pada kategori sedang maupun berat namun diimbangi dengan sumber daya pekerjaan yang baik, maka perawat memiliki motivasi yang bersifat positif sehingga kinerja perawat tetap baik. Direkomendasikan pada pihak manajemen agar tuntutan pekerjaan yang diberikan harus diseimbangkan dengan sumber daya pekerjaan sehingga pada akhirnya dapat dirumuskan model kebijakan organisasi yang berkonstribusi dalam meningkatkan kinerja perawat.*

Kata Kunci: *job demands-resources model, kinerja perawat*

Introduction

Performance becomes an important aspect in hospital management because it is considered to improve capability, creativity, and nursing quality (Muller, Bezuidenhout, & Jooste, 2011). According to the Public Service and Merit Protection Commission (PSMPC), the hospital manager should consider employees' health to improve performance by increasing creativity among individuals and teams (Awases, Bezuidenhout, & Roos, 2013). The manager should support nurses to be always responsible and to create optimum work climate (Caricati et al., 2013).

Nurses often face emergency at work, which results in poor physiological and psychological health (Weiten, 2010). Inappropriate work autonomy and career path for nurse's future are some reasons why nurses working in hospitals experience high work pressure (Montgomery, Spanu, Baban, & Panagopoulou, 2015). The Second South African Nurses Conference in

2013 on nurse performance reported that factors causing poor performance in the nursing sector are resource scarcity, high work fatigue, unhappiness in performing work due to flawed work program, low remuneration and little opportunity to improve knowledge on nursing science for continued growth, quality issue and low work satisfaction, and insulting words from patients, patients' families, and staffs (Klopper & Coetzee, 2013).

Taris, Van Beek, and Schaufeli (2014) applied the job demands–resources model and found the mediating role of *work* engagement and burnout in motivating affects fatigue. In another study, Al-Homayan, Shamsudin, Subramaniam, and Islam (2013) found significant relations between job demands and job resources and nurse performance; that is, the job demands–resources model can tackle work stress. An Indonesian study on job demands–resources model by Lestari and Zamralita (2018) reported that job demand is the most common cognitive demand experienced by employees of an institution in DKI Jakarta, while the least common aspect is role conflict. The most common work support for job resources is coaching by manager, while the least common is autonomy.

Dr. Pirngadi Hospital in Medan is a type B Government Hospital of North Sumatera Province, Indonesia. Based on the report of the Quality Committee, the average length of treating a patient was 6.80 days, and in 2017, the average length of stay was 5.83 days. According to the Department of Health, the Dr. Pirngadi Hospital has nursing service quality which is not consistent with patient expectation, affecting patient satisfaction and performance assessment of associate nurses in the evaluation performed every year in accordance with the government's format of the Employee Implementation Assessment List (DP3). The result of preliminary interviews with three of five nurses in the emergency room shows that excessive workload, shortage of resources, and inappropriate work shift cause work stress among nurses.

The management should understand the job demands–resources model to improve performance because it can solve work fatigue, enhance nurse welfare, and affect employee's psychological satisfaction. Good work design could improve motivation, cultivate insight, increase job resources productivity, and improve organizational performance at organizational and individual levels. This concept is supported by Schaufeli's study (2017) who uses eight stages of implementation of the job demands–resources model on hospital employees as a guide to measure work engagement and solve work fatigue. Thus, managers could understand and reduce employee demands, formulate policy on the number of employees, schedule employee training program, conduct survey in accordance with managerial policy, maintain a good two-way communication between manager and employee, improve mutual appreciation and respect within organization, use technological system to accelerate work, and provide coaching to employees on how to prepare work and manage time. Bakker (2014) also argued that the job demands–resources model can be used to correct job characteristics, work fatigue, and work engagement for all organizations, including health. Therefore, the researcher was interested in studying the effect of the job demands–resources model on nurse performance in the Z Hospital of Medan, Indonesia. Thus, this study aimed to analyze the effect of the job demands–resources model on the performance of associate nurses in the Z Hospital of Medan.

Methods

This quantitative study followed a cross-sectional with causality design to examine causal and intervariable relations (Grove, Gray, & Burns, 2014).

The study was conducted in the Z Hospital in Medan, Indonesia. The research population was composed of 196 nurses from 14 inpatient rooms. The sample population was composed of 126 associate nurses identified using simple random sampling. The simple random sampling

method was performed by lottery in which the researcher wrote the initials of the nurses on papers put inside a closed box. After the papers were mixed, the researcher picked the papers one by one until reaching the set sample size. Nurses working in classes I, II, III, VIP I, and VIP II inpatient rooms and nurses with >1 year of work experience were included. Meanwhile, nurse on leave or sick during the research, nurses on training or study leave, and nurses not willing to participate in the study were excluded.

To collect primary data, a questionnaire divided into three parts was used: (1) the job demands–resources scale consisted of 40 items on speed and amount of work, mental load, emotional load, work variation, learning opportunity, work independence, relation with colleague, relation with direct superior, communication, participation, remuneration, and career path. (2) The work design questionnaire consisted of four characteristic items: namely, task characteristics, knowledge characteristics, social characteristics, and contextual characteristic. (3) The performance questionnaire consisted of 21 task performance items and 18 contextual performance items. However, every questionnaire item was revised due to incorrect language use which might make it difficult for the respondents to provide appropriate answer and the items may be unsuitable for the hospital environment. Every questionnaire item underwent validity test; thus, a pilot study was performed. The validity test scores were as follows: work demand with 24 items, 0.91; job resources with 14 items, 1; performance with 40 items, 0.97. Validity score used the content validity index (CVI), an expert assessment by analyzing and evaluating research questionnaires. A procedure was assessed by an expert using a 4-point scale (1 = irrelevant; 4 = very relevant). The CVI of the total instruments was 3 or 4. CVI > 0.80 indicated good content validity (Polit & Beck, 2012). Reliability test scores of job demand, job resources, and performance were 0.976, 0.966, and 0.911, respectively. Consistent with the study of Eisingerich and Rubera (2010), the reliability test can use Cronbach's alpha with minimum reliability score of 0.70.

The data analysis used SPSS version 21 for Windows (IBM Corp., Armonk, NY, USA). Univariate data analysis produces frequency distribution of the respondents. Pearson correlation test was used to examine the relation of job demands–resources model with nurse's performance. A multivariate analysis used multiple linear regression test on the dimension of the job demands–resources model which most affected the performance of associate nurses (Polit & Beck, 2014).

This study has received ethical approval from the Ethics Committee of the Faculty of Nursing, Universitas Sumatera Utara with registration number 1613 / I / SP / 2019.

Results

As shown in Table 1, the majority of the respondents were 36–45 years old (44.4%), female (92.9%), and had an associate's degree in nursing (61.9%). Furthermore, most respondents were civil servants (56.3%) and had worked as nurses for 1–5 years (46.0%). In addition, most nurses had moderate job demands (57.2%), most nurses had good job resources (71.4%), and most nurses had good performance (51.6%).

Based on the Pearson correlation test in Table 2, job demands has p value = 0.015 < α = 0.05, which means that job demands were related with the work performance of associate nurses, i.e., lighter job demands improved performance of associate nurses and vice versa. Meanwhile, job resources have a p value = 0.006 < α= 0.05; this indicates that job resources were related with the work performance of associate nurses in the Z Hospital of Medan. Moreover, better job resources improved the work performance of associate nurses and vice versa.

In Table 3, the determination coefficient (R2) in Model 1 is 0.059, and the effect of job demands

on nurse performance was 5.9%. In Model 2, the correlation between job resources (X2) and nurse performance (Y) was 0.302, and the percentage of the effect of job resources on nurse performance was 0.091 or 9.1%.

Therefore, the most dominant variable affecting nurse performance was job resources with correlation value of 9.1%. Based on the multivariate analysis, the result of multiple linear regression test in Figure 1.

Table 1. Distribution of Associate Nurses' Characteristics in the Z Hospital

Characteristic	Frequency	Percentage
Age		
17–25 years old	3	2.4
26–35 years old	39	31.0
36–45 years old	56	44.4
46–55 years old	27	21.4
56–65 years old	1	0.8
Sex		
Male	9	7.1
Female	117	92.9
Education Level		
High school	1	0.8
DIII nursing	78	61.9
Bachelor	47	37.3
Duration of Work		
1–5 years	58	46.0
6–10 years	25	19.8
>10 years	43	34.1
Employment status		
Government employees	71	56.3
Non-government employees	56	43.7
Job Demands		
Low	9	7.1
Medium	72	57.2
High	45	35.7
Job Resources		
Good	90	71.4
Not good	36	28.6
Performance		
Good	65	51.6
Not good	61	48.4

Table 2. Relationship between Job Demands, Job Resources, and the Performance of Associate Nurses in the Z Hospital

Variable	Correlations	Performance
Job Demands	Person Correlation	0.217
	Sig. (2-tailed)	0.015
	N	126
Job Resources	Person Correlation	0.243
	Sig. (2-tailed)	0.006
	N	126

Performance = (88.716) + 0.169 job demands + 0.315 job resources

Figure 1. Multiple Linear Regression Test

Table 3. Most Dominant Factor Influencing the Performance of Associate Nurses in the Z Hospital

Model	R	R Square
1	0.243	0.059
2	0.302	0.091

Tabel 4. Multiple Linear Regression Equations

Model	Coefficients[a]		
	Unstandardized Coefficients		Standardized Coefficients
	B	Std. Error	Beta
(Constant)	88.716	8.415	
Job Demands	0.169	0.81	0.182
Job Resources	0.315	0.128	0.214

Using multiple linear regression test, multivariate analysis was performed to examine the dimension of the job demands–resources model which most affected the performance of associate nurses. Multiple linear regression test was used because independent variables had an interval scale and > 1 variables were complete numerical or a combination of numerical and categorical data. The dependent variable had an interval scale, i.e., only one variable and dichotomous (numerical) (Polit & Beck, 2012).

The constant value was 88.716. The coefficient values of job demands and job resources had positive effects on performance. Based on the unstandardized beta coefficient in Table 4, job resources had more significant effect ($p= 0.015 < \alpha= 0.05$) on nurse performance than job demands ($p= 0.039 < \alpha= 0.05$).

Discussion

In this study, most of the associate nurses were late adults, with an average age of 38.60 years. The age of associate nurses strongly affected performance, i.e., the older the nurse, the greater the responsibility and experience in handling workload. One's consideration in decision making, rational thinking, emotion control, and tolerance to other nurses affected improved performance. This finding was supported by Rudianti (2011) that nurses aged < 32 years have poor performance (53.4%) than nurses aged ≥ 32 years (33.7%).

Similarly, more associate nurses with <7 years of service had poor performance (55.6%) than nurses with 7–12 years of service (45.3%). This was different from the present result that most associate female nurses aged 36–45 years and had 1–5 years of service and associate's degree in nursing had good performance (51.6%). This finding was not in line with that of Handayani, Fannya, and Nazofah (2018) that 57.8% of the performance of nurses aged 26–35 years old (64.4%) was poor. Walukow, Mandagi, and Rumayar (2018) also found significant relation between length of service and nurse performance in Minahasa Selatan Hospital, Indonesia.

Megawati (2017) explained the effect of personal characteristics on nurse performance in the Dr. Pirngadi Hospital, Medan, Indonesia.

Education and gender have the strongest effects on performance. In the present study, results of the univariate analysis revealed that job demands of associate nurses is moderate at 78.09 with standard deviation of 17.125 and most nurses were 36–45 years old. This finding was consistent with that of Lariwu, Kiling, and Rumagit (2017) that 48.5% of job demands were moderate among nurses aged 20–30 years in GMIM Bethesda General Hospital of Tomohon. Similarly, Widiastuti, Hartiti, and Pohan (2018) reported that 75% of nurses perceived moderate job demands, with most respondents being 25–35 years old. The job demands category was the same, but every study enrolled subjects of different ages because every hospital has different management regulations and employee management in employee recruitment, selection, classification, and appointment by career level.

Job resources were good with average value of 50.61 and standard deviation of 10.801. The result was consistent with that of Sitinjak and Wardhana (2016) that 79.6% of the nurses have good job resources because nurses agree that social relations between colleagues and superior and patient are important at work and 80.5% of the nurses have good motivation that affected their performance in Paviliun Anyelir installation of Budi Kemuliaan Hospital in Batam, Indonesia. Shasmitha and Yullyzar (2017) similarly show that 64% of nurse job resources were good because they have good motivation, affecting service quality and thus requiring regular supervision from superiors.

The average good performance was 117.89 with standard deviation of 15.923. These values are in line with those reported by Terok, Sumarauw, and Onseng (2015), i.e., 82.5% of nurse performance and 75% of nursing process implementations were good. A relation was found between patient satisfaction when going to hospital because nurses have implemented the nursing process consistent with the nursing standard, as indicated by $p = 0.006 < \alpha = 0.05$. Therefore, good nurse performance can be observed.

Job demands had significant relation ($p= 0.015 < \alpha= 0.05$) with the performance of associate nurses. This means that lighter job demands of associate nurses would improve their performance and heavier job demands would their lower performance. Job demands trigger stress, affecting workload and responsibility to complete work within a limited time, especially when the employee has difficulty in work delivery (Al-Homayan, Shamsudin, Subramaniam, & Islam, 2013). The present result was in line with the finding of Casmiati, Haryono, and Fathoni (2015) that job demand-moderated burn-out has significant positive effect on performance. Moreover, Bakri (2015) showed that job demand is high and has positive effect on work stress, but supervisor support can improve nurse performance.

Job resources had significant relation ($p= 0.006 < \alpha= 0.05$) with the performance of associate nurses. This meant that better job resources would improve the performance of associate nurses and poor job resources would lower the performance of these nurses. It was because job resources helped employees performed work and handle job demand on physiological and psychological costs. Moreover, job resources could motivate personal growth and development. If the job demand was high, job resources should be high. Interpersonal relation, social relation, work arrangement, and work itself were related with job resources. Salary, supervisory support, feedback, role clarity, autonomy, and empowerment are parts of job resources (Bakker & Demerouti, 2007). This was supported by the finding of Onyango and Wanyoike (2014) that lower work motivation can affect employee performance, characterized by undisciplined and irresponsible nurse attitude in performing work. Similarly, Bhatti, Mat, and Juhari (2018) stated that job resources affect nurse performance when delivering professional nursing care to patients.

This result study shows that the higher the job demands, the higher the depressive phase. Therefore, good job resources were necessary to

reach an organizational goal, as characterized by every employee having high sense of responsibility, strong commitment, and no fear in expressing an opinion. In this way, all systematically prepared activities were performed well and the organizational goal was achieved.

Based on unstandardized coefficient beta of variables in Table 4, job resources had the biggest effect on performance (0.315). This study showed that job resources had the strongest or most dominant effect compared with job demands: the better the nurse job resources, the better the nurse performance. This finding was in line with the study of Jourdain and Chenevert (2010) who reported a significant relation ($p < 0.001$) between job resources (supervisory support and recognition from patient) and cynicism on job demands (excessive workload and conflict with patient) to tackle emotional fatigue to improve performance. Muliyono and Listiya (2019) also found that the motivation by hospital leader affects nurses' performance. Hence, job resources should keep up with the job demand so that nurses have positive motivation, not fatigued or experience work stress, nurse retention is prevented, and nurse health is maintained.

As limitations, this study did not enroll nurses from various sectors, e.g., private hospital (Polit & Beck, 2014). The study did not focus on personal resources which are parts of the job demands–resources model and did not describe work engagement as mediation to analyze performance (Bakker, 2011). The results were based on questionnaire; hence, the researcher could not see the respondents' reactions when filling the questionnaire. Given the cross-sectional and causality design with one-time data collection, the researcher could not describe development of a certain event (Grove, Gray, & Burns, 2014). Thus, studies with longitudinal design are warranted to collect long-term data.

Conclusions

Based on the presented results and discussion, the job demands–resources model affects the performance of associate nurses and job resources have the greatest effect on the performance of associate nurses. Job resources are the most dominant factors affecting the performance of associate nurse compared with job demands. If moderate or heavy job demands are offset by good job resources, nurses have positive motivation and do not experience work fatigue and stress, there is no nurse retention, and nurse health is not compromised, resulting in better nurse performance.

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NURSES' AWARENESS ON PATIENT SAFETY CULTURE IN A NEWLY ESTABLISHED UNIVERSITY HOSPITAL

Mohd Said Nurumal, Najwatul Madihah Sabran, Siti Hazariah Abdul Hamid, Muhammad Kamil Che Hasan*

Kulliyyah of Nursing, International Islamic University Malaysia, Bandar Indera Mahkota, Pahang, Malaysia

*E-mail: mkamil@iium.edu.my

Abstract

As a vital part of patient care delivery, patient safety culture contributes to the quality of care provided by nurses. Safe patient care is positively linked to the attitudes of nurses. This study aimed to assess the perception of nurses working in a newly established teaching hospital. A cross-sectional study involving 194 nurses from three different units was conducted by using a 24-item Hospital Survey of Patient Safety Culture. Data on gender, working unit, age, years of working, and attendance in workshops on patient safety were also collected. The majority of the nurses had a positive total score of patient safety culture. The lowest score was 76 (63%), and the highest score was 120 (96%). The awareness on patient safety culture significantly differed between gender, years of working, and working units. Post-hoc comparisons using Tukey's HSD test yielded a significant difference between nurses from critical care units and those from medical and surgical units. The mean score and total positive score on awareness on patient safety culture of the former were higher than those of the latter. Overall, the majority of the staff nurses in International Islamic University Malaysia Medical Center had a positive total score on awareness on patient safety culture. Awareness on patient safety, which is considered crucial worldwide, should be enhanced to influence the development of a positive patient safety culture within hospitals. This implementation would directly develop high-quality care to patients and positively impact health organizations.

Keywords: culture, hospital, nurses, patient safety

Abstrak

Kesadaran Perawat terhadap Budaya Keselamatan Pasien di Rumah Sakit Universitas yang Baru Dibangun. *Sebagai bagian penting dari pemberian perawatan pasien, budaya keselamatan pasien berkontribusi pada kualitas perawatan yang diberikan oleh perawat. Perawatan pasien yang aman secara positif terkait dengan sikap perawat. Penelitian ini bertujuan untuk menilai persepsi perawat yang bekerja di rumah sakit pendidikan yang baru dibangun. Sebuah studi cross-sectional yang melibatkan 194 perawat dari tiga unit yang berbeda dilakukan dengan menggunakan Survei Rumah Sakit Budaya Keselamatan Pasien. Data tentang jenis kelamin, unit kerja, usia, tahun kerja, dan kehadiran dalam lokakarya tentang keselamatan pasien juga dikumpulkan. Mayoritas perawat memiliki skor total positif dari budaya keselamatan pasien. Skor terendah adalah 76 (63%), dan skor tertinggi adalah 120 (96%). Kesadaran tentang budaya keselamatan pasien berbeda secara signifikan antara jenis kelamin, tahun kerja, dan unit kerja. Perbandingan post-hoc menggunakan uji HSD Tukey menghasilkan perbedaan yang signifikan antara perawat dari unit perawatan kritis dan mereka dari unit medis dan bedah. Skor rata-rata dan skor total positif pada kesadaran tentang budaya keselamatan pasien dari yang pertama lebih tinggi daripada yang terakhir. Secara keseluruhan, mayoritas staf perawat di International Islamic University Malaysia Medical Center memiliki skor total positif pada kesadaran tentang budaya keselamatan pasien. Kesadaran akan keselamatan pasien, yang dianggap penting di seluruh dunia, harus ditingkatkan untuk memengaruhi perkembangan budaya keselamatan pasien yang positif di rumah sakit. Implementasi ini secara langsung akan mengembangkan perawatan berkualitas tinggi kepada pasien dan berdampak positif bagi organisasi kesehatan.*

Kata Kunci*: budaya, keselamatan pasien, perawat, rumah sakit*

Introduction

According to the American Nurses Association (2010), "nursing is the protection, promotion, and optimization of health and abilities, prevention of illness and injury, alleviation of suffering through the diagnosis and treatment of human responses, and advocacy in the care of individuals, families, communities, and populations." According to expectation, nurses help create or enhance the delivery of care to maintain the good quality of safe care through the early identification and reporting of adverse events, followed by innovative systematic approaches to enhance competency in delivering safe care in healthcare systems. Safety is a basic need and definite right of individuals as patients receiving health services (Shams et al., 2014).

To integrate all responsibilities, nurses must inculcate a positive patient safety culture and play an important role in improving patient safety in health care centers (Kiaei et al., 2015). Hence, a study on patient safety culture can provide important feedback to health care systems and facilitate improvement plans based on recognition in certain problems areas. When nurses deliberate the importance of safety and make it a part of their responsibility, safety becomes a priceless element and top priority of wards in every shift. Interestingly, when safety changes into a culture in a ward, nurses pay more attention to their tasks and remark it as a value that needs to be preserved throughout their shift to prevent any adverse events (Kiaei et al., 2015). Gozlu and Kaya (2016) emphasized that safety culture involves all organizational personnel that is continuously and actively aware of the possibility of making mistakes.

The importance of patient safety has increased, and nurses who represent the largest component of the health care workforce face various challenges on how to provide safe care for their patients because healthcare services have become more complicated (Brasaitė et al., 2016). Nurses work not only with a risk of having musculoskeletal problems (Yusoff, Firdaus, Jamaludin, & Hasan, 2019) but also under pressure with a constantly changing environment, where a situation can lead to errors that may harm patients (Gozlu & Kaya, 2016). Globally, adverse events occur in approximately 10% of hospitalized patients, and individual studies have reported adverse events from 4% to 17% of hospital admissions, and 5–21% of these adverse events result in death (WHO, 2015). Unsafe healthcare services can lead to patient harm and financial burdens, so patient safety is considered the most important quality indicator in healthcare systems (Hemmat, Atashzadeh-Shoorideh, Mehrabi, & Zayeri, 2015). Safety must be prioritized as emphasized in Abraham Maslow's theory and hierarchy of organizational needs, which considered safety as an important basic human need.

The culture of the nursing profession is based on patient advocacy in which nurses play a prominent role in preserving their patients' safety to create, maintain, and promote the quality of care (Brown, 2015). Indeed, safety culture reflects individuals' technical knowledge and roles in cases of adverse events. According to Hemmat et al. (2015), having awareness on patient safety culture can provide advantages such as reducing treatment errors, damages due to incorrect care, and nosocomial infections and increasing patient satisfaction, patient awareness on accountability level, patient safety, and quality of healthcare services. A patient safety culture can direct staff's cognition and decision-making by establishing and emphasizing safety priorities and determining acceptable and objectionable safety attitudes toward patients (Weaver et al., 2013). Hence, safe care can be provided and preventable injuries and deaths can be minimized by cultivating a positive patient safety culture. The essential aspects of patient safety culture are teamwork, communication, shared beliefs about safety, and organizational learning (Tehranian, 2018).

Therefore, nurses have the most important role in healthcare organizations; they must have appropriate skills and knowledge to carry out multiple roles (Sharif, Hasan, Jamaludin, & Firdaus,

2018) in maintaining patient safety. This study aimed to identify whether nurses in International Islamic University Malaysia Medical Center (IIUMMC), Kuantan Pahang, were aware of patient safety culture within their units. It focused on identifying nurses' awareness on patient safety culture. This study also aimed to determine the perception of nurses regarding patient safety culture and their awareness on patient safety culture in terms of working units, genders, age, years of working, and attendance in workshops on patient safety.

Methods

The study was conducted in three units (medical, surgical, and critical care) of the IIUMMC, and 194 nurses were involved. Convenience sampling was conducted to recruit them. A set of 24-item Likert Scale of Hospital Survey of Patient Safety Culture (HSOPSC) was used because it is specifically designed to measure the awareness and perception about patient safety culture. The validated set of the questionnaire was distributed to the nurses from the three units, and it was completed by subjects who met the inclusion criteria (N= 194).

This instrument consists of four subscales: subscale 1, "teamwork;" subscale 2, "perception of patient safety;" subscale 3, "communication;" and subscale 4, "feedback and frequency of events reported." Each subscale consisted of three to four questions. The minimum and ma-6ximum scores for each item were 1 and 5, respectively. According to the Agency for Healthcare Research Quality (AHRQ), more than 60% indicated positive or high patient safety culture (Sorra et al., 2016). A high mean score also implied high awareness on patient safety culture. A pilot study was conducted to test the validity and reliability of the instrument with Cronbach's alpha of 0.887.

Approval was attained from the Kulliyyah of Nursing Post-Graduate Research Committee, International Islamic University Malaysia Research Ethics Committee, and the Research and Education Unit of IIUMMC. SPSS version 20 was used to analyze data. Descriptive analysis was conducted to identify the awareness on patient safety culture. An independent t-test was run to compare the means between gender and attendance in workshop on patient safety. One-way ANOVA was performed for different units and years of working among the nurses. Results were considered statistically significant ($p< 0.05$).

Results

A total of 194 nurses were recruited from three different units, namely, medical (n= 62), surgical (n= 62), and critical care (n= 70). Of these nurses, 121 were females, and 73 were males. In terms of working experience, 128 nurses have been working for 1–5 years, 6–10 years (n= 37), and 11–15 years (n= 21), whereas 8 of them have been working for 16 years and above. A total of 155 nurses were between 21 and 30 years old, 35 nurses were between 31 and 40 years old, and 4 nurses were above 40 years old. A total of 154 participants attended a workshop on patient safety, whereas 40 nurses did not. Table 1 shows the demographic data of all respondents. The lowest and highest scores of the nurses' awareness on patient safety culture were 76 (63%) and 120 (96%), respectively.

An independent t-test was used to investigate the association between gender and nurses' awareness on patient safety culture. The result showed statistically significant differences in the gender of the respondents and the awareness on patient safety culture for every subscale ($p< 0.05$). The details of t-test analysis are presented in Table 2. However, attendance in workshops on patient safety with the awareness on patient safety culture had no statistically significant differences.

One-way ANOVA was conducted to examine the association between the units and years of working toward the awareness on patient safety culture. Table 3 shows the mean score achieved by the respondents based on their respective units. The mean scores of subscales 1 (teamwork),

Table 1. Demographic Data of the Respondents

Variables		Frequency (n)	Percentage (%)
Age	21–30 years	155	79.9
	31–40 years	35	28
	Above 40 years	4	2.1
Gender	Male	73	37.6
	Female	121	62.4
Years of working	1–5 years	128	66.0
	6–10 years	37	19.1
	11–15 years	21	10.8
	16 years above	8	4.1
Unit	Medical	70	36.6
	Surgical	62	32
	Critical Care	62	32
Attending workshops or training	Yes	154	79.4
	No	40	20.6

Table 2. Subscale and Total Summary Score based on Gender

Subscale	Gender, Mean (SD)			Attendance in workshop Mean (SD)		
	Males (n= 73)	Females (n= 121)	p	Yes (n= 154)	No (n= 40)	p
1 (Teamwork)	31.7 (2.9)	30.9 (4.5)	0.009	31.2 (4.2)	31.3 (2.8)	0.566
2 (Perception of Patient Safety)	34.5 (5.3)	31.8 (6.5)	0.001	32.6 (5.1)	33.6 (9.4)	0.587
3 (Communication)	25.1 (3.2)	22.3 (3.7)	0.001	23.6 (3.8)	22.4 (3.5)	0.056
4 (Feedback and Frequency of Events Reported)	11.9 (1.7)	10.9 (1.7)	0.001	11.4 (1.7)	11.0 (2.2)	0.140
Total score	103.4 (10.5)	96.1 (11.3)	0.001	99.0 (11.0)	98.4 (13.6)	0.412

Table 3. HSOPSC Subscale and Total Summary Score by Units

Subscale	Medical (n= 70)	Surgical (n= 62)	Critical Care (n= 62)	p
1 (Teamwork)	30.6 (5.5)	30.7 (3.1)	32.4 (2.0)	0.012
2 (Perception of Patient Safety)	31.0 (8.3)	31.9 (4.5)	35.8 (3.2)	0.001
3 (Communication)	21.8 (3.0)	23.0 (4.3)	25.5 (2.9)	0.001
4 (Feedback and Frequency of Events Reported)	10.7 (1.6)	11.2 (1.8)	12.1 (1.7)	0.001
Total score	94.1 (11.9)	97.0 (10.8)	106.1 (7.9)	0.075

Table 4. Subscale and Total Summary Score in Terms of Years of Working (N= 194)

Subscale	1–5 years (n= 128)	6–10 years (n= 37)	11–15 years (n= 21)	16 years above (n= 8)	p
Teamwork	31.4 (4.5)	30.7 (2.0)	31.4 (2.2)	30.3 (5.2)	0.428
Perception of patient safety	32.6 (6.8)	33.3 (4.6)	33.8 (5.1)	31.7 (4.2)	0.266
Communication	22.9 (3.7)	23.6 (4.2)	25.3 (2.6)	24.6 (3.2)	0.028
Feedback and frequency of events reported	11.3 (1.8)	11.4 (1.9)	11.6 (1.5)	10.8 (1.5)	0.652
Total score	98.3 (11.9)	99.1 (11.1)	102.3 (9.9)	97.6 (11.5)	0.059

work), subscale 2 (perception of patient safety), subscale 3 (communication), and subscale 4 (feedback and frequency of events reported) were significantly higher in critical care unit nurses than in other nurses ($p< 0.05$). Post-hoc comparisons using Tukey's HSD test suggested that the mean scores between nurses from medical and critical care units and nurses from surgical and critical care units were significantly different. The mean score of the nurses from the critical care unit (M= 32.4, SD= 2.0) was higher than that of the other nurses.

Post-hoc comparisons using Tukey's HSD test for subscale 2 suggested that the mean scores between nurses from medical and critical care units along nurses from surgical and critical care units were significantly different. The mean score of critical care unit nurses (M= 35.8, SD= 3.2) was higher than that of medical and surgical nurses. For subscale 3, post-hoc comparisons using Tukey's HSD test revealed a significant difference between nurses from critical care units and nurses from surgical and medical units. This study also found a significant difference between units (critical care units and surgical and medical units) and awareness on patient safety culture for subscale 4 ($p= 0.001$). Post-hoc comparisons using Tukey's HSD test suggested that the mean scores between the nurses from medical and critical care units and the nurses from surgical and critical care units were significantly different. The mean score of the nurses from critical care units (M= 12.1, SD= 1.7) was higher than that of the other nurses.

In Table 4, the relationship between years of working and awareness on patient safety culture showed no significant difference except in subscale 3 (communication; $p= 0.028$). A significant difference was observed between the years of working (1–5 years, 6–10 years, 11–15 years and 16 years above) and the awareness on patient safety culture for subscale 3 ($p= 0.028$). Post-hoc comparisons using Tukey's HSD test indicated significant differences between nurses with 1–5 years of working (M= 22.9, SD= 3.7) and nurses with 11–15 years of working (M= 25.3, SD= 2.6) for subscale 3.

Discussion

A total of 194 respondents from three different units, namely, medical, surgical, and critical care, reported a positive score awareness on patient safety culture. According to the AHRQ, more than 60% indicates a positive or high patient safety culture (Sorra et al., 2016). This finding is important for highlighting the value of having awareness regarding patient safety culture among nurses. This notion has been supported, considering that health care organizations have increasingly acknowledged the role of changing organizational cultures in the improvement of patient safety and the attempts and progressive attention to safety culture (Kiaei et al., 2015).

Progressive attention to safety culture has been associated with the need for assessment tools, especially attempts to improve patient safety. According to a patient safety organization, an effective safety culture involves a proactive approach versus a reactive approach to prevent harm and connects care processes within a healthcare delivery system, especially at a patient care unit level. With the good quality of this culture, a health organization can provide patients with safe, effective, timely, efficient, equitable, and patient-centered care, leading to best outcomes (Congenie, 2014).

Mahrous (2018) studied 240 nurses and revealed that their commitment to quality care as an outcome is certainly correlated with patient safety. Standard policies should also be improved and promoted to enhance patient safety culture in hospitals (Mahrous, 2018). Thus, the improvement in promoting an environment with a positive patient safety culture likely provides the best outcomes.

Our results revealed a significant difference in gender pertaining to the awareness on patient safety culture ($p= 0.001$) and agreed with previ-

ous findings, which shared the same concern on the awareness on patient safety culture. For example, Güneş, Gürlek, and Sönmez (2015) conducted a cross-sectional study and obtained similar outcomes, indicating that the awareness of male nurses on patient safety culture is higher than that of female nurses. Other studies have also supported this result and observed significant differences in the comparison of the awareness on patient safety culture between males and females (Alameddine, Saleh, & Natafgi, 2015; Gozlu & Kaya, 2016).

Interestingly, another study found no significant difference in the comparison between both genders. The most common issues that need to be reconsidered were traditional beliefs about gender issues. Male participants also revealed that gender-based stereotypes contribute to their job dissatisfaction; therefore, to cope with this situation, they used it as motivation to deliver high-quality care. However, other factors, including individual passion, working environment, and social stigma in wards, should be investigated because they directly or indirectly influence the awareness level on patient safety culture between male and female nurses. Our study revealed that male nurses with positive patient safety culture could provide new insights and energy and create an environment with high-quality care.

This study did not show a statistically significant difference in attendance in workshops on patient safety ($p > 0.05$) in each subscale. In this case, attending a workshop on patient safety was not significantly associated with the awareness on patient safety culture.

The nonsignificant difference observed in this cross-sectional study might be due to the existence of other external factors that were not highlighted in this research. Moreover, nurses have been educated regarding the importance of patient safety since they were nursing students, regardless of attendance in certain workshops on patient safety; therefore, they are already aware of patient safety. They also know how to minimize adverse events because of medical errors in a high-risk health sector via direct or indirect discussion.

A significant difference was observed in the association between units and nurses' awareness on patient safety culture. This result was consistent with previous findings, which revealed a higher positive score on patient safety culture among nurses working in the critical care unit (Güneş et al., 2015; Gozlu & Kaya, 2016). As for the significant difference result in this study which the nurses working in critical care units had a higher patient safety culture score, other factors may have directly or indirectly influence outcomes. According to Güneş et al. (2015), critical care units are specifically prone to having a greater incidence of medical errors caused by the treatment of extremely ill patients. Numerous medication prescriptions and frequent stressful situations occur with work overload in a busy area. Our results might be explained by the better training and specialization in safety-related issues of nurses. Hence, a more specialized unit likely leads to the further understanding and immersion about the rationale of procedures and skills that can indirectly contribute to differences in nurses' awareness on patient safety culture.

By contrast, a previous study observed no significant difference in working areas or units. Weaver et al. (2013) reported that neither subscales were able to assess significant differences in the level of awareness on patient safety culture between different wards and units. However, this study did not provide any explanation on why this condition happened, so a larger longitudinal study should be conducted to further discuss this result. Weaver et al. (2013) indicated that improving patient safety culture is a standard recommendation for nurses to enhance patient safety and quality of care. Hence, adverse events and errors can be reduced through a strong patient safety culture practiced in a unit because a positive safety culture is associated with a low rate of errors (Tehranian, 2018). Therefore, nurses should have high awareness

on patient safety culture regardless of their units to minimize the rate of errors.

The nurses in different age groups did not differ significantly in terms of the awareness on patient safety culture: subscale 1, teamwork (p= 0.428); subscale 2, perception of patient safety (p= 0.961); subscale 3, communication (p= 0.352); and subscale 4, feedback and frequency of events reported (p= 0.749). This finding is similar to a study by Tehranian (2018), whereby it showed a nonsignificant difference regarding the age of the nurses.

However, Alameddine et al. (2015) and Gozlu and Kaya (2016) found that nurses aged above 30 years appear to have higher awareness on patient safety culture than those aged below 30 years. With age, they must gain various kinds of experiences that contribute to a high positive score about awareness on patient safety culture (Gozlu & Kaya, 2016).

Therefore, this cross-sectional study obtained nonsignificant findings possibly because of the existence of other external factors that were not highlighted in this research. Parker, Lawrie, and Hudson (2006) demonstrated that patient safety culture can be affected by institutional changes, leadership, systems, and procedures that disregard age. Organizational culture plays a critical role in reducing medical errors and adverse events as one of the most important strategies in determining and improving patient safety within health institutions by developing a positive patient safety culture.

Nurses with different years of working discovered a significant difference in communication. This finding was similar to that of Güneş et al. (2015) and Tehranian (2018), who showed a significant difference in the years of working. In our study, work experience at a hospital affected the patient safety culture score as indicated the increase in the total score of patient safety culture with the increase in the years of nurses' experience. Thus, with more experience, awareness regarding safety practices undertaken in an organization increases. The longer the duration of working years, the higher the positive score of perception, and awareness on patient safety. For the significant difference found in subscale 3, it is among the items that can be developed and improved throughout time as it can be gained through experiences. Thus, a positive safety culture can be created through open communication, mutual trust and shared perceptions about the importance of safety, and confidence in the efficacy of preventative measures (Güneş et al., 2015).

Nurses work in changing healthcare environments, indicating that they have a continuous learning role for their professional development, job satisfaction, and continuous improvement of patient care, especially patient safety (Skår, 2010). Therefore, high awareness on patient safety is normally achieved when nurses gain more experience in encountering various types of patients within their working duration.

Some of the limitations of this study were time constraints, lack of cooperation from the respondents, and sample size. Our results could not be used as a basis for providing a generalized conclusion because our samples were taken from one newly established teaching hospital.

Conclusions

Overall, most of the staff nurses in IIUMMC had positive awareness on patient safety culture. This study may promote the culture of safety among nurses who are considered crucial worldwide to influence the enhancement of patient safety within hospitals. Patients' safety culture can lead to enhanced care that positively affects organizations.

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TUBERCULOSIS CASE FINDING PRACTICE: THE INTENTION OF CADRES

Agnes Pude Lepuen, Cicilia Nony Ayuningsih Bratajaya*, Sada Rasmada

Sint Carolus School of Health Sciences, Jakarta 10440, Indonesia

*E-mail: cicilianony@stik-sintcarolus.ac.id

Abstract

Tuberculosis (TB) is a difficult health problem to overcome. Active case finding is an important step in managing this infectious disease. However, the prevalence of TB case finding among cadres at the community level is low because of the stigma attached to TB, difficulty in geographical coverage, low public awareness, and social economic barriers. In addition, the empowerment and intention of cadres to perform community-based TB case finding are not optimal yet. This cross-sectional study aimed to determine the intention of TB case finding among 162 public health cadres at one district. Convenient sampling technique was employed in this study. Relationship analyses were performed using Chi-Square test. Results suggested that three factors, namely, attitude, subjective norm, and perceived behavior control influenced the intention to practice TB case finding among cadres. Public health care providers must encourage cadres to practice active TB case finding and understand the benefits and burdens encountered by cadres during TB case finding.

Keywords: attitude, intention, perceived behavior control, public health cadre, subjective norm, Tuberculosis case finding

Abstrak

Praktik Penemuan Kasus Tuberkulosis: Niat Kader*. Tuberkulosis (TB) masih menjadi masalah kesehatan yang sulit diatasi. Penemuan kasus TB secara aktif merupakan langkah awal yang menjadi kunci keberhasilan dalam penanganan kasus TB, namun angka penemuan kasus TB masih rendah. Kader belum dapat melakukan pendeteksian dini kasus TB secara optimal. Selain itu sebagai penemu kasus TB di masyarakat, kader memiliki berbagai tantangan dalam upaya menemukan kasus TB, salah satunya adalah niat untuk menemukan kasus TB mengingat banyak stigma yang muncul terkait penyakit TB, keadaan geografi yang sulit dijangkau, rendahnya kesadaran masyarakat, dan kendala biaya. Tujuan dari penelitian ini adalah untuk mengetahui intensi atau niat kader dalam menemukan kasus TB. Penelitian ini menggunakan desain cross sectional dengan melibatkan 162 kader kesehatan di sebuah kecamatan. Metode pengambilan sampel menggunakan convenient sampling. Analisa hubungan menggunakan uji statistik Chi Square. Hasil penelitian menunjukkan ketiga faktor yaitu sikap, norma subjektif, dan kendali perilaku yang dirasakan memiliki hubungan dengan intensi dalam menemukan kasus TB. Maka dapat disimpulkan, dukungan tenaga kesehatan sangat penting dalam meningkatkan praktik penemuan kasus TB dan penting untuk memperhatikan manfaat dan tantangan yang ditemui oleh kader dalam menemukan kasus TB.*

Kata Kunci*: kader kesehatan, kontrol kendali yang dirasakan, niat, norma subjektif, penemuan kasus Tuberkulosis, sikap*

Introduction

Tuberculosis (TB), caused by *Mycobacterium tuberculosis*, is a public health problem worldwide. TB attacks the lungs but can also invade other organs, such as the meninges, kidney, bone, intestine, pleura, bladder, urinary tract, and lymph nodes (World Health Organization, 2017). Indonesia ranked two in annual TB incidence, with a case number of 1,020,000 and an incidence rate of 391 per 100,000 population (Ministry of Health Republic of Indonesia, 2018).

The number of new and relapse TB cases was notified in a year per 100,000 populations. The number of TB cases is detected by the national

TB control programmer. Moreover, "notification" is defined as the process in which a patient is diagnosed and reported in the national surveillance system. The World Health Organization (2017) reported a total case notification number of 447,106 per 264 million population in Indonesia, indicating that 0.17% of the population were diagnosed with TB. National TB programs should ensure meaningful engagement with affected population (World Health Organization, 2018).

Considering that increasing community participation to TB control is essential, the government of East Nusa Tenggara, Indonesia determined the target case notification rate to be 70%. However, the Department of Health East Nusa Tenggara in 2017 reported that the case notification rate was 56.74 per 100,000 population and the incidence rate of TB was 130.13 per 100,000 population (Lembata Health Profile, 2017).

TB is a health prevention priority of the provincial government of East Nusa Tenggara. The local government is conducting TB case finding programs to eliminate TB by 2023. The TB case finding programs named by "Good Pagi" cover TB case finding through door-to-door home visits and screening of TB in the morning. These activities are participated by health workers and volunteers at the community.

Cadre is a volunteer person from the community as a form of community participation. Cadre is also defined as a frontline health volunteer who provides information and performs health-related tasks (Mundeva, Snyder, Ngilangwa, & Kaida, 2018). Various national committees and expert groups have recommended the establishment of a cadre (Kumar, Bothra, & Mairembam, 2016). After receiving basic training of disease prevention from public health care provider, cadres have the responsibility to promote healthy behavior at their community. According to the Department of Health Republic of Indonesia (2009), cadres assist in public health program through TB case finding at their community. A previous study stated that active case finding is a key strategy to find TB cases in burden countries (Prasad, Satyanarayana, & Chadha, 2016).

However, engaging the community in TB detection has several challenges, including inadequate public knowledge regarding TB surveillance, insufficient ability to diagnose TB, limited geographical coverage, social economic barriers, low public awareness, and high stigma among healthcare workers and in communities (Ministry of Health Republic of Indonesia, 2018). In addition, a previous study pointed out that the barriers could be derived from internal factors of individual health workers; although individual health workers have received optimal education and training, their intention to perform TB case finding is not optimal (Evenblij, Verbon, & Van Leth, 2016). In supporting the duty of cadres to implement TB case finding, enhancing the intention of cadres to find TB cases at their community is important. Studies usually employed the Theory of Planned Behavior to examine the intention of a certain behavior. This theory suggests that the principal determinant of a behavior is intention (Fishbein & Ajzen, 2010). Intention is predicted by three main constructs: attiftude, subjective norm, and perceived behavior control. "Attitude" is defined by behavioral beliefs that determine if people will perform a behavior, whereas "subjective norm" is defined by the perception of a significant social referent if a behavior is appropriate or not. Perceived behavior control is defined by the situation or condition that facilitates or inhibits a behavior (Fishbein & Ajzen, 2010). Previous studies in Indonesia showed that attitude, subjective norm, and perceived behavior control influence the intention of TB case finding among cadres (Sumartini, 2014; Aderita & Chotimah, 2018).

These phenomena indicate that the fundamental of ensuring all TB patients by inventory TB case finding as early as possible is the first step to reduce transmission to others. TB case detection rate can be improved by the public

and all health workers. Efforts sourced from the community generally strengthen health personnel, allowing the community to be involved in increasing TB case detection. For instance, cadres should be considered as partners and health volunteers at the community. As a voluntary duty in TB case finding at the community, the intention to practice TB case finding needs to be strengthened. Therefore, this study aimed to determine the intention to practice TB case finding among cadres at one district in East Nusa Tenggara, Indonesia.

Methods

This cross-sectional study (Polit & Beck, 2012) involved cadres who were actively on duty at their community in the area under jurisdiction of the Public Health Center at one district in East Nusa Tenggara, Indonesia. The potential samples were calculated by using Krejcie table from 283 populations of cadres. Therefore, the total samples in this study consisted of 162 participants.

The non-probability sampling technique with convenient sampling was employed in this study. Participants were cadres who were actively on duty at their community in the area under jurisdiction of the Public Health Center. The inclusion criteria were cadres who practiced community programs actively in their area of duty.

Data were collected by using the Intention of TB Case Finding Questionnaire developed based on Theory of Planned Behavior (Aderita & Chotimah, 2018). In the present study, the Intention of TB Case Finding Questionnaire was modified by selecting only the direct factors of intention, attitude, subjective norm, and perceived behavior control. The questionnaire of intention to practice TB case finding included seven items (4-point Likert Scale), that of attitude to practice TB case finding included nine items (4-point Likert Scale), that of subjective norm included six items (4-point Likert Scale), and that of perceived behavior control included nine items (2-point Gutmann scale). The Cronbach's alpha coefficients in the subscales of intention, attitude, subjective norm, and perceived behavior control were 0.719, 0.814, 0.652, and 0.962, respectively.

Data were collected on January 2019. Data were analyzed by using univariate and bivariate analyses. Descriptive statistics, including frequency and percentage distribution, were analyzed to describe the factors based on Theory of Planned Behavior consisting of intention, attitude, subjective norm, and perceived behavior control of TB case finding practice. The relationship analyses were used to find the relationship between independent variables (attitude, subjective norm, and perceived behavior control) and dependent variable (intention) by using Chi-Square test. Statistical significance was considered at $p \leq 0.05$.

Results

Descriptive Analysis of Factors Based on Theory of Planned Behavior. Descriptive analysis was used to describe the factors based on Theory of Planned Behavior that includes intention, attitude, subjective norm, and perceived behavior control of TB case finding practice as shown in Table 1.

On the scale 1–4 for all subscales and item, the participants rated their intention to practice TB case finding at the average level of percentage. Results showed that 54.9% reported that they were extremely likely to practice TB case finding and 45.1% reported that they were weakly likely to practice TB case finding. The majority of participants rated their scores at positive attitude to TB case finding, which was 64.8%. In terms of the second variable subjective norm, the majority of the participants showed that the most important people (husband, family, and health workers) should agree to support the practice of TB case finding (72.8%). In addition, the participants showed that they had a sense of perceived behavior control in practicing TB case finding on average level. For

each item, 53.7% were extremely able to control situations that inhibit to practice TB case finding and 46.3% were weakly able to control situations that inhibit to practice TB case finding.

Relationship Analysis of Factors Based on TPB. The relationship of intention to practice TB case finding with attitude, subjective norm, and perceived behavior control was analyzed using Chi-Square test. A significant level was set at $p \leq 0.05$. As shown in Table 2, results showed that the attitude of public health cadres to find TB cases had a significant relationship with intention to practice TB case finding at their area of duty (p= 0.000).

Table 1. Frequency and Percentage of Factors Affecting the Practice of TB Case Finding on January 2019 at One District in East Nusa Tenggara (N= 162)

Construction of Theory of Planned Behavior	N	%
Intention		
Weakly likely	73	45.1
Extremely likely	89	54.9
Attitude		
Negative	57	35.2
Positive	105	64.8
Subjective Norm		
Weakly agree	44	27.2
Extremely agree	118	72.8
Perceived Behavior Control		
Weakly able to control	75	46.3
Extremely able to control	87	53.7

Table 2. Relationship of Attitude with Intention to Practice TB Case Finding on January 2019 at One District in East Nusa Tenggara (N= 162)

Attitude	Intention of TB Case Finding				Total		p
	Weakly Likely		Extremely Likely				
	N	%	N	%	N	%	
Negative	39	24.1	18	11.1	57	35.2	0.000
Positive	34	21.0	71	43.8	105	64.8	
Total					162	100	

Table 3. Relationship of Subjective Norm with Intention to Practice TB Case Finding on January 2019 at One District in East Nusa Tenggara (N= 162)

Subjective norm	Intention of TB Case Finding				Total		p
	Weakly Likely		Extremely Likely				
	N	%	N	%	N	%	
Weakly agree	32	19.8	12	7.4	44	27.2	0.000
Extremely agree	41	25.3	77	47.5	118	72.8	
Total					162	100	

Table 4. Relationship of Perceived Behavior Control with Intention to Practice TB Case Finding on January 2019 at One District in East Nusa Tenggara (N = 162)

Perceived behavior control	Intention of TB Case Finding				Total		p
	Weakly Likely		Extremely Likely				
	N	%	N	%	N	%	
Weakly able to control	38	23.5	22	13.5	60	37.0	0.000
Extremely able to control	35	21.6	67	41.4	102	63.0	
Total					162	100	

As shown in Table 3, the subjective norm that includes support of important people (husband, their family, health workers, and their friend) as cadres had a significant relationship with the intention to practice TB case finding (p= 0.000).

As depicted in Table 4, the perceived behavior control described by controlling situations that could inhibit cadres to practice TB case finding had a significant relationship with the intention to practice TB case finding (p= 0.000).

Discussion

The descriptive analysis of the present study showed that the majority of cadres had positive attitude to practice TB case finding and received positive support from their significant others to practice TB case finding. Furthermore, the majority of cadres were able to control their situation to practice TB case finding. However, the significant findings of this study suggested that the three factors based on Theory of Planned Behavior, including attitude, subjective norm, and perceived behavior control, were significant with intention to practice TB case finding among cadres.

This study confirmed that attitude, subjective norm, and perceived behavior control had a significant relationship with the intention to practice TB case finding. In this present study, the findings were consistent with those of other studies in Indonesia, which reported that attitude, subjective norm, and perceived behavior control show a significant relationship with the intention to practice TB case finding (Sumartini, 2014; Aderita & Chotimah, 2018).

The attitude to practice TB case finding was related to their intention significantly. Cadres are maintainers of the community and participate voluntarily. Their attitude is determined by their behavioral beliefs that performing a behavior to maintain health issues at their area leads to certain outcomes. A previous study reported that TB control programs cannot be deemed successful if all the areas did not show adequate attitude (Paul et al., 2015). The adequate attitude of cadres is based on their sense of belonging about their hometown.

The present study suggested that the subjective norm had a relationship with the intention to practice TB case finding. Cadres are demanding positive support as volunteers from their significant others. Putri (2017) found that family, partner, and health care providers influence health cadres to perform their duty at the community. Being a volunteer was not easy. Volunteers should have the responsibility to manage health issues in their community. They have another duty not only as a cadre but also as a housewife who manages her family. Thus, family support is important to enhance the performance of cadres. Furthermore, support from a partner who is a fellow cadre to practice TB case finding can strengthen TB programs (Khanal et al., 2017). Psychological support from their family and fellow cadres is important. In addition, a previous study mentioned that supportive supervision from public health care providers could strengthen the performance of cadres

in ways to perform their tasks (Kok et al., 2017). Health care providers should give adequate training to improve the performance and willingness of cadres to carry out their tasks.

Furthermore, the ability to control the circumstance to perform TB case finding was perceived by cadres. They had a sense of bad experience to find TB patients because some of them were scared about this infectious disease. This stigma can impact health-seeking practice and illness management (Craig et al., 2017). Cadres without confidence to find TB patients would not have a strong intention to practice TB case finding. In addition, evidence shows that cadres could help address various health problems, including TB case finding, because some areas have difficulty in geographical coverage, low public awareness, lack of health facilities, and social economic barriers. Although health volunteers face some obstacles, the community expects that cadres could control situations that could inhibit them from finding TB cases. As previous study suggested that cadres should improve their knowledge and skills to control situations that hinder finding TB cases (Rachlis et al., 2016). Health care providers should remove barriers to control situations and increase the confidentiality of cadres to practice TB case finding. Moreover, Chaisson et al. (2015) stated that monitoring program and feedback from health care providers could increase health care provider awareness about the cadres' consequences of current practice, social norm, and perceived ability to perform the desired behavior. Thus, monitoring program and feedback are needed to improve the knowledge and skills that affect cadres' intention to follow the program.

As a general rule (Fishbein & Ajzen, 2010), the more favorable the attitude and subjective norm, and the greater perceived behavior control, the stronger should be the person's intention to perform the behavior. However, the relative importance of these three factors of intention is expected to vary in other behaviors and populations. In summary, the stronger the intention, the more likely to perform the behavior. Furthermore, providing support to cadres by educating them about hard-to-reach areas can increase their level of willingness to serve the community (Rawal et al., 2016). In this present study, cadres had variation of skills and abilities based on their experience as health volunteers at the community, presence of environmental barriers, and obstacle from significant others to perform their duty. Cadres may also encounter difficult situations in TB case finding. The ability to solve the problem and the willingness in TB case finding should be supported.

Conclusions

Health services in a district are provided by cadres at those community and health care provider staff, including nurse, midwifery, and doctor. Cadres are volunteers who assist a small part duty of health care providers in a health promotion program. Cadres act as the front liners in TB case finding. This study suggests that the three factors based on Theory of Planned Behavior could determine the intention of TB case finding. In consideration that TB is a difficult health problem to overcome, active case finding is the first step to overcome this health problem. Public health care providers must encourage cadres to practice TB case finding actively and focus on the benefits and burdens that they may encounter during TB case finding. Moreover, family and health care providers should support cadres to practice active TB case finding so they could have a positive attitude toward this activity. Globally, the public health care provider should focus on the benefits and burdens that cadres may encounter during TB case finding.

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VALSALVA MANEUVER TO DECREASE PAIN INTENSITY DURING ARTERIOVENOUS FISTULA INSERTION IN HEMODIALYSIS PATIENTS

Mahruri Saputra[1*], Ikhsanuddin Ahmad Harahap[2], Sutomo Kasiman[3]

1. Master Student, Faculty of Nursing Universitas Sumatera Utara, Medan 20222, Indonesia
2. Faculty of Nursing Universitas Sumatera Utara, Medan 20222, Indonesia
3. Faculty of Medicine Universitas Sumatera Utara, Medan 20222, Indonesia

*E-mail: mahruri@stikesgetsempena.ac.id

Abstract

AV fistula allows external vascular access for hemodialysis patients. Because hemodialysis patients experience puncture wounds and stabbing pain approximately 300 times a year, development of methods to decrease pain intensity are of great importance. Some techniques, such as the Valsalva maneuver, are known to reduce pain. This study aims to assess the effect of the Valsalva maneuver on decreasing the intensity of AV fistula pain in patients receiving hemodialysis. The quasi-experimental research of pre and post without control applying consecutive sampling to get as many as 63 respondents. Pain intensity was measured by using the Numerical Pain Rating Scale (NPRS). The Valsalva maneuver was performed during insertion of the AV fistula needle for 16–20 seconds. The results showed significant differences in pain intensity between before and after the intervention with the difference in mean that is 1.35 (SD= 0.54), t= 19.70, p= 0.001. The Valsalva maneuver is effective in reducing the pain of AV fistula insertion because it stimulates the vagus nerve to induce an antinociceptive effect. Nurses are highly recommended to teach the Valsalva maneuver to patients undergoing routine hemodialysis.

Keyword: AV fistula, hemodialysis, pain intensity, Valsalva maneuver

Abstrak

Pemberian Teknik Manuver Valsalva terhadap Penurunan Intensitas Nyeri Penusukan Arteriovenous Fistula pada Pasien Hemodialisis. *Arteriovenous (AV) fistula merupakan akses vaskuler eksternal pasien hemodialisis. Pasien hemodialisis mengalami luka tusuk dan nyeri akibat penusukan sekitar 300 kali setahun sehingga perlu diberi tindakan untuk membantu mengatasinya. Beberapa teknik diketahui dapat menurunkan nyeri seperti teknik Valsalva manuver. Penelitian ini bertujuan menilai efek teknik Valsalva manuver terhadap penurunan intensitas nyeri penusukan AV fistula pada pasien hemodialisis. Penelitian quasi eksperimen pre dan post tanpa kontrol menerapkan consecutive sampling untuk mendapatkan sebanyak 63 responden. Intensitas nyeri diukur menggunakan Numerical Pain Rating Scale (NPRS). Valsalva manuver dilakukan saat penusukan jarum AV fistula selama 16-20 detik. Hasil penelitian menunjukkan terdapat perbedaan signifikan antara sebelum dan sesudah intervensi dengan selisih mean yaitu 1,35 (SD= 0,54), t= 19,70, p= 0,001. Valsalva manuver efektif menurunkan nyeri penusukan AV fistula karena menstimulasi saraf vagus dalam menginduksi efek antinociceptif. Teknik Valsalva manuver sangat direkomendasikan kepada perawat untuk mengajarkan teknik ini pada pasien yang menjalani hemodialisis rutin.*

Kata Kunci*: AV fistula, hemodialisis, intensitas nyeri, Valsalva manuver*

Introduction

Arteriovenous (AV) fistula is a type of surgery usually performed on the forearm that combines arteries and large veins to produce a fistula (Rosdahl & Kowalski, 2012). Patients receiving hemodialysis often feel the effects of using AV fistulas, which includes pain during needle insertion (Kaza et al., 2014). Pain during AV fistula insertion is a real problem among hemodialysis patients. Such patients may experience stress and pain over the course of multiple

pricking's in 1 year (Çelik et al., 2011). Pain is an unpleasant sensory and emotional experience associated with actual or potential tissue damage, or described in terms of such damage (IASP, 2012).

The results of Silva, Rigon, Dalazen, Bissoloti, and Rabelo-Silva (2016) in Brazil revealed that 58.5% of patients receiving AV fistula cannulation experience moderate pain, 20% experience severe pain, and 11.5% experience mild pain. Bourbonnais and Tousignant (2012) demonstrated that 12% of patients complain about mild to moderate levels of pain during needle insertion and extraction.

The pain felt by patients undergoing hemodialysis generally occurs during needle insertion, calibration, or use of a long fistula needle bevel. Pain during AV fistula insertion is the most common complaint among patients receiving hemodialysis (Figueiredo, Viegas, Monteiro, & Poly-De-Figueiredo, 2008). Patients undergoing AV fistula insertion for hemodialysis twice a week experience pain each time the procedure is carried out (Kaza et al., 2014).

Repeated AV fistula insertion may affect the psychological state of hemodialysis patients and increase their fear and anxiety (Alhani, Shah, Anoosheh, & Hajizadeh, 2010). Hansen and Streltzer (2005) reported that pain can cause emotional disturbances, depression, anxiety, and mood disorders. Harris et al. (2012) demonstrated a relationship between pain perception in hemodialysis patients and anxiety, depression, sleep disorders, quality of life, and mortality.

Techniques are needed to overcome the pain of recurrent AV fistula insertion so that patients can accept the procedure with ease and maintain their quality of life (Çelik et al., 2011). Nurses usually carry out two approaches to reduce the pain of AV fistula insertion in hemodialysis patients, namely, pharmacological and nonpharmacological approaches (Suren et al., 2013). The Valsalva maneuver is a nonpharmacological technique that can be performed to reduce the pain of AV fistula insertion (Sundaran, Khan, Bansal, & Jyotsana, 2016).

The Valsalva maneuver involves forced expiration for 16–20 seconds while the glottis (mouth and nose) is covered (Engstrom & Martin, 1998; Kumar et al., 2016). Mashhadi and Loh (2011) showed that many patients can withstand pain by holding their breath and closing their glottis, which can trigger the Valsalva maneuver, during needle insertion.

A previous research including 98 respondents showed that the average pain score of the Valsalva maneuver group is 1.5 (SD= 1.2) while the average pain score of the control group is 3.1 (SD= 1.9); the difference in results between groups was significant ($p< 0.001$, $z= 4.23$; Basaranoglu et al., 2006). Another research confirmed that administration of the Valsalva maneuver significantly reduces the intensity of AV fistula insertion pain ($p < 0.001$) compared with the control group. Valsalva maneuver performed for 16–20 seconds during venous insertion can reduce the incidence and severity of pain (Suren et al., 2013).

Sensory nerves from various organs, such as the oropharynx, upper digestive tract, stomach, and chest cavity, transmit information along the vagus nerve to the solitary tract. The vagus nerve also carries nociceptor fibers along this pathway. The Valsalva maneuver increases intrathoracic pressure and causes activation of baroreceptors, which stimulate vagus nerve stimulation. As a result of vagus nerve stimulateon, antinociceptive effects are induced (Liporace et al., 2001).

Previous studies applied the Valsalva maneuver to reduce pain in patients with cannulation or intravenous and spinal puncture. Mohammadi, Pajand, and Shoeibi (2011) in their research used Valsalva maneuvers to reduce spinal puncture pain. Sundaran at al. (2016) showed that Valsalva maneuvers could be performed to reduce pain in patients with intravenous puncture. Suren et al. (2013) performed Valsalva mane-

uvers in venous puncture patients. In the present study, the Valsalva maneuver was performed on hemodialysis patients undergoing weekly AV fistula insertion. The advantages of administering the Valsalva maneuver to reduce the pain of AV fistula insertion include ease of operation, patient operability, low cost, and absence of side effects (Davtalab, Naji, & Shahidi, 2016).

The Valsalva maneuver may be expected to reduce the pain of AV fistula insertion by directly increasing patient comfort during hemodialysis and indirectly reducing patient anxiety. Thus, the researcher is interested in assessing the effectiveness of the Valsalva maneuver in decreasing pain intensity during AV fistula insertion in hemodialysis patients.

Methods

This study features a type of research is quantitative with a pre-post quasi experimental design without control that intervenes one treatment group without comparison group (Dharma, 2015).

The appropriate number of samples for this study was determined by using power analysis. The number of samples obtained from a power of 0.8, effect size of 0.5, and α of 0.05 were 63 respondents. The participants in this study were patients receiving routine hemodialysis at RSU Haji Adam Malik Medan. The sampling technique in this study was consecutive sampling. Consecutive sampling is a technique in which all individuals who meet and fulfill the criteria are selected until the desired number of respondents is reached (Dharma, 2015).

The inclusion criteria of this study were as follows: 1) patients undergoing routine hemodialysis twice a week; 2) age over 18 years; 3) no pain in other areas of the body when AV fistula insertion is performed; 4) no analgesic or sedative use within 6 hours before hemodialysis; 5) AV fistula cannulation can be done from time to time; 6) no history of heart disease, glaucoma, or increased brain pressure and no eye surgery over the last few days; 7) no redness or bruising in the area of fistula insertion.

Before performing the research, the researcher first makes a research permit and research ethics number: 1282/X/SP/2017 from the Faculty of Nursing, University of North Sumatra, addressed to the research and development department of H. Adam Malik Hospital Medan. After obtaining a research permit from the re-search and development department, the letter was submitted to the head of the hemodialysis room at the H. Adam Malik Hospital in Medan.

This research involved a group of respondents and divided into two meetings. In the first met, the researcher identified respondents based on predetermined inclusion criteria. Thereafter, the researcher explained the research procedure and clarified that all respondents will experience AV fistula insertion without intervention at the first meeting and undergo the Valsalva maneuver before AV fistula insertion at the second meeting. The respondents were provided informed consent and were sought approval by the researcher. AV fistulas were inserted into the respondents by a hemodialysis nurse without intervention. After insertion, the researcher measured the pain of each respondent by using the Numerical Pain Rating Scale (NPRS).

At the second meeting, before AV fistula insertion, respondents were taught how to perform the Valsalva maneuver. Respondents were asked to cover their mouth and nose with their hand as tightly as possible and then encouraged to attempt maximum expiration. The Valsalva maneuver was first carried out for 16–20 seconds without pause, during which the respondent performed a maximum expiration of 5 seconds. After 5 seconds, the hemodialysis nurse inserted the AV fistula. During AV fistula insertion, the respondent continued to perform maximum expiration for 16 or 20 seconds. Thereafter, the researcher measured the pain of the respondents by using the NPRS.

Data collection was accomplished by collecting demographic data and using NPRS questionnaires. The results were recorded in a recording sheet.

The data were processed by using a computer program. The results were evaluated by using univariate and bivariate analyses. Univariate analysis was performed on respondent data, including age, sex, education, occupation, length of hemodialysis, and the duration of AV fistula use. Bivariate analysis using paired *t*-test was employed to evaluate the intensity of AV fistula insertion pain before and after the intervention.

Results

Normality of Data. The normality tests used were skewness and kurtosis. The normality test results obtained at the first meeting (without intervention) showed that the data are normally distributed with a skewness ratio/standard error skewness of 1.91 and kurtosis ratio/standard kurtosis error of -0.49. At the second meeting (with application of the Valsalva maneuver), the data were also normally distributed with a skewness/standard error skewness ratio of 1.81 and kurtosis ratio/standard kurtosis error of −0.12.

Respondent Characteristics. Approximately 39.7% of the respondents were aged between 56 and 65 years, 63.5% were male, 36.5% had a high school education or its equivalent, and 41.3% were self-employed. Approximately 50.8% of the respondents had undergone hemodialysis for 3–28 months and 60.3% had had an AV fistula installed for 2–23 months.

Frequency Distribution of Pain Intensity. Table 1 reveals that, at the first meeting, prior to receiving the intervention, 65.1% of the respondents experienced AV fistula insertion pain with moderate intensity (4–6). At the second meeting, after administration of the Valsalva maneuver, 55.6% of the respondents experienced AV fistula insertion pain with mild (1–3) intensity.

Average Pain Intensity. Table 2 shows that the average pain intensities of AV fistula in-sertion before and after intervention with the Valsalva maneuver are 4.87 (SD= 1.47; 95% CI) and 3.52 (SD= 1.29; 95% CI), respectively.

Table 1. Frequency Distribution of Pain Intensity Before and After Performing the Valsalva Maneuver (n= 63)

Pain Intensity	Valsalva Maneuver			
	Before		After	
	f	%	F	%
1–3 (Mild)	13	20.6	35	55.6
4–6 (Moderate)	41	65.1	28	44.4
7–10 (Severe)	9	14.3	0	0

Table 2. Average Intensity of Pain of AV Fistula Insertion Before and After Intervention (n= 63)

Intervention	Mean	SD
Before	4.87	1.47
After	3.52	1.29

Table 3. Differences in Intensity of AV Fistula Insertion Pain Before and After the Intervention (n= 63)

Intervention	Score difference Mean (SD)	t (p)	95% CI
Before-After	1.35±0.54	19.70 (0.001)	1.212–1.486

Difference in Pain Intensity Before and After Intervention. According to Table 3, the difference in average intensity of AV fistula insertion pain before and after the intervention is 1.35 (SD= 0.54) (95% CI), with a tcount = 19.70 greater than t-table with df = 62 is 1.99 (p= 0.001; CI= 1,212–1,486). These results reflect a significant difference in pain intensity during AV fistula insertion before and after application of the Valsalva maneuver to hemodialysis patients**.**

Discussion

Pain Intensity Before Intervention. The results of this study reveal that 65.1% of the respondents' experience pain intensity between 4–6 (moderate) during AV fistula insertion.

The findings of this work are in line with Kaza et al. (2014), who showed that, among 56 respondents who experienced AV fistula insertion pain, 62% experienced moderate pain intensity. Çelik et al. (2011) also found the same results in a group of 41 individuals, i.e., 48.8% of respondents in the group without intervention experienced moderate pain.

The results of this study demonstrated that the pain of AV fistula insertion at the first meeting without intervention is moderate in intensity with an average value of 4.87 (SD= 1.47). Arab, Bagheri-Nesami, Mousavinasab, Espahbodi, and Pouresmail (2017) showed that the intensity of pain during AV fistula insertion before intervention is moderate with average values of 5.40 (SD= 1.75) and 5.54 (SD= 1.22) in the 2% lidocaine gel group and hegu point ice massage group, respectively.

Golda, Revathi, Subhashini, Mathew, and Indira (2016) revealed that the intensity of pain during AV fistula insertion before intervention is generally moderate with an average value of 6.3 (SD= 1.15). The data indicate that the average pain intensity felt during AV fistula insertion before the intervention is in the range 4–6 (moderate).

Pain Intensity After Intervention. Among 63 patients who underwent the Valsalva maneuver during AV fistula insertion, 55.6% experienced a decrease in pain intensity of 1–3 (mild) and 44.4% experienced pain between 4–6 (medium). In the research of Agarwal, Sinha, Tandon, Dhiraaj, and Singh (2005), with 25 respondents in each group with venous cannulation (control group), Valsalva maneuver, and ball. The results showed that in the Valsalva maneuver group, as many as 72% of patients experienced mild pain, which is better than the control group (44%) and the ball group (36%) (Agarwal et al., 2005).

Valsalva maneuvers can stimulate the vagus nerve through activation of the cardiopulmonary baroreceptor arch (Bennett, Hosking, & Hampton, 1976). Randich and Maixner (1984) reported that systems that control cardiovascular function are closely related to systems that modulate pain perception. Activation of the cardiopulmonary baroreceptor reflex or sinaortic baroreceptor arch can induce antinociception.

Decreased pain due to AV fistula insertion in hemodialysis patients can be associated with activation of the cardiopulmonary baroreceptor reflex arc or sinaortic baroreceptor arch caused by the Valsalva maneuver. Baroreceptor activation can stimulate the vagus nerve. Then, the activated vagus nerve delivers impulses to the nucleus of the solitarius tract. The solitary tract is the point of intersection between the afferent nerves of the vagus nervous system and the nociceptive pathways of the spinal lamina (Bruehl & Chung, 2004). A decrease in pain during AV fistula insertion occurs when the solitarius tract first receives an impulse of stimulation from the activation of the vagus nerve caused by administration of the Valsalva maneuver. At the same time, the pain stimulation delivered by the nociceptive nerve due to AV fistula insertion, which also passes through the solitary tract, is inhibited by impulses delivered by the vagus nerve. Thus, the pain felt by the patient decreases or disappears. This process is in accordance with gate control theory proposed by

Melzack and Wall (1965), which claims that only one impulse of stimulation can be accepted and perceived by the brain.

After application of the Valsalva maneuver, AV fistula insertion pain decreased to a mild intensity with an average value of 3.52 (SD= 1.29). Sundaran et al. (2016) found that the intensity of venous cannulation pain experienced by respondents in the Valsalva maneuver group is mild with an average value of 1.53 (SD= 0.63).

Difference in Pain Intensity Before and After Intervention. The results of the study reveal a decrease in pain during AV fistula insertion after administration of the Valsalva maneuver with an average decrease in pain intensity of 1.35. The pain of AV fistula insertion felt by the respondents before the intervention was of moderate intensity with an average value of 4.87; after administration of the Valsalva maneuver, mild intensity with an average value 3.52 was reported.

Paired *t*-test was used to determine differences in the intensity of AV fistula insertion pain before and after the Valsalva maneuver. The results of this test indicate the value of t= 19.70 is greater than the value of t table= 1.99 and the value of p= 0.001 < 0.05. Thus, a significant difference in pain intensity of AV fistula insertion before and after the intervention of the Valsalva maneuver exists. Provision of the Valsalva maneuver can reduce the pain of AV fistula insertion in hemodialysis patients.

The results of this study are supported by Davtalab et al. (2016), who found a significant difference in intensity of insertion pain before and after administration of the Valsalva maneuver (p= 0.001). Agarwal et al. (2005) also demonstrated a significant decrease in pain intensity during intravenous cannulation by using the Valsalva maneuver (p= 0.001).

Sundaran et al. (2016) revealed that intervention with the Valsalva maneuver can reduce the pain of intravenous cannulation (t= −2.053, p= 0.045). Suren et al. (2012) showed a significant difference in pain intensity in the Valsalva group compared with the control group (p< 0.05).

Valsalva maneuvers can activate baroreceptors and induce nociceptors (Usichenko, Pavlovic, Foellner, & Wendt, 2004); they can also increase intrathoracic pressure by exhaling and closing the nose so that the glottis is closed for a period of time. These effects can cause increased blood flow, which results in a decrease in blood entering the thorax and activating baroreceptors (Mashhadi & Loh, 2011).

Baroreceptor activation can stimulate vagus nerve stimulation. The vagus nerve then delivers impulses to the nucleus of the solitarius tract. The nucleus tractus solitarius is the interface between the autonomic and sensory systems and the location of the first synapse in the baroreceptor reflex pathway. Nucleus tractus solitarius is the receiver of afferent input from the vagus nerve and spinal lamina associated with nociceptive processes (Bruehl & Chung, 2004).

Bruehl and Chung (2014) stated that stimulation of the nucleus solitarius tract in the pathway of pain regulation can induce antinociception. Antinociceptive stimulated by the solitary tract nucleus can be derived from direct and indirect efferent projections to the periaqueductal gray (PAG) and other brain structures such as the nucleus raphe magnus (NRM) and rostral ventrolateral medulla (RVM) are known to be involved in modulating the pain pathway.

In addition to the upper brain region, the projection of the solitary tract of the nucleus to the medulla coeruleus locus, which is also an important contributor to antinociception, is likely related to blood pressure, given that direct stimulation of this area gives rise to analgesia. The interconnection between the nucleus of the solitary tract and the coeruleus locus is very important in mediating non-opioid analgesia because the coeruleus locus is the main source of noradrenergic neurons in the neuraxis.

The results of this study confirm the validity of the research hypothesis, which states that the intervention of the Valsalva maneuver can reduce the intensity of AV fistula insertion pain in hemodialysis patients.

Previous studies have shown that Valsalva maneuvers are given to reduce pain in patients undergoing knee injection and spinal anesthesia. Abogamal (2016) showed that the Valsalva maneuver may be administered to patients undergoing knee injection. Kumar et al. (2016) indicated that Valsalva maneuvers could be performed in patients undergoing spinal anesthesia.

This study did not use a control group because of the limited time and number of samples in the research process.

Conclusions

In the first meeting, before administering the Valsalva maneuver, less than two out of three respondents experienced moderate-intensity pain during AV fistula insertion. However, in the second meeting, after administering the Valsalva maneuver for 20 seconds, over half of the respondents reported experiencing pain of only mild intensity.

The Valsalva maneuver is effective in reducing pain when inserting AV fistulas in hemodialysis patients. This conclusion is evidenced by the significant difference in pain intensity of AV fistula insertion before and after administering the Valsalva maneuver.

The Valsalva maneuver is highly recommended to be administered to patients undergoing AV fistula insertion. Provision of the Valsalva maneuver can help safety needs and reduce the level of safety when inserting an AV fistula into patients for hemodialysis. The technique is also very easy for patients to perform. The evidence obtained from the present study confirms that the Valsalva maneuver is effective in decreasing fistula AV insertion pain when performed in hemodialysis patients.

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WORKING BEYOND 80: THE MEANING OF WORK TO AN OCTOGENARIAN IN THE WORKFORCE

Ma. Mayla Imelda M. Lapa[1], Laurence L. Garcia[1], Endrex P. Nemenzo[2*]

1. College of Nursing, Cebu Normal University, Osmeña Boulevard, Cebu 6000, Phillipines
2. Center for Research and Development, Cebu Normal University, Osmeña Boulevard, Cebu 6000, Phillipines

*E-mail: nemenzoe@cnu.edu.ph

Abstract

There is an increasing share of people aged 50 years and over in the labor market structure and the rapid aging of the global workforce that supports the latter claim but with a little tank of information on qualitative research describing the experiences of a working octogenarian. An octogenarian is a person who is between 80 and 89 years old. This study aimed to investigate the experiences of a working octogenarian in her fieldwork through a qualitative case study analysis. From the interview, the following three themes were revealed: (a) Work as a legacy, (b) Work as an advocacy, and (c) Work as an opportunity. In the first theme, the participant described that she had a laden path and a mission. These had been sustained along with the desire to serve and make a difference. In work as advocacy, she presented the vision to make the lives of the elderly better by making the environment compatible with her aspiration extending beyond the confines of her organization. Considering every work that she took part in as an opportunity to explore and further her vision was the very core of the theme "work as an opportunity." Working beyond 80 years old becomes possible when one dedicates the undertakings in the fulfillment of the individual's vision and mission.

Keywords: aging, gerontology, labor, octogenarian, workforce

Abstrak

Bekerja di Atas Usia 80: Sebuah Studi Kasus Kualitatif tentang Arti Bekerja bagi Seorang Tenaga Kerja Octogenarian. *Terdapat peningkatan jumlah orang yang berusia 50 tahun ke atas dalam struktur pasar tenaga kerja dan penuaan dini dari tenaga kerja global yang mendukung klaim terakhir, namun masih sedikit informasi tentang penelitian kualitatif yang menggambarkan pengalaman seorang oktogenarian yang bekerja. Seorang octogenarian adalah orang yang berusia antara 80 dan 89 tahun. Penelitian ini bertujuan untuk menyelidiki pengalaman seorang oktogenarian yang bekerja pada lapangan kerjanya melalui analisis studi kasus kualitatif. Berdasarkan wawancara, tiga tema berikut terungkap: (a) Bekerja sebagai warisan, (b) Bekerja sebagai advokasi, dan (c) Bekerja sebagai peluang. Pada tema pertama, peserta menggambarkan bahwa dia memiliki jalan yang sarat dan misi. Hal ini telah dipertahankan dengan keinginan untuk melayani dan membuat perbedaan. Pada tema bekerja sebagai advokasi, ia mempresentasikan visi untuk membuat kehidupan lansia menjadi lebih baik dengan membuat lingkungan yang sesuai dengan aspirasinya melampaui batas organisasinya. Mempertimbangkan setiap pekerjaan yang ia ambil sebagai kesempatan untuk mengeksplorasi dan memajukan visinya adalah inti dari tema "bekerja sebagai sebuah peluang." Bekerja lebih dari 80 tahun sangat mungkin ketika seseorang mendedikasikan upaya dalam pencapaian visi dan misi individu.*

Kata Kunci*: aging, gerontologi, octogenarian, pekerja, tenaga kerja*

Introduction

The past years have witnessed noteworthy differences in the construction of unemployment in the labor market on a global scale. There is an increasing share of people aged 50 years and over in the labor market structure and the rapid aging of the worldwide workforce that supports the latter claim (Radović-Marković, 2013). The issue of age discrimination at work seems to remain a challenge for those at both extremes of the working population (Snowdon, 2012). It is more prominent to the elderly population because aging is characterized by a progressive

physiologic decline in all body systems with the concurrent risk of major pathologies (Antoniou, Burke, & Cooper, 2017). It may seem particularly difficult to imagine people working into their 60s, 70s, and 80s. It is like things that some people will work longer than they might have 50 years ago because they can. Modern medicine has not slain obesity or alcoholism, but it has created drugs and treatments that lengthen many people's lives (McIntyre, 2010).

Perceptions toward those aged over 70 years were more positive than toward those in their 20s, with more seasoned individuals viewed as being friendlier, having higher moral standards, and being more competent than their younger counterparts (Snowdon, 2012). In an authentic sense, our older workers are a key national asset, more vital to our future. Further, this is a workforce issue and a human productivity issue that includes everyone old enough to work and even many retirees who are still productive and contributing to our economy. Foremost, the effectiveness of our management of older people and their level and type of contribution is, or should be, a public issue of concern because it affects everyone (Shea & Haseen, 2006).

Government data show that each month, there are fewer jobs available for people seeking work. A generation ago, the competition for those openings would have been mostly among the relatively young and able-bodied. Now, the battle to employment includes the nondisabled over 80 years old (McIntyre, 2010). It prompts the proponent to look into the meaning of the experience of being an octogenarian and still an active member of the workforce.

Several factors, such as advancements in the medical fields and developments of society, have led to, in general, more people living in advanced age and the elderly populace growing in most of the industrialized countries. These demographic differences seen in the workforce populace affected and lowered the possibility of sickness benefits and disability pensions (Nilsson, Östergren, Kadefors, & Albin, 2016). As the populace grows older, an expanding part of the workforce will be past the age of 60 years. Older workers are viewed as less beneficial than younger ones, raising the issue of whether an aging workforce will likewise be less productive (Burtless, 2013). It has been a long-standing issue regarding active aging in employment. More seasoned individuals or older people are an important and gainful economic reserve. Expanding employment openings among elderly workers is essential to guarantee that the work market and workforce adjust to address the issues of a maturing populace. The need to build the business rate of elderly workers has been converted into quantitative objectives proposed to keep those matured 55–64 years old in work and to raise their average period of exit from the work market (Radović-Marković, 2013).

Older people in the workforce bring with them favorable characteristics in the workplace, including stability, loyalty, reliability, experiences, maturity, and wisdom. One way to address ageism in the workplace is to tackle perceptions that have negative connotations regarding concerns about the competency of the elderly workers (Irving, 2017). An older person's decision regarding retirement is dependent on financial capacity, social support, and preoccupation after retirement. When these factors are unmet, an older person may opt to continue to work, adding a large number of older people in the workforce who will compete with workers from other age groups. Taking these factors into consideration before reaching retirement age will help a person plan in advance the things to do to make the retirement decision easier (Garcia, 2013). Studies found in the literature are focused on the intention of older people to continue working (Lu, 2012) but not on the experience of a working older person. It is the gap that the study wanted to fill. This study aimed to describe the experiences of a working octogenarian in her fieldwork through a case study analysis.

Methods

This research used a case study analysis, which

is an empirical inquiry that examines a contemporary phenomenon within its real-life framework when the boundaries between phenomenon and context are not apparent and in which multiple supplies of evidence are used. The study used an instrumental case study, specifically, which is used to accomplish something other than just understanding or observing a situation in a particular sense. It would provide valuable insight into the phenomenon of interest. The case being examined played a primary role in understanding the experience of an octogenarian. The case presented can or cannot be seen as the same as that of the others. It is looked at in greater depth, its contexts scrutinized, and its ordinary activities detailed because of its help in making the researcher pursue external interests (Baxter & Jack, 2008; Garcia, 2019). In the final interpretive phase, the researcher reports the significance of the case, looking into whether that importance comes from learning about the case's issue (an instrumental case) or about an unusual situation (an intrinsic case). As Lincoln and Guba (1985) mentioned, "lessons learned" were taken out from the case during this phase. Inclusion criteria include the participant to be a worker, 80 years old and above, and must not have been separated from the current job.

Rigors of the Study. The rigors of the study were identified to provide the steps taken in the conduct of the research. These include credibility, transferability, dependability, and confirmability. The basic steps such as triangulation, the researcher's "reflective commentary," and member checks provide the necessary avenue in determining the credibility of the data being gathered and explored. Transferability accounted for the accurate and sufficient details of the data being examined. The researchers described the research design with its purpose and implementation, stating what is planned and how it will be executed with adequate planning and interventions determined dependability. Furthermore, confirmability was run by noting each and every step of what was done during the data gathering and recording each step of the process through written field notes and unedited documents.

Participant. The participant was an 80–year old woman who is a professional currently working in the private sector. The study was conducted in Central Visayas, Philippines.

Data Gathering and Ethical Consideration. The interview was conducted in a mutually agreed upon venue, which allowed relative privacy. An ethics clearance was obtained from the Cebu Normal University Ethics Review Committee. The researchers ensured that the informant could understand the study with all due consideration of their level of understanding. Before signing the consent, the participant was explained the process of a one-on-one interview and assured that confidentiality would be preserved. Consent for audio recording was obtained from the participant. The participant was free not to answer any question and withdraw from the study at any time without explaining the reason and penalty. After obtaining the clearance, the participant recruitment started. The researchers conducted face-to-face in-depth interviews as a mean of data collection. The main question, which was asked in English (with a Cebuano translation), is "Kindly share to us your story or work experience/being employed beyond the age of 80." Prompts, elaboration, and clarification were used as necessary to encourage the participant to continue her story.

The interview lasted for 1 hour. Before ending the conversation, the participant was asked if there was anything more she wished to talk about her full experience. The researcher conveyed his gratitude to the informant, and the cassette recorder was turned off. All the cassette recorders were handled by the researchers and placed in a locked cabinet where only the researchers can access. Audiotaped data were listened to by the researchers two to three times to achieve data immersion. The data were transcribed by the research assistant 24–48 hours after the interview was completed. The transcript of the interview was stored in the personal computer owned and used only by the researchers. The written transcript was also kept in a locked cabinet. For confidentiality, a pseudonym was applied for

the participant. The informant was given the pseudonym "Maria" to label the various undertakings that she engaged in accomplishing her passions. The authors used licensed NVivo 11, QSR International Pty Ltd, Australia software to analyze the transcripts.

Results

Three themes were discovered. This result will present the themes and scripts of the participants.

Work as a Legacy. Working as a healthcare provider paved the way to envision in making the environment fit for elderly individuals. This vision extends not only to where healthcare is provided but also to the community where the elderly persons are situated most of the time.

***Laden path*.** Care and concern for her clients became her lifetime; even though other opportunities beckon, she still chose to serve the less fortunate.

> *"I am on public health … my patients were poor..."*

> *"There were a lot of programs I had. And we were audited by PRC, in Civil Service I mean. Then they asked who is this Maria. Why Sir? Because of all the doctors, she has the most handled program … I was handling five programs."*

Inspirations for her advocacy stirred her desire to better herself by improving performance and participating in training to serve her clients better.

> *"I go up the ladder of city health, and then as I go up, it always is accompanied by training."*

> *"There was really a lecture. The programs always trained me in the Government. The Government has good programs."*

> *"I was able to build a center … I was also appointed as director of XXX Foundation."*

> *"I am on public health … my patients were poor."*

The work she started eventually embodied her. She started the legacy with a limited number of individuals who believed in her vision.

> *"…so, we were the first program because that was the first in the city of Cebu, even the region does not have. We informally started the program every Thursday for the elderly. There was an elderly who would come and we will just talk."*

> *"I don't mind. 1, 2, 5, or 10. Also, bring companions. Oh, here he is, so there were five of us. So, the program in XXX was launched. So the city health officer before was my classmate. I said we would launch our program for the elderly. During that time, nobody talks about the elderly … so how was the program run? The elderlies ran it."*

> *"I did not earn anything … I'm spending my own money … I'm not receiving any money. The donations, it goes to XXX Center…The thing that makes XXX Center running is due to persons and donations from where I work."*

Maria's life-sustaining desire for service and making a difference requires a firm resolve to hurdle all the challenges that life would throw her way and a vow to deliver the best to the less fortunate. Making Maria's mark amid the hustle and bustle of everyday life is a challenge and a struggle. Her desire to unite the elderly and give them the best environment to exist in harmony with the young ones is a path less trodden. In the early years of her work, only a limited number of elderly individuals were willing to join in her quest. Still, perseverance and commitment led her to institute the organization that became the household name for the elderly population in her locality, both professional and otherwise. It is noteworthy that the organization that Maria founded was run exclusively by its elderly

members and welcomes members who are senior citizens. Members of her organization grew at a much higher rate and reflected the cohesiveness of the elderly in the community. The organization that she led was the first elderly organization in her locality, and the programs it spearheaded became the benchmark for the creation of local government unit (LGU)-sponsored elderly programs.

Consequently, Maria's efforts were recognized by a particular nongovernment organization (NGO). This recognition comes with the fact that the organization became interested in Maria's undertakings for the elderly, thus suggesting the creation of an elderly facility that would house the elderly members in her locality and the donation of a lot in a certain part of the locale. In all her undertakings, Maria never acquiesced monetary or financial gain. To make her organization survive amid the financial demands of running, she developed linkages within both the public and private sectors, local and international. Maria had capitalized on her extensive work experiences to keep her desire aflame.

Mission. The participant's experiences of Maria had been etched on her and determined that this was the mission she sought long after. She saw the need of the people, especially that of the poor. She organized several groups to address the need of her clientele. Then, because of the efforts she took, she was conferred with several awards.

> *"I am on public health, and my patients were poor… and also, in the city health, I organized them, the doctors…this was the course on Hypertension Specialist."*

> *"We have a lecture every month to keep up with the knowledge. Then I became the BHW coordinator … so I asked the Mayor to revive the Health Board."*

> *"I was awarded three times … so many programs at that time I did not expect I would be honored … it was just nothing with me. What is in my mind is that I liked it. I did not expect any award. Nothing … emm, basically, what was the driving force of my activities were the programs, and that was my interest in aging … if my interest left, then I would stop, but it did not."*

Maria's experience working in the public sector and catering to the poor had propelled her to explore every chance to make a difference in the lives that she provided. She would go the extra mile of spending her own money to help out the receivers. She had the gift of organizing, which she used in full. She organized the health practitioners in her previous job so that they can develop programs to cater to the needs of poor hypertensive patients. They undertook health drives and taught the patients proper self-care and disease management. Also, Maria became the barangay health worker (BHW) coordinator. The BHWs are the force multiplier of the government's healthcare implementers. They are more in interaction with the grassroots for the government's health services to reach remotely located recipients.

Furthermore, Maria's linkage with the local chief executive allowed her to revive the health board in her locality. This health board, headed by the local chief executive, allowed the community to participate in healthcare decisions. In recognition of Maria's numerous undertakings to make a difference, she was given accolades from various organizations. To name a few, she received the Supervisory Award from the Cebu City Health Department, Leadership Award from the Soroptomist International, Cebu Chapter, Award of Merit from Pfizer, and several certificates of recognition from government organizations (GOs) and NGOs. Her interests are life enduring, and she vowed to continue her mission of making a difference in other's lives until her death.

Work as an Advocacy. Maria was able to use her work as a way of giving voice to the community by being an advocate. She stated that her interest in helping the elderly has never died

down. It led to her advocacy of providing an elderly-friendly environment.

> *"I am obsessive with gerontology … the interest never died … my interest never left … if my interest left, then I would stop, but it did not."*

> *"I said that I did not study how to handle the elderly, I just gather them, and we talk until we know how to. It's like while we are still alive, we will gather together … the quality of life of the 80s and the 90s and the 100 … the impact is longer life."*

> *"This is a small Florida: community where they can go, listen to old music, swim there, with small beauty parlor and watch television; also, some small grocery and consultation area. Also, if they want hotel hopping, they can go."*

Maria envisions an environment where the elderly's concerns are given much consideration. Matters that go beyond economic needs but rather encompass the elderly's existence. She visualizes a situation where the elderly can be themselves without fear of derision or stereotyping and an environment where the elderly can "go to, listen to old music, swim there; with small beauty parlor and watch television; also, some small grocery and consultation area." It is a community that provides for their social and healthcare needs, and offers compatibility with the needs and concerns of the elderly to enhance individual functioning and quality of life.

Concrete works. There are also several concrete works that Maria was able to do, keeping track of her work as a legacy. These works reflect tangible things she can advocate.

> *"…gerontological design for architects… so, they are designing, they are architects, they're very interested. They requested me to lecture for the architects of the XXX university and the United Association of Architects."*

> *"The commission on women were interested. Let's make a home. There is a lot in Guba from the Government. Let's ask the Mayor to make a home. We will do business, and our profit will be for the poor."*

> *"The airport elderly-friendly … I will challenge the architects to make a design for XXX City to be elderly-friendly … I've been advocating elderly-friendly community."*

Maria is not alone in her desire to match the environment with the needs of the elderly. A certain association of architects also aspires this same yearning. This association is interested in designing the environment that Maria envisioned, and their interest is supported by their desire to know how to build an elderly-friendly climate. Maria as a resource person on elderly care of various GOs and NGOs conducted a series of lectures on this subject with the architects as her audience and tutee. Her talks focused on gerontological designs, which the architects can consider when designing an elderly fit environment. Furthermore, Maria propositions a challenge to her architect and tutee to make their locality elderly friendly. This elderly-friendly environment encompasses airports, parks, walkways, and other settings where the elderly can be found.

Mentoring. The participant also wanted to share the experiences she had through mentoring. By doing such, she can create succession plans for the next generation of health workers.

> *"…XXX they're sending their interns also to us for research … we started dementia screening on a barangay … I'm training nurses to screen."*

> *"I want the academe, my focus in gerontology … offer gerontology in the other departments … gerontology is multidisciplinary … I hope I want … I can teach in XXX."*

> *"…a nurse teaching another nurse but for a doctor to teach the nurses? Much better … I hope gerontology will move forward in all*

the sectors, such as in industry, in the academe, in the medical field, and the pharmaceutical."

Maria's vision to create an elderly-friendly environment does not stop by designing the atmosphere by the architects. It takes all the other professions to contribute to its design. As one age, various nicks and ills would challenge the quality of life of the elderly, and caring for them takes boldness and tolerance. With the minimization of the elderly's complaints accompanied by the stereotyping of it being part of the aging process, it takes a careful assessment to arrive at a diagnosis that considers their atypical complaints. Thus, Maria, in her capacity as a mentor, guides interns in the proper care of the elderly and assists them in their research on elderly care.

Furthermore, Maria aspires to extend her knowledge on elderly care to various educational institutions and wishes for these to offer courses in gerontology. She considers teaching the nurses, other professions, and professionals on the correct elderly care. She hinges on her extensive training, work experiences, and personal vision in awakening the interests of all professions in elderly care. Maria hopes that concepts in gerontology will touch base all the sectors—in the industry, academe, medical field, and even pharmaceutical world.

Wider scope for public information. The need for a public voice has also been the source of inspiration for Maria, especially in the government. She has been a staunch leader in the broader scope of public information for elderly care.

"I was very active in public service. I was also invited. My service was continuous. When I stopped today, I was called the next day ... my interest is on. I still make programs. I link with the Government."

"…people in the media, they do not know that there is XXX Center."

The aging population of the world is an opportunity to advance awareness of the needs of the elderly population. Maria's desire to promote elderly care in all sectors calls for a broader scope of public information. Widening the coverage of elderly awareness campaigns entails engagement with the media, government, and academe for its dissemination. Engaging these sectors allows for elderly information to be diffused within the populace to educate everyone on elderly needs and their care. It can also be a perfect venue for inviting everyone to look into the problems of the elderly, such as dementia and to properly treat the condition to give a quality of life to the survivors.

Work as an Opportunity. Maria saw her profession as an opportunity for her to be a part of the community and in ensuring that the community achieves the service they deserve.

"After my training, I organized in the city, in XXX, a program for the elderly … Then there was an offering on Gerontology in XXX, and I took the course."

"I was able to build a center. We had feeding in the barangay and collect data from the city health department and find out which barangay."

"This is no longer public health but industrial medicine already."

This opportunity has given her the avenue to practice her profession and translate it to the community. Maria considered every work that she took part in as an opportunity to explore and further her visions. Each training was an opportunity to widen and deepen the knowledge of the care of her patients. She takes every challenge to her capability a chance to make a difference in another person's life. She organized programs for the elderly, and these programs were supplemented by her trainings locally, nationally, and internationally. She undertakes translational expertise sharing both locally, nationally, and globally to promote elderly care

and an elderly-friendly environment. Furthermore, these elderly programs were linked to the elderly programs of the LGU to provide better care and broader coverage of beneficiaries.

Maria's paradigm had shifted from public health to industrial medicine that allowed Maria to develop more programs that shifted from merely treating diseases to maintaining health, preventing and treating diseases and injuries, and maintaining and increasing productivity and social adjustment in the workplace. Her work as a company physician allowed her to integrate these concepts in planning programs for employee health care.

Discussion

The meaning of work to an octogenarian was identified into three themes, namely: work as a legacy, work as an advocacy, and work as an opportunity. In the current global scenario, there is rapid aging in the world population, and those who are 60 years old and above are forecasted to outnumber children under the age of 5 years (Bersin & Chamorro-Premuzic, 2019). Moreover, life expectancy has also lengthened over the years (Oshio, Usui, & Shimizutani, 2018). In this case, the world still needs older people to be a part of the active labor force.

Work for an octogenarian is a legacy that requires one to venture into the path less traveled, supported by a particular mission to make a difference in the life of others. Garcia (2020) made mention that success is contingent on the choices and behaviors that an individual had. The choice of a life-fulfilling mission starts early and becomes the measure of one's success and continued legacy. It is attained because of an individual's determination and choice to fulfill it (Katz & Calasanti, 2015). And just like any other successful people, one can create a habit and follow a formula of motivation to be successful (Garcia, 2018 & Lorenzen, 2017) and make it their life's mission. It is in agreement with the study's result that the path selected becomes the motivation for an individual to pursue and eventually become a memorial of the choices and actions one has done in the past.

Concerning advocacy, the meaning of work calls for the extension of oneself beyond the call of duty. It requires exploration of all avenues that can be opened through envisioning the future, mentoring those that come after them, and creating concrete evidence of that vision. To be an advocate is to uphold and promote a certain cause (Mellinger, 2017). It allows the perpetuity of support to causes that one cares indeed started (Brooks, 2020). One feels a sense of integrity when they feel delighted over their achievements (Garcia, 2018) that translate into advocacies. How work transforms into advocacy is because of the passion and interest that never failed to die down. Throughout the years, they stay engaged in their work (Brooks, 2020).

Moreover, advocacy is seen as the transition of future responsibilities to the next generation and thereby sees mentoring as an excellent way to promote this type of teaching–learning relationship. It is even thought that both younger and older workers have complementary skill sets that would enable more productivity in the workplace (Gorvett, 2019). Moreover, contribution to the success of other people becomes vital when one experiences life experiences of successes themselves (Garcia, 2019).

Lastly, it is an opportunity that allows the octogenarian to move forward the mission of making a difference. Moving forward demands a paradigm shift and capitalizing on training to enable its continued existence. It is reflective of the results of Ulrich (2003) and Sewdas et al.'s (2017) qualitative studies that an elderly on employment who keeps on learning and can demonstrate the right competencies do feel good. Work to an octogenarian is not the characteristic of work that the productive workforce envisions it to be. It is a life-enduring endeavor that goes beyond retirement. It entails dedication, perseverance, commitment, and firm determination to sustain its existence.

This study is limited in its scope; only one participant qualified because of the stringent criteria set forth by the authors. The rigorous criteria were conceived to reflect on how work, life, and advocacy can be intertwined to support a vision that would create a significant influence on the lives of the recipients. Further, this is time bound, limiting the ability of the researchers to recruit respondents from other locales.

Nursing practice has evolved over the years and has become more specialized than ever. This knowledge would allow nurses to have a deeper understanding of what the elderly can contribute to the community and, in return, would have specialized skills and training in responding to the needs of the elderly working population. It may mean that senior nurses who can still work and contribute to the organization can likewise become valuable assets in the different areas of nursing practice on which they have served and continue to mentor younger ones. It allows the transition and learning of experiences to be more in-depth and more significant.

Conclusions

Working beyond 80 years old becomes possible when one dedicates the undertakings in the fulfillment of the individuals' vision and mission. It becomes life-sustaining when it grows into a source for the enhancement of one's quality of life. Each work endeavor becomes a fountain of youth that extends the individual's life.

It is implied that age is not a limiting factor to still pursue being in the labor force. Various reasons underlie the different meanings of work in old age. The case can be an example set as a policy driver for legislators and the key personnel in the labor force to consider the employment of older people, even those octogenarians and older. It is recommended that the study be pursued further to a qualitative phenomenological study using the same methodology with more respondents.

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Due to the ongoing process, the women experiencing moderate to severe pain in the knees, ankles, legs, back, shoulders, elbows, and/or their fingers, and they are struggling to eliminate the pain. To alleviate pain, they look for the cause of the pain. One participant stated that, "... I decided to visit a doctor to determine the cause of the pain is. Now I'm taking medication from the doctor in an attempt to reduce this pain" (participant 3)
Here is an excerpt example of using block quotations if the sentences are 40 or more. Use indentation 0.3"

As discussed earlier, once the participants had recovered from the shock of the diagnosis of the disease, all participants decided to fight for their life. For most of them, the motivation for life is a

function of their love for their children; namely child welfare, which being characteristic the pressure in their world. Here is an example of an expression of one of the participants:

I tried to suicide, but when I think of my children, I cannot do that [crying]. I thought, if I die, no one will take care of my children. Therefore, I decided to fight for my life and my future. They (children) were the hope of my life (participant 2).

Discussions

Describe the discussion by comparing the data obtained at this time with the data obtained in the previous study. No more statistical or other mathematical symbols in the discussion. The discussion is directed at an answer to the research hypothesis. Emphasis was placed on similarities, differences, or the uniqueness of the findings obtained. It is need to discuss the reason of the findings. The implications of the results are written to clarify the impact of the results the advancement of science are studied. The discussion ended with the various limitations of the study

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Acknowledgement (if any)

Acknowledgement is given to the funding sources of study (donor agency, the contract number, the year of accepting) and those who support that funding. The names of those who support or assist the study are written clearly. Names that have been mentioned as the authors of the manuscripts are not allowed here.

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If not pubished

Last-name, A. A. (year). *Dissertation/thesis title.* (Unpublished doctoral dissertation/master thesis). Institution Name, Location.

Considine, M. (1986). *Australian insurance politics in the 1970s: Two case studies*. (Unpublished doctoral dissertation). University of Melbourne, Melbourne, Australia.

Database Article

Author, A. A., Author, B. B., & Author, C. C. (Year pub). Title of article. *Title of Journal*, Volume (Issue), pp-pp. doi:xx.xxxxxxxxx [OR] Retrieved from URL of publication's home page

Borman, W.C., Hanson, M.A., Oppler, S.H., Pulakos, E.D., & White, L.A. (1993). Role of early supervisory experience in supervisor performance. *Journal of Applied Psychology, 78*(8), 443-449. Diperoleh dari http://www.eric.com/jdlsiejls/ supervisor/early937d%

Database article wth DOI (Digital Object Identifier)

Brownlie, D. (2007). Toward effective poster presentations: An annotated bibliography. *European Journal of Marketing, 41*(11/12), 1245-1283. doi:10.1108/03090560710821161

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Online article

Becker, E. (2001, August 27). Prairie farmers reap conservation's rewards. *The New York Times*, pp. 12-90. Retrieved from http://www.nytimes.com

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Appendices are only used when absolutely necessary, placed after the references. If there is more than one attachment/appendix then sorted alphabetically.

Here is an example of a table

Table 1. The Characteristics of the Respondents (capital letters at the beginning of the word 11 pt, bold, left justify)

(blank one single space line, 10pt)

Client's Initial	Age	Major Problem
Mr. BN	56	Aggressiveness
Mr. MA	40	Withdrawal
Mr. AS	45	Swing Mood

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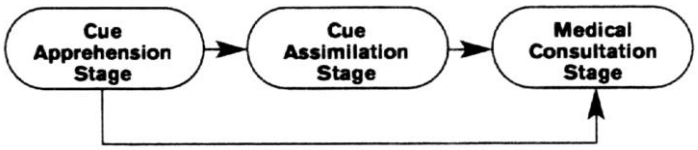

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Figure1. The Process of Cardiac Sensitivity Cues (Capital Letters in the Beginning of the Words, 10pt)

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ARTICLE TITLE (all caps, 14-point font, boldface, centered, Maximum 16 words)

(One blank single space line, 14 pt)

Abstrak (10 pt, bold, senter)

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Abstrak harus ditulis menggunakan huruf Times New Roman, ukuran 10pt, huruf miring, rata kanan, dan satu paragraf-tidak terstruktur dengan spasi tunggal. Abstrak harus "pendek dan manis". Seharusnya tidak melebihi 200 kata. Singkatan atau referensi dalam Abstrak tidak boleh digunakan. Abstrak harus mencakup latar belakang, ilustrasi kasus, dan kesimpulan. Latar belakang mencakup pengantar tentang mengapa kasus ini penting dan perlu dilaporkan. Harap sertakan informasi tentang apakah ini adalah laporan pertama dari jenis ini dalam literatur. Ilustrasi kasus mencakup rincian singkat tentang apa yang pasien sajikan, termasuk usia pasien, jenis kelamin dan latar belakang etnis. Kesimpulan merupakan kesimpulan singkat dari apa yang pembaca harus pelajari dari laporan kasus dan dampak klinisnya. Apakah laporan kasus asli yang menarik bagi area spesialis keperawatan tertentu atau apakah itu berdampak klinis yang lebih luas?

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Kata Kunci: Bagian ini terdiri dari tiga sampai enam kata kunci/frase yang mewakili konten utama artikel. Kata kunci ini penting untuk indeksasi manuskrip dan pencarian daring dengan mudah. Itu ditulis dalam bahasa Inggris, diurutkan berdasarkan abjad (font 10 huruf, huruf miring), memberikan koma di antara kata-kata/ frasa.

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Abstract *(10*-pt, bold, italics*)*

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Article Title*. Abstract should be written using Times New Roman font, size 10pt, italics, right justify, and one paragraph-unstructured with single spacing, completed with English title written in bold at the beginning of the English abstract. The Abstract should be "short and sweet". It should not exceed 200 words. Abbreviations or references within the Abstract should not be used. The Abstract should include into background, case illustration, and conclusion. Background includes an introduction about why this case is important and needs to be reported. Please include information on whether this is the first report of this kind in the literature. Case illustration includes brief details of what the patient(s) presented with, including the patient's age, sex and ethnic background. Conclusions is a brief conclusion of what the reader should learn from the case report and what the clinical impact will be. Is it an original case report of interest to a particular clinical specialty of nursing or will it have a broader clinical impact across nursing? Are any teaching points identified? If manuscripts are not from Indonesia, the Indonesian abstract will be assisted by the editor.*

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Keywords*: This section is comprisedof three to six keywords/phrases representing the main content of the article. It is important for indexing the manuscript and easy online retrieval. It is written in English, alphabetically order (10-point font, italics), give commas between words/phrase.*

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Introduction (14-point font, boldface, cap in the first letter of headings)

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The manuscript is written with Times New Roman font size 12, single-spaced, left and right justified, on one-sided pages, paper in one column and on A4 paper (210 mm x 297 mm) with the upper margin of 3.5 cm, lower 2.5 cm, left and right each 2 cm. The manuscript including the graphic contents and tables should be minimum 8 pages or minimum 3500 words, preferably in even number of pages. If it far exceeds the prescribed length, it is recommended to break it into two separate manuscripts. The Standard English grammar must be observed. The title of the article should be brief and informative and it should not exceed 20 words. The keywords are written after the abstract.

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The use of abbreviations is permitted, but the abbreviation must be written in full and complete when it is mentioned for the first time and it should be written between parentheses. Terms/Foreign words or regional words should be written in italics. Notations should be brief and clear and written according to the standardized writing style. Symbols/signs should be clear and distinguishable, such as the use of number 1 and letter l (also number 0 and letter O). Avoid using parentheses to clarify or explain a definition. The organization of the manuscript includes **Introduction, Case Illustration, Discussion, Conclusions,** and **References**. **Acknowledgement** (if any) is written after **Conclusion** and before **References** and narratively, not numbered. The use of subheadings is discouraged. Between paragraphs, the distance is one space. Footnote is avoided.

This manuscript uses *American Psychological Association (APA*) manual style as citation. When using APA format, follow the author-date method of in-text citation. This means that the author's last name and the year of publication for the source should appear in the text, for example, (Jones, 1998), and a complete reference should appear in the reference list at the end of the paper. Citation can be put at the beginning of the sentence, for example Johnson (2005) states that … or the source put at the end of a sentence for examples … (Purwanto, 2004). See the complete format on this link https://owl.english.purdue.edu/owl/resource/560/02/

The Introduction or Background section should explain the background of the case, including the disorder or nursing problems, usual presentation and progression, and an explanation of the presentation if it is a new disease or disorder. If it is a case discussing an adverse intervention the Introduction should give details of intervention's common use and any previously reported side effects. It should also include a brief literature review. This should introduce to the case report from the stand point of those without specialist knowledge in the area, clearly explaining the background of the topic. It should end with a very brief statement of what is being reported in the article.

The Introduction should be in brief, stating the purpose of the study. Provide background that puts the manuscript into context and allows readers outside the field to understand the significance of the study. Define the problem addressed and why it is important and include a brief review of the key literature. Note any relevant controversies or disagreements in the field. Conclude with a statement of the aim of the work and a comment stating whether that aim was achieved.
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Case Illustration (14-point font, boldface, cap in the first letter of headings)

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This should present all relevant details concerning the case. This section can be divided into separate sections presented with appropriate subheading, such as history and presenting conditions, intervention, outcome, etc. This should provide concerned details of the case with relevant demographic information of the patient concealing their identification (without adding any details that could lead to the identification of the patient), medical history, observed symptoms and describe any tests or treatments done on the patient. If it is a case series, then details must be included for all patients. Discuss the significance and rarity of findings with referencing to the previous studies.

If it is need to present table(s) and or image(s), some rules should be followed. Table only uses 3 (three) row lines (do not use a column line), the line heading, and the end of the table (see example). Table is written with Times New Roman size 10-pt and placed within a single space below the title table. Table titles is written with font size 9-point bold, capital letters at the beginning of the word and placed on the table with the format as shown in the examples that do not use the column lines.

Numbering tables are using Arabic numerals. The distance between table and the paragraph is a single space. The table framework is using lines size 1 pt. If the table has many columns, it can use one column format at half or full page. If the title in each table column is long and complex, the columns are numbered and its description given at the bottom of the table. The table is placed in the highest or the very bottom of each page and do not flanked by sentence. Avoid interrupted the table by page.

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The discussion section should contain major interpretations from the findings and results in comparison to past studies. The significance of the findings and case presentation should be emphasized in this section against previous findings in the subject area.

This section should evaluate the patient case for accuracy, validity, and uniqueness and compare or contrast the case report with the published literature. The authors should briefly summarize the published literature with contemporary references.

Conclusions

Conclusions section is written in narrative form. This section should conclude the Case reports and how it adds value to the available information. Explain the relevance and significance of their findings to the respective field in a summary briefly. This section is not allowed to write other authors work, as well as information or new terms in the previous section did not exist. Recommendation for further study can be written in this section.

Acknowledgement

Acknowledgement is given to the funding sources of study (donor agency, the contract number, the year of accepting) and those who support that funding. The names of those who support or assist the study are written clearly. Names that have been mentioned as the authors of the manuscripts are not allowed here.

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Journal

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Wu, S.F.V., Courtney, M., Edward, H., McDowell, J., Shortridge-Baggett, L.M., & Chang, P.J. (2007). Self-efficacy, outcome expectation, and self-care behavior in people with type diabetes in Taiwan. *Journal of Clinical Nursing,* 16 (11), 250–257.

References with eight or more authors, write the first six authors' name following ellipsis (…) & the last author's name. Example:

Dolan, R., Smith, R.C., Fox, N.K., Purcell, L., Fleming, J., Alderfer, B.,… & Roman, D.E. (2008). Management of diabetes: The adolescent challenge. *The Diabetes Educator, 34,* 118-135.

Conference Proceeding

Schnase, J.L., & Cunnius, E.L. (Eds.). (1995). Proceedings from CSCL '95: *The First International Conference on Computer Support for Collaborative Learning*. Mahwah, NJ: Erlbaum.

Newspaper no author's name

Generic Prozac debuts. (2001, August 3). The Washington Post, pp. E1, E4.

Book

Author, A.A. (Year). *Source title: Capital letter in the beginning of the subtitle*. City: Publisher.

Peterson, S.J., & Bredow, T.S. (2004). *Middle range theories: Application to nursing research*. Philadelphia: Lippincott Williams & Wilkins.

Book chapter

Author, A. A. (Year). Chapter title*:* Capital letter in the beginning of the subtitle. In Initial, Surname (Author's name/book editor) (eds). *Book title*. Location/City: Publisher.

Hybron, D.M. (2008). Philosophy and the science of subjective well-being. In M. Eid & R.J. Larsen (Eds.), *The science of subjective well-being* (pp.17-43). New York, NY: Guilford Press.

Translated book

Ganong, W.F. (2008). *Fisiologi kedokteran (*Ed ke-22). (Petrus A., trans). New York: McGraw Hill Medical. (Original book published 2005).

Thesis/Dissertation

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Last-name, A. A. (year). *Dissertation/thesis title.* (Unpublished doctoral dissertation/master thesis). Institution Name, Location.

Considine, M. (1986). *Australian insurance politics in the 1970s: Two case studies*. (Unpublished doctoral dissertation). University of Melbourne, Melbourne, Australia.

Database Article

Author, A. A., Author, B. B., & Author, C. C. (Year pub). Title of article. *Title of Journal*, Volume (Issue), pp-pp. doi:xx.xxxxxxxxx [OR] Retrieved from URL of publication's home page

Borman, W.C., Hanson, M.A., Oppler, S.H., Pulakos, E.D., & White, L.A. (1993). Role of early supervisory experience in supervisor performance. *Journal of Applied Psychology, 78*(8), 443-449. Diperoleh dari http://www.eric.com/jdlsiejls/ supervisor/early937d%

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Online article

Becker, E. (2001, August 27). Prairie farmers reap conservation's rewards. *The New York Times*, pp. 12-90. Retrieved from http://www.nytimes.com

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Here is an example of a table

Table 1. The Characteristics of the Respondents (capital letters at the beginning of the word 11 pt, bold, left justify)
(blank one single space line, 10pt)

Client's Initial	**Age**	**Major Problem**
Mr. BN	56	Aggressiveness
Mr. MA	40	Withdrawal
Mr. AS	45	Swing Mood

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Here is an example of an image
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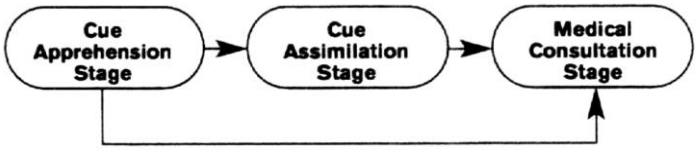

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Figure1. The Process of Cardiac Sensitivity Cues (Capital Letters in the Beginning of the Words, 10pt)
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