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Original Article

Assessing the effect of community health nursing care management at home on war-worn soldiers' physical problems suffering from spinal cord complications (urinary infection, bedsore)

Mohammad Rastegari, Akbar Jaafariyan Dehkordi**, Fakhri Sabouhi***, Parvin Ghalriz*****

Abstract

BACKGROUND: Veterans are among the highly-susceptible and highly-esteemed groups of the society. there is no correct, principled, and comprehensive programming with respect to home-nursing care for them**.**

METHODS: In this quasi-experimental study, 26 veterans with spinal cord complications, with a 70-percent damage who were resident of Najaf Abad, Iran were concluded. The data were gathered by a checklist consisted of two parts, the first part included the demographic data and the second part consisted of Para-clinical (clinical findings) assessment of the veterans suffering from urinary infection, laboratorial assessments, and assessing the bedsores. The researcher visited all the veterans and completed the checklist by interviewing them.

RESULTS: The mean age of the veterans was 45 (5.1) years and the highest frequency (53.8%) belonged to the age range of 40-44 years. The mean number of the family members was 4.4 people. The veterans who had paraplegia damage included 88.6%. Considering the damage rate, the highest frequency (69.2%) belonged to thoracic vertebra level. all the 26 veterans had been suffering from urinal infection before the managerial intervention**;** however 20 subjects (76.9%) had urinal infection after the intervention.

CONCLUSIONS: It can be stated that pressure wounds are preventable and these caring measures can be offered to susceptible groups of the community in a better and cheaper way if more studies are done with a closer contact and a higher number of samples in addition to have unison among the community-based systems.

KEY WORDS: Veterans, spinal cord complications, community health nursing care.

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War is a kind of catastrophe, and at the same time, one of the human-character-shaping incidences. It brings about traumatic effects for soldiers and the military personnel alongside some effects for the civilians and meanwhile, it is a shared characteristic of human societies.[1] Lufrankvis concluded through ha study in 1980 that more than half of all the nations worldwide have been sort of engaged with a war since the beginning of the present century. Drabuk (1986) believes that the most obvious consequences of war are human casualties and physical and financial losses which are left for its victims.[2] Throughout the recent years, the occurrence of wars, an increase in using different kinds of automobiles, the construction of multi-floor buildings and the automatization of the daily life have all led to a rise in paralyses, esp. the spinal cord injuries[3]. Physical damages are the main reasons for all the injuries in the spinal cord. Nearly 10000 people are prone to such damages every year. Most victims of spinal cord damages are men, aging16 to 30. Most spinal cord damages are brought about through motorcycle crashes, gun-related crimes, knife wounds, falling from high places, and local-native sports.[4] Damages to the spinal cord have a great deal of

* MSc,Department of Health Nursing, School of Nursing and Midwifery, Isfahan University of Medical Sciences, Isfahan, Iran.
** MSc Student, School of Nursing and Midwifery, Isfahan University of Medical Sciences, Isfahan, Iran.
*** MSc, Department of Internal Surgery, School of Nursing and Midwifery, Isfahan University of Medical Sciences, Isfahan, Iran.
**** MSc, Department of Community Medicine, school of Medicine, Isfahan University of Medical Sciences, Isfahan, Iran.
Correspondence to: Mohammad Rastegari, MSc.
E-mail: rastegari@nm.mui.ac.ir

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potential side effects which include: spinal shock, pulmonary atelectasis, pneumonia, bradycardia, decrease in blood pressure, the thrombosis of in-depth veins, bleeding in the digestive system, pressure wounds, joints spasms and disproportional psychological functions like denial and depression.[5] The lowering of motional functions, senses, activity and control in intestinal and bladder functions can all be the outcomes of injuries to the spinal cord.[3]

Most caring expenses for aid-seekers who have damages in their spinal cords belong to patients who have quadriplegic injuries who need special nursing cares. The highest level of attention and focus in these cares relate to the prevention of the side effects, the disabilities resulting from damages and a reduction in the average amount of hospitalization duration at hospital centers. The continuation and following of procedures and strategies which are relevant to the prevention of the effects resulting from spinal cord damages require special trainings for the aid-seekers and their families in order to prevent the potential problems during the recuperation and recovery periods.[4]

Robins [10] believes that by virtue of the programs that are designed for improving the health level of the aid seekers, the objectives that result in a decrease in the problems and susceptibility, such as fractures, malnutrition, pressure wounds and urinal infections, must be assessed. Besides, the performance of the aid seekers who suffer from physical limitations and damages in the spinal cord must be considered with the maximum amount of dependent and independent activities in daily functions and a series of opportunities ought to be created in order to increase the overt and covert capabilities in those aid seekers who have a disability like this.[6] Among the first priorities for patients suffering from damages in their spinal cords, the issue of prevention and caring for the urinal infections and also preserving and balancing the functions of kidneys mention worthy. The main condition in both long-term and periodical caring for patients who have injuries in their spinal cord depends on the preservation and maintenance of this system against urological problems and proper management in taking care of these aid seekers. Caring for these patients is a continuous and perpetual issue of discussion.[7] The community health nurse can aptly pinpoint and take care of the susceptible groups by periodical assessing the health indexes of the society and making use of vital statistics.[8] The susceptible population groups are among a social subcategory that pace toward health-related problems and these problems are the outcomes of being confronted with risk or the worsening of health-related issues which are present in the society.[9] War-worn soldiers are among the highly-susceptible and highly-esteemed groups in the society. Unfortunately, there is no correct, principled and comprehensive programming with regard to at-home nursing care for them and the provision of services and health-related cares to this group of aid seekers are conducted only through treatment canters.

Methods

The present research is of a semi-experimental kind. The population of research in this study consists of all the male war-worn soldiers (WWS) with spinal cord complications, with a 70-percent damage who reside in Najaf Abad City. These war-worn soldiers suffer from complete paralysis, lower-parts paralysis and half-of-the-body paralysis and consisted of those war-worn soldiers with spinal cord complications who had been injured and damaged in their spinal cords as a consequence of the imposed war of Iraq on Iran (The Holy Defense). In this regard, a total of 26 individuals who had the inclusion criteria were selected by census to participate in this study.

The research environment was the houses of the purported soldiers in Najaf Abad City. The initiation of the research was done after getting familiarity with the WWS in the sanatorium and continued at their homes by making the necessary arrangements with and receiving consent from the WWS. The research data were compiled by filling out the checklist. The data were given to the researcher by the WWS in form of a self-made checklist. This checklist was

completed by an interview between the researcher and the WWS and through direct observation. It consisted of two sections, the first section of which included the research units' demographic data and 17 alternatives while the second section was about the clinical findings of the WWS. The second section of the checklist consisted of three separate parts. In the first part of the second section of the checklist which was about the para-clinical (clinical findings) assessment of the WWS suffering from urinary infection which contained 17 question titles with open/close-ended items answered by the WWS and filled out by attending to the clinical examination of the WWS and the existence of urinary infection symptoms. In the second section, the second part consisted of 12 questions about the laboratorial assessments, analysis of the urine and culturing the WWS's urine before and after the intervention for being completed. And the third part of the checklist pertained to 7 titles for assessing the bedsores (graded according to Brown and Norton's Index). The scientific validity of the data collection means was measured by the content validity analysis method.

Through the home-based visits with the WWS which were done by the community health nurse, the researcher evaluated the effective factors that resulted in pressure wounds and urinary infection and also compared "what is" to "what should be". In assessing the factors that lead to bedsores through the Brown and Norton's Index, the inclining and precipitating factors that cause pressure wounds were examined. These home-based visits were done three times a week, every other day and in the morning for the WWS and the duration of each home-based visit was between 30 to 45 minutes, starting from the first day of May and lasting till the first day of August of 2010. The main focus in providing this care management was on the appreciation and capability amount of doing the caring by the families and the care takers of the WWS. The researcher assessed and analyzed the progression rate and the effect of these observations during these managerial interventions and home-based observations.

The independent variable in this research was the community health nurse care management and the dependent variable was the physical problems which were urinary infection and grading the bedsore which were analyzed in line with before and after the community health nurse care management. In order to analyze the data statistically, the SPSS software, version 16 and the distribution of tables and the relative and absolute frequency diagrams were used.

Results

26 WWS with spinal cord complications were studied in this research. The average age of the WSS was 45 ± 5.1 years and the highest frequency (53.8%) belonged to the age range 40-44. The average number of the household was 4.4 individuals. The minimum number of the household members was 2 and the maximum was 8 individuals and the highest frequency of household individuals with a frequency of 34.6% was 4 individuals. With regard to the educational status, the highest frequency (61.5%) consisted of the diploma holders. The highest age average belonged to individuals who had high school education. The Variance Analysis Test for the data showed that there is no significant relationship between age and education ($p < 0.95$). The WWS who had paraplegia damage consisted of 88.6%. With regard to the level of damage, the highest frequency

Table 1. The frequency distribution of means of motion on the basis of the damage spot in the WWS suffering from the spinal cord complications studied in Najaf Abad City

Means of motion / Damage Spot	stick		Wheelchair		total	
	Num	Per	Num	Per	Num	Per
waist	2	100	0	0	2	7.7
all	0	0	24	100	24	92.3
total	2	100	24	100	26	100

Table 2. the frequency distribution of urinal infection among the WWS studied in Najaf Abad City before and after the intervention of community health nurse care management at home

Time / Signified Urinal Infection	Before intervention		After intervention	
	Num	Per	Num	Per
Has	26	100	20	76.9
Does not have	0	0	6	23.1
Total	26	100	26	100

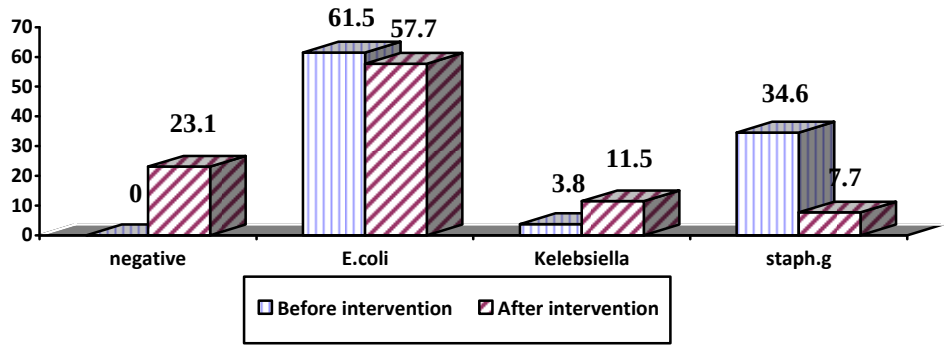

Diagram 1. the frequency percentage of the grown complications (before and after) in the WWS suffering from spinal cord complication in Najaf Abad City

(69.2%) belonged to torose vertebra level. The average of the time period passing since getting the damage was 23.7 ± 2.8 years, with a minimum time record of 18 and a maximum of 28 years.

With regard to consumption of medication and the type of injury among the WWS, a frequency of 42.3% used medication. 99.3 percent of the WSS studied, used wheelchair for movement and according to the precise test of Fisher,

Table 3. the frequency distribution of variables regarding the identification of the bacterial infection among the WWS suffering from spinal cord complications in Najaf Abad City

Symptom	Time levels	Before intervention		After intervention		P Wilcox on Test
		num	per	num	per	
Urinal darkness	Yes	20	77	21	81	NS P<0.317
	No	6	23	5	19	
	Total	26	100	26	100	
Blood in urine	Yes	8	31	4	15	P<0.04
	No	18	69	23	85	
	Total	26	100	36	100	
Muscular spasm	Yes	14	54	10	38	P<0.046
	No	12	46	16	62	
	Total	26	100	26	100	
Fever	Yes	16	62	13	50	NS P<0.083
	No	10	38	13	50	
	Total	26	100	26	100	
shivering	Yes	5	19	7	27	NS P<0.157
	No	21	81	19	73	
	total	26	100	26	100	

NS= not significant

Table 4. the frequency distribution of bedsore among the WWS suffering from spinal cord complications in Najaf Abad City before and after the intervention of community health nurse care management at home

Time	bedsore	Before intervention		After intervention	
		num	per	num	per
Has		26	100	2	7.7
Does not have		0	0	24	92.3
total		26	100	26	100

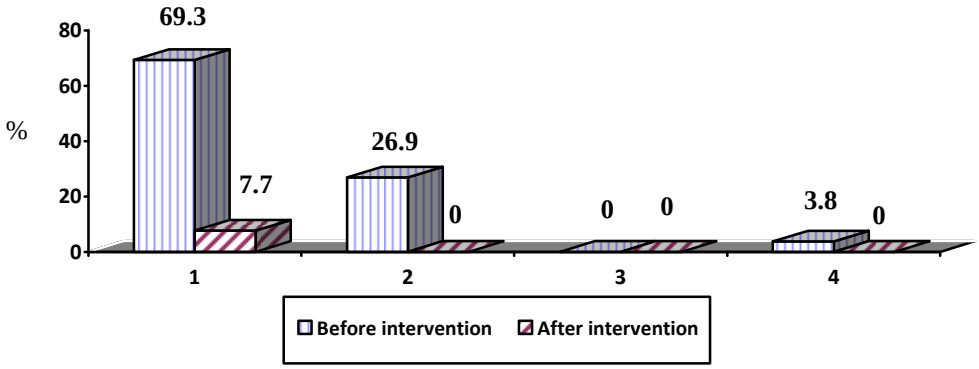

Diagram 2. the frequency percentage of bedsore among the WWS studied in Najaf Abad City before and after the managerial intervention of the community health nurse care at home

there was a significant relationship between moving with stick and the type of damage among these WSS ($p < 0.006$). The frequency of the supplementary disease was 42.3 percent among the WWS, among which, blood pressure had the highest frequency (15.4%). The studied WWS had done cystoplasty with a frequency of 61.5 percent and 96.2 percent were taken care of by their wives.

The statistical test of McNamara which was done on these data also showed that the frequency distribution of urinal infection before and after the intervention has a significant difference ($p < 0.001$). According to the table, all the 26 WWS had been suffering from urinal infection before the managerial intervention but 20 individuals out of them (76.9%) had urinal infection after the intervention.

The blood-related variables in the urine and muscular spasm before and after the intervention had a significant difference ($p > 0.05$) but the variables of fever, shivering and darkness of the urine did not have a significant difference before and after the intervention ($p > 0.05$). Only the WBC variable had a significant difference before and after the intervention ($p > 0.05$) but the counting of the bacterial colonies did not have any significant differences before and after the intervention ($p > 0.05$).

The McNamara test which was conducted on the frequency distribution of bedsore showed that the managerial intervention of the community health nurse care at home has had a significant difference among the group studied in Najaf Abad City ($p < 0.001$).

Discussion

Garber et al assessed the disability amount and mortality rate among the WWS suffering from spinal cord complications through a future-oriented 25-year study in 2006 and found out that the most important cause of disability and mortality among the WWS is Sepsis and the main reason for this problem is due to urinal infections.[11]

The data in this study are congruent with our research about the occurrence of urinal in-

fections and the way in which the symptoms resulting from infections appear.

Tenke et al while quoting Garibaldi,[13] say that: "Most patients who suffer from the urinal tract infections have a series of catheter on their reproductive-urinal system or the urological systems or they have catheters for urinal evacuation.[12] Urinal infections related to hospital-related infections were examined in Bouza et al[14] and Bjerklund et al[15] studies and it was found that 63 to 74 percent of the urinal infections originate from hospital-related infections or urinal sounds (p = 0.12).

The prevalence of clear urinal and bacterial infections among the WWS is probably one of the important reasons for the continuation of urinal or the redundancy of these cases without attending to recommendation of the treatment cadre and the excessive rush among these patients for evacuating their urine.

Cunha et al[16] say that the total Shrishia is the cause of 70 to 90 percent of the infections in the upper and lower urinal tracts. In this study, it was concluded that the patients who have spinal cord complications and also have the signs of growing and increasing the urinal infections are more prone to the risk of urinal infection and about 70 percent of these infections in patients who suffer from spinal cord damages have a multi-microbe factor.[16]

According to the results, the highest amount of bacterial colony among the patients who were studied was the Shrishia bacteria (61.5%) and the lowest amount was Colbosila (3.8%).

Tenke,[17] while quoting Leoni [18] states in his study that the major reason for the infections in the urinal tract is the shared organisms in the intestines and the skin around the private parts which include negative, warm bacilli, Antrocoxy, and Shrishia coli.[17] Jayawardena and Midha [19] say that the patients who suffer from spinal cord damages, esp. those who have damages from the first internationally classified group, are at a high risk of urinal infections and positive culturing of the urine.[19] Svensson et al[20] say that: "patients who use alternative sounds instead of permanent sounds, are prone to the growth of bacterial infection.

According to the results obtained from the data, the highest amount of bacterial colony among the patients who were studied was the Shrishia coli (61.5%) and the lowest amount was the Colbosila (3.8%).

With regard to the similarity of the existence of bacterial colony in the result of the urinal culturing of the WWS, probably the permanent use of the urinal sounds, the acuteness of having bacteria in the urinal tract, not using proper urinal antibiotics and improper time for prescribing the use of urinal antibiotics are among the effective factors that lead to an increase in the amount of urinal infections among the WWS.

Vaidyanathan and Sony[21] say that the bacterial signs among the patients who use urinal sounds are ambiguous and the repeated return of urinal infection take place after a short time and immediately after stopping the antibiotics for them.[21]

Tenke says in 2008 that doctors and the treatment cadre ought to be quite conscious about assessing the signs and symptoms of urinal infection in patients who suffer from the spinal cord damages and commence with the complementary treatment after lowering the sensitivity in these patients and assessing the non-special signs.[17] Leonia says through a research that: "We become utterly doubtful about the signified urinal tract infection when these signs occur twice or more: fever, an increase in the automatic spasm of the bladder, cloud-like urine, an increase in the smell of urine, bad temperedness, anxiety, feeling of depression, the twitching in the lower limbs, esp. the legs.[18]

Hossein Moghadam [25] says: "the urinal infection in patients who suffer from spinal cord complications include the darkening and changing of the color the urine, the existence of blood in the urine, muscular cramps, spasm in the lower limbs, and fever and shivering (according to the type of the damage, it is possible to have urinal burn and problem in the pelvis, abdomen, and the lower limbs). The frequency of having fever, blood in the urine or sense of pain in the abdominal area and the upper limbs is also likely in these patients.[25] The signified bac-

terial signs and symptoms among the WWS who were studied in this research have been of the non-specialized type, so that in most cases, it interfered with other problems of the WWS. For instance, the frequency of fever was %26, the muscular spasm; 54%, and darkness in the urine was 77% before the intervention of the community health nurse.

Saint and Lipsky [26] say that: "the urinal tract infection related to catheter has been defined by Molphine with bacteriuria and infection of the urinal tract. The lowest amount of bacterial growth resulting from using catheter (100 times more than the number of cants' colonies in each millimeter) with an increase and progress in the days of using catheter, the density of the urinal bacteria reaches to 100 times more than the number of cant's colony in each millimeter or more pathogens in the urine of the patient who uses urinal catheter, esp. when regarding the existence of germ in the urine, it can act as an indication of the urinal tract infection as a result of using the catheter.[26]

The frequency of urinal infection among the WWS suffering from the spinal cord complication is 96.9 percent after the intervention of the community health nurse which is congruent with the findings of the present researches.

Ku et al showed through the control and management of the activities of the bladder in patients who suffer from spinal cord complications that the frequency of urinal infection and intensification of urinal infection in the Catheter group was %51.7 and it was actually more than other groups who were researched.[7] Tenke et al,[17] while quoting Harding,[27] state that if the patients who have spinal cord complications and are direly in need of bacteriuria treatment, the lack of treatment or the automatic removal, their problem would change to symptomatic bacteriuria.[17] In Nicolle study on patients with brain disabilities and spinal cord complications who had frequent urinal catheter, they found that the highest frequency of urinal infection in them after the intervention ahs Shrishia Coli basis.[28]

The presence of the Uri bacterium with a high cant colony in the urine of the WWS is congruent with the above study which can be resulted from the presence of cytoplast, lack of treatment and identifying the proper antibiotic or medicinal resistance.

The frequency of darkness of the urine was 0.81%, the existence of blood in urine; 0.15%, the muscular complication and spasm; 0.38%, fever; 0.50%, and shivering was 0.27% which were all detected after the managerial intervention of the community health nurse care at the homes of the WWS who suffered from spinal cord complications.

While quoting Guralnik,[29] Taylor says: "2.2 percent of prevalence of bedsore exists among the adult population aging 55 to 57 years old.[30] Bergquist and Frantz identified that more than 20 percent of prevalence of different kinds of bedsore is between the 2nd to 4th stages of pressures resulting from the use of wheelchairs and the systems of providing services at the homes of the WWS.[31] Ferrell et al have estimated that 30 percent of the patients who have been newly hospitalized, have had the risk of developing bedsore throughout the Home Cares System.[32]

Garber et al have estimated the recovery rate from bedsore from 40 to 79 percent varying in their study on patients with spinal cord complications.[34]

The frequency of bedsore before the managerial intervention of the community health nurse care was 100 percent.

A study has been conducted by the supportive, service-provider institution of Hudson on the WWS suffering from spinal cord damages and a significant difference has been observed between two groups that were studied with regard to the cares and trainings about the bedsore before and after getting released from the hospital.[11] Studies that have been done by Laura about the prevention of bedsores [35] and also Doherty [36] all emphasize on the prevention of pressure bedsore through the Home-based System of Prevention Service and highlight the importance of the community health nurse care at homes.

The frequency of bedsore in the researched communities of the WWS was 7.7% after the managerial intervention of community health

nurse care.

Doug's studies [37] have been about the inefficiency of the human forces and bedsore and also Garber's studies [38] have been about the environmental factors and the reduction of caring standard and bedsore and finally Duffy et al's [39] studies have about the increase in age, disability in movement, diabetics and urinal constriction in causing bedsore. Laura's study [35] and the classification of pressure wounds from grade 1 to grade 8 all prove the preventability of pressure wounds.

The above-mentioned studies are congruent with the results of present research and it can be stated that: pressure wounds are preventable and these caring measures can be offered to susceptible groups of the community in a better and cheaper way if more studies are done with a closer contact and a higher number of samples besides having unison among the community-based systems.

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