

Self Care Practices for Preventive Measures of Herpes Zoster among Patients and Their Caregivers

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Abstract

Background: Self care practices for preventive measures of herpes zoster are very critical subject to prevent the disease transmission and improve the patient's health status. **Aim:** assess the self care practices for preventive measures of herpes zoster among patients and their caregivers. **Design:** Descriptive research design was used. **Setting:** The study was conducted at dermatology outpatient clinics in Elsayda Zainab in Egypt. **Subjects:** this study was carried on (200) herpes zoster patients and (200) of their caregivers. **Tools:** two tools was used in this study, Structural interviewing questionnaire, consist three parts. Assess patients and their caregivers' demographic characteristics, assess patients and their caregivers' knowledge regarding herpes zoster. Assess patients and their caregivers reported self care practices regarding preventive measures to prevent herpes zoster. 2) Observation check list to assess home environment. **Results:** This study results revealed that 50% of studied patients had correct knowledge about herpes zoster and 55% of caregivers had correct knowledge. Regarding their total self care practices 60% had not done self care practices of the patients and 55% of caregiver had done self care practices. Finally, there was statistical significance correlation between knowledge and self care practices of studied sample about herpes zoster and reflected that there was highly significant relation between total knowledge score and total self care practices score. **Conclusion:** the patients and their caregivers had average knowledge and poor self care practices regarding herpes zoster. **Recommendations:** It is necessary to apply programs in order to improve patient prognosis and caregivers' safety.

Key words: self care, preventive measures, herpes zoster, caregivers

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I. Introduction

Herpes zoster (HZ) is a relatively common viral infection which is caused by a reactivation of the varicella-zoster virus after patients had an earlier infection with chickenpox. The condition results in a painful rash and in severe cases patients can develop post herpetic neuralgia (PHN), an intense chronic pain at the affected area, despite resolution of the skin lesions. Shingles can also affect the nerves in the eyes and ears, as well as causing scarring [1]. The National Institute on aging estimates that over one billion people aged more than 65 years & they more risky to HZ that lead to increase of the economic burden of health sector budget [2].

The symptoms of herpes zoster is painful especially in older adult. The pain of herpes zoster is the main reason motivate the patient to visit the dermatological physician, also the pain in some elderly become chronic after rash healing [3].

Potential complications of herpes zoster include bacterial skin infections, eye damage, Ramsay Hunt Syndrome, which can occur if shingles affects the nerves in the head and can result in partial facial paralysis or hearing loss if left untreated, brain or spinal cord inflammation, such as encephalitis or meningitis, which is serious and life-threatening [4].

The treatment of herpes zoster is antiviral drugs might have some effect on the severity of acute pain and on the duration of skin lesions. Corticosteroids also alleviate acute pain. Oral antiviral medication reduces the risk of eye complications in patients with HZ [5]. Self-care practices are considered a primary form of care for patients with chronic illness who make many day-to-day decisions, or self-manage their illness. Self-care practices is important to management the patient disease and it also supports the patients quality of life [6].

Preventive measures Consists of measures taken for disease prevention, as opposed to disease treatment as health comprises a variety of physical and mental states, so disease and disability, which are affected by environmental factors, genetic predisposition, disease agents, and lifestyle choices. Health, disease, and disability are dynamic processes which begin before individuals realize they are affected. Disease prevention relies on anticipatory actions that can be categorized as primal, primary, secondary, and tertiary

prevention [7]. Preventive measures needed to be taken in the management of patients who have herpes zoster infection. Certain steps must be taken to prevent the spread of the infection, including keeping the skin rash covered, avoiding contact with people who have weak immune systems, frequent hand washing [8]

A caregiver is an unpaid or paid member of a person's social network who helps with activities of daily living. Caregiving is most commonly used to address persons related to old age, disability, a disease, or a mental disorder [9].

The community health nurses have vital role toward herpes zoster patient and their caregivers through provide health education about preventive measures to avoid herpes zoster infection and educate the patients and their caregivers about self care practices [8]. Nurses play a vital role in protecting the health of patients, caregivers, and fellow staff members during routine practice and, or outbreaks of emerging infectious diseases. One vital nursing practice is proper infection prevention procedures [10].

1.1 Significance of the Study

In Egypt the incidence of herpes zoster was 3.6 per 1000 patient-yearly. The incidence and rate of complications increased with age, also 68% of cases occurring in those aged 50 years older (Lal, 2015). There is a substantial increase in herpes zoster incidence for individuals aged 60 years older, making the annual incidence in wide world this population approximately 10 per 1000 patient-yearly (WHO, 2015).

1.2 Aim of the study

The study aimed to assess self care practices for preventive measures of herpes zoster among patients and their caregivers through:

- 1- Assessing the knowledge for the patients and caregivers regarding herpes zoster.
- 2- Assessing the self care practices for preventive measures for both patients and caregivers regarding herpes zoster.

1.3 Research Question:

- Q1- Are the herpes zoster patients and their caregivers have adequate knowledge regarding herpes zoster?
- Q2- Are the herpes zoster patients and their caregivers able to apply self-care practice for preventive measure?
- Q3- Are any relation between the patients and their caregivers knowledge, self care practices, for preventive measure?

II. Subjects And Methods

The methodology of this study will be under four main designs as follows:

I. Technical design:

-Research design:

Descriptive research design was utilized to carry this study.

Setting:

The study was conducted at outpatient clinical dermatology hospital in Elsayda Zainab at cairo gavnurate.

Subject:

A purposive sample was used in this study. A total number of newly diagnosed cases approximately 12480 patients who attended in dermatology hospital in Elsayda Zainab per year. Will be taking 2%, which represent approximately 200 patients and 200 of their caregivers .According to the following criteria: more than 60years old accept to participate in this study, without any other disease, and should be have caregivers.

Data collection tools:

The data for this study was collected using two tools as follows:

I: An interviewing questionnaire: This tool was designed by investigator and written in a simple Arabic language after reviewing the national and international related literature review .it consists of three parts:

Part I: patients and their caregivers demographic characteristics such as age, sex, level of education and occupation.

Part II: patients and their caregivers knowledge about herpes zoster which include meaning, causes, risk factors, signs and symptoms, treatment, complication, preventive measures , disease transsimiton, symptoms appeared and case diagnosis .

Scoring System: for knowledge items, a correct answer was scored (Two points) and a incorrect answer was scored (One point), while the wrong answer or don't know was given (Zero), the patients and their caregivers knowledge was categorized into (Good knowledge) $\geq 75\%$, (Average knowledge) $\geq 50\% - < 75\%$ and (Poor knowledge) $< 50\%$.

Third part: Patients and their caregivers reported practices regarding control and preventive measures of heaps zoster's infection such as: isolation of the infected person, using especial equipment, using mask and gloves. Using handkerchief , safety disposal of elderly discharge .

These scores were converted into percentage score. The patients and their caregivers were considered done practice, if the percentage score was $\geq 75\%$; while it was considered not done practices, if percentage score was less than 50%.

Toll 2) An Observational checklist includes:

Assess home environment of the patients and their caregivers as reported by them .The investigator (Stanhope; 2001). It included item related to housing condition, number of rooms, type of home ground, source of water, storage system, type of bath room, sewage system, the degree of sun exposure, ventilation, and the garbage disposal.

II. Operational design:

The operational design for this study includes description of preparatory phase, pilot study and fieldwork.

A. Preparatory phase:

This phase started with reviewing of current and past, national and international related literatures and theoretical knowledge of various aspect of the study using books, articles periodically, scientific websites and magazines to develop tools for data collection.

Validity of the tool:

The data collection tools were tested for content validity by 5of expertise from the community health nursing specialty. The expertise approved content validity of all tool's study variables.

Reliability of the tool:

Cronbach's alpha is commonly used as a measure of the internal consistency (reliability). The coefficient normally ranges between 0 and 1. The closer it is to 1.0, the greater the internal consistency of the items in the scale. Nunnaly (1978) has indicated (0.7) to be an acceptable reliability coefficient but lower coefficients (0.6) are sometimes used in the literature. Cronbach's Alpha for the total scale: 0.734.

B. Pilot study:

Pilot study was done on 10% of the total number of the patients and caregivers, which was (20) the patients and (20) caregivers from previously mentioned settings. The aim of the pilot study was to determine the clarity, feasibility and applicability of the study tools, and estimate the time needed for filing the questionnaires and also to test the clarity of language and translation. Those participants in the pilot study were included in the main study sample.

C. Fieldwork:

- The investigator conducted herpes zoster outpatient clinic visits 2days/week, each visit took from 30:45 mints, the investigator meet the patients and his/ her caregivers.
- The investigator take 2 patients and their caregivers/day,2 days /week (8 patients and their caregivers /week)
- The investigator introduced herself for the patients and his/her caregivers, explain the purpose of the research and filled the questionnaire related to sociodemographic data and herpes zoster, it took about 15 minutes, and the questionnaire related to the practice to preventive measures of knowledge about herpes zoster infection about 15minutes, also the questionnaire related asked them about their home environment, took about 10 minutes.
- The process of data collection was carried out in the period from November 2017 to April 2018.

III. Administrative design

Official letters were issued from the Faculty of Nursing Helwan University to carry out this study. The investigator introduced official letter to head for dermatology hospital in Elsayda Zainabat ministry of health and population and explained the aim and objectives of the study to get approval to conduct the study. The investigator also met each patient and their caregivers and informs him or her about the aim to gain their cooperation.

Ethical consideration

The study protocol was approved by the ethics and research committee in the faculty of Nursing Helwan University. Official permissions to conduct the study were secured. All participants gave their oral informed consent to participate in the study sample. They were informed about the study purpose, procedure and about their rights to refuse or withdraw without giving reasons. They were reassured about the anonymity of the information collected, and that it would be used only for the purpose of scientific research.

Statistical design:

Data was analyzed using the statistical Package for Social Sciences (SPSS) Version 2. The first part of data was descry ptive data, which were revised, coded, Tabulated and statistically analyzed using the

proportion percentage, arithmetic Means, standard deviation, and range. The second part of data dealt with, relation between different variables. The mean and standard deviation of the total score were calculated.

1- The arithmetic mean (X) as an average describing the center tendency of observation.

2- The standard deviation (SD) as a measure of dispersion of the results around the mean.

3- Correlation study (r) .

Degrees of Significance of the results were:

Non significant (NS) if $p > 0.05$

Significant (S) if $p < 0.05$

Highly Significant (HS) if $p < 0.01$

Variables data were presented using descriptive statistics in the form of frequencies, percentages. The significance level was set at $P\text{-value} \leq 0.05$ (Logan, Murray ,2010) .

IV. Results

From the current study, about 39.5 % of the patient subjects in the study sample was in age group 60: 65 years old and 67% was male , 42% of them was married while regarding to level of education 37% of them read and write only . **Table 1.**

Regarding Monthly Income **Figure (1):** It was clear that, 76.0% of the patient the monthly income not enough the daily needs, and only 24.0% were enough.

According to their occupation. It was observed from this **figure (2)** that, 34.5% of the patient in retirement, 28.0% of them not working, and 27.0% of them hand working.

Table (2) illustrated that 41.5% of studied caregivers were in the age group 20 - 30 years old. Also 60.5 % were females and 44.5 % of them were married. Regarding number of family members; 64.0 % was ranged from 2-4 members. As well as, 48.5 %, of them had basic education and 37.5 % of the caregivers employed. Also, caregivers residents with the patient in same place the more than half of them reported their income were not enough 59.5 %

Figure (3): Frequency Distribution of the Studied caregivers According to Kind Relation It was observed from this figure (3) that 33.0% of study caregivers were wife and 32.0% were brothers or sisters

Frequency Distribution of the Studied Patient' Total Score of Knowledge Regarding to herpes zoster's infection In relation to studied patient' total score of knowledge regarding to herpes zoster's infection **figure (4)** revealed that 50.0 % of study patients had average knowledge about herpes zoster's infection. While 20.0% of study patients had good knowledge about herpes zoster's infection.

Frequency Distribution of the Studied Caregivers' Total Score of Knowledge Regarding to herpes zoster's infection. In relation to studied caregivers' total score of knowledge regarding to herpes zoster's infection

figure (5) showed that 55.0% % of caregivers had good knowledge about herpes zoster's infection, while 20.0% % of study caregivers had average knowledge about herpes zoster's infection.

Figure (6): Frequency Distribution of the Studied Patient' Total practice regarding self care for preventive measures of herpes zoster's infection It was observed from this figure (6) that 60.0% of patients had not done self care practices for preventive measures of Herpes Zoster. While, 40.0% of them had correctly done of care.

Figure (7): Frequency Distribution of the Studied caregivers' Total practice regarding self care for preventive measures of herpes zoster's infection It was observed from this figure (7) that 55.0% of caregivers had acceptable self care practices for preventive measures of Herpes Zoster. While, 45.0% of them had unacceptable practice.

Table (12) illustrated that 81.0 % of the patients lived in separate house, 100.0 % of them have brick buildings and 85.0 % has two rooms. Regarding type of the home ground, 80.0 % of the patients have armed ground. And 85.0 % of the patients have been no storing water in covered container while 90.0 % of them have ordinary bath room. Concerning sewage system, 100% of the studied patient sample governmental sewage network. As regard the degree of sun exposure and ventilation, they were poor and inadequate the degree of sun exposure of their house 85.0 % . All of the studied patients disposed their garbage every

Table (8) reflected that there was a highly statistically significant correlation between total knowledge and total self care practices

It was clear from this **table (10)** that there was statistical significant relation between educational level 0.020*, age 0.025 Total Practices of Studied Patient regarding herpes zoster .

V. Discussion

Herpes zosteris an infection caused by the varicella-zoster virus, which is the same virus that causes chickenpox. Even after the chickenpox infection is over, the virus may live in nervous system for years before reactivating as shingles. Shingles may also be referred to as herpes zoster (*Grahn, 2015*).

Herpes zoster viral infection is characterized by a red skin rash that can cause pain and burning. Shingles usually appears as a stripe of blisters on one side of the body, typically on neck, or face Shingles rarely occurs more than once in the same person, but approximately 1 in 3 people in the United States will have shingles at some point in their life, according to the Centers for Disease Control and Prevention (*Chi, 2016*).

Prevention measures are the only way to reduce the risk of developing shingles and the long-term pain from post herpetic neuralgia (PHN) is to get vaccinated. CDC recommends that healthy adults 50 years and older get two doses of the shingles vaccine called Shingrix to protect against shingles and the complications caused by the disease(Marin,2015).

The aims of the presented study were assess self care practices for preventive measures of herpes zoster among patients and their caregivers.

The current study showed that about two fifth of the studied sample aged from 60<65years the mean±SD were 63-2±4-7, this result were emphasized with Glassner, (2017) Who studied “cost effective analysis of targeted herpes zoster vaccine in united state of Florida” mentioned that the most of the patients was studied sample carry herpes zoster were aged from 60<65 years. From the investigator point of view this result due to weakness of immunity system due to age process which increase the risk of developing herpes zoster diseases.

Regarding to patient sex, This study presented that the more than two thirds of studied sample were male while one third of them were female; this result were disagreed with Draper, (2016) how carried out study to assess “legal and public policy reforms to address herpes zoster vaccination uptake” in Nor the astern University presented that the 81% of the studied sample were females. From the investigator point of view this result due to psychological changes, stress and daily life activity its influence of females health.

Regarding to marital status of the study sample the present study showed that less than half of them were married this result was matched with (mundane, etal., 2018) who carried out study in United States of Minnesota about “Social support, gender, and burden in caregivers of patients with herpes zoster“ that cleared that 44% of the studied sample was married.

Regarding to level of education to the patients this study cleared that about one third of them the educational level were read and write only , this result agreed by Stinson, (2017) who carried out study in Texas University who studied “Estradiol Controls Varicella Zoster Virus Associated Nociception through GABAergic Thalamic Signaling Mechanism” showed that 66% of the studied sample were read and write only, This might be attributed by the fact that the elderly had fewer opportunities for education in the past.

Regarding to the monthly income the current study showed that the three quarter of the patient the monthly income not enough the daily needs ; this result were matched with study carried Álvarez-Pasquín etal (2018) who carried out study about “Perception of herpes zoster in the general population.“ Mention that the majority of the sample the monthly income not enough the daily needs. The investigator point of view the elderly patient did not had the ability to buy the healthy food, medications, having the medical care and periodic checkup. This may affect the elderly patient’s health promoting behaviors toward herpes zoster, due to the monthly income not enough.

Concerning to the patients occupation the current study cleared that one third of the studied sample were at retirement’s. This results were correlated with studyby (McClain, 2016).done at University of Pittsburgh titled” HSV-1 infection in human induced pluripotent stem cell-derived neurons: Cellular models for quiescence and drug discovery” Showed that 35% of the studied samples were at retirement’s age.From the investigator point of view this result due to the disease process which developed at about over 60 years as disease process.

Regarding to caregivers age less than half of them the aged 20-30years and the mean±SD were 22.8 ± 4.8, this result was agree with (Minhas, 2017) who studied “Seroepidemiological studies on human gamma-herpes virus and human immunodeficiency virus infection in a mother-infant cohort in Zambia” showed that 45.0% of the sample were at 20-30 years from the investigator point of view this result due to the caregivers should be physically well to be able to provide care to the patients and provide self care practices.

Regarding to caregivers sex this study showed that less than half of the caregivers were females this result were agreed with (Loh, 2017)titled “The global prevalence of anxiety and depressive symptoms among caregivers of herpes zoster Journal of the American Medical Directors Association” who presented that 60.0 % of the studied sample were females, From the investigator point of view this result due to the Egyptian culture and the females ability to carry out the doctor orders and provide physical and psychological care of patients .

Regarding to marital status of the caregivers the present study showed that less than half of them were married this result was matched with (Annemans et al., 2017) who carried out study Health economic evaluation of a vaccine for the prevention of herpes zoster (Shingles) and post-herpetic neuralgia in adults in Belgium. Who presented that 45.0% of the caregivers were married.

Regarding to the monthly income the current study showed that of the caregivers less than two thirds of them monthly income not enough; this result were matched with study by (Humes, 2014).carried out in yale university titled “the epidemiology of the primary caricella zoster hospitalization in the post varicella vaccine

area “Mentioned that 56% the studied sample diagnosed by herpes zoster had not enough income. From the investigator point of view it due to retirement age that reduces the monthly income, they become unable to do their work and the retirement decrease the monthly income which affect the quality of life.

Regarding caregivers level of education the current study cleared that Slightly more than half of the studied caregivers were basic education but, this result was disagreed with study by (Manandhar, 2016) at India Institute of Medical Sciences, New Delhi (India) to assess “the caregiving burden, stress and health effects among the primary caregivers of adult with herpes zoster”. Mentioned that 38.2 % of the studied sample of caregivers was technical diploma.

Regarding to caregivers occupation, this study showed that one third of caregivers are employee, this result were agreed with (Daniel, 2017) who studied “Herpes simplex virus and varicella zoster virus: recent advances in therapy Current opinion in infectious diseases,” in Imperial collage London who presented that 52% of the caregivers were employees.

Regarding to the caregivers kind of relationship with the patients, the current study cleared that one third of the studied caregivers were wife , this result were agree with study by (Wudiri, 2016).at Washington State University to assess “Roles for cholesterol in herpes simplex virus entry and infectivity” Mentioned that 25% of the studied sample of caregivers were wife. From the investigator point of view these results due to the wife more contact with her husband and provide appropriate self care practices.

According to research question (1): Are the patients and caregivers with herpes zoster having adequate knowledge?

Concerning to the patients correct knowledge regarding to meaning of herpes zoster the study revealed that about nearly three quarters of the patients have incorrect knowledge .in the same line this result agree with the study carried out by Lasky, (2015) in state of university of New York at Buffalo for “sirt 1 modulates vircella zoster replication in the rate of dorsal root ganglion neurons “. Found that 70.3% of the patient has incorrect knowledge about meaning of herpes zoster. From the investigator point of view it due to lack of elderly concentration and poor health condition can limit the patient knowledge so, must increase the patient’s and their caregiver’s awareness by health teaching to the disease process to prevent the disease transmission and improve the prognosis.

Regarding the patient correct knowledge regarding mode of transmission, incubation period and methods of preventive measures. The current study revealed that the majority of the sample incorrect knowledge regarding to mode of transmission , incubation period and methods of preventive measures of herpes zoster, this result agree with study Clemens, (2018) conducted research in Boston University to assess “herpes zoster risk and vaccination in Inflammatory bowel disease patients “mentioned that 80.0 % of the patient sample were incorrect knowledge regarding mode of transmission ,incubation period of disease and methods of preventive measures to herpes zoster, from the investigator point of view this result regarding to the herpes zoster still uncommon disease and different opinions for the different sample.

This study revealed that more than half of the studied sample was not received herpes zoster vaccine against herpes zesters and this result was disagreed with KiingAik, (2015) who carryout study at Van Andel Research Institute titled “A human neuronal model for herpes simplex virus latency and reactivation” showed that 90.4% of the studied sample was give vaccine against herpes zoster, From the investigator point of view this result due to lack of medical care and the herpes zoster were uncommon disease and the community did not know about herpes zoster vaccine.

Regarding to patient correct knowledge regarding sign and symptoms of herpes zesters .about two fifth of them incorrect knowledge regarding sign and symptoms of herpes zesters. This result was agreed with WONG, (2015) carried out study at the University of Manchester to assess “Age related seroepidemiological survey of measles, mumps, rubella, varicella zoster, herpes simplex type 1 and 2 viruses” the resultshowed that40.0 % of the study sample incorrect knowledge regarding sign and symptoms of herpes zoster.

Regarding to patient total score of knowledge regarding herpes zesters, More than half of the study sample had average knowledge, one thirds of them had poor knowledge, and one quarters of them had good knowledge about herpes zesters . This result was agreed with Blank et al . (2018) about "Herpes zoster among persons living with HIV in the current antiretroviral therapy. J Acquir Immune Defic Syndrome" showed that 50%of patient average correct knowledge about diseases and 20.0% of them good knowledge regarding the herpes zesters diseases .Form the investigator point of view the majority of the elderly patient not participate any health education program lead to poor knowledge and practice regarding herpes zoster.

Regarding to the caregivers knowledge regarding herpes zesters . one thirds of caregivers correct knowledge regarding meaning ,complication , incubation period and duration of treatment of herpes zoster this study agrees with (Ogunjimi, 2015) who conducted a study about” Herpes zoster is associated with herpes simplex and other infections in under 60 year-olds” in India and found that the majority of the caregivers correct knowledge regarding the meaning complication , incubation period and duration of treatment of herpes zoster, , From the investigator point of view this result due to lack of health education regarding herpes zoster.

Regarding to causes and methods of preventive measures of the herpes zoster this study illustrated that less than two thirds of the caregivers correct knowledge regarding causes and methods of preventive measures of herpes zoster, this result agrees with (Nagel, 2015).who conducted a study about "The Relationship Between Herpes Zoster and Stroke" and showed that less than two third of the caregivers correct knowledge regarding causes and methods of preventive measures of herpes zoster infection.

Regarding to the caregivers knowledge regarding mode of transmission, the current study presented about two fifth of the caregivers had good knowledge regarding to mode of transmission herpes zoster and this result were different with study carried out in University of Hawai'i at Manoa for "Parental decision -making for the varicella and measles, mumps and rubella vaccines "(Niederhauser, 2017)., find that the most of caregivers has poor knowledge, from the investigator point of view it regarding to the role of health education so we should improve caregivers knowledge regarding herpes zoster.

Regarding to caregivers total score of knowledge regarding herpes zoster, More than half of the study sample had good knowledge , One quarter of them had average knowledge ,and more than quarters of them had poor knowledge about herpes zoster . this result was agreed with Bloch and Johnson. (2017) about "Varicella zoster virus transmission in the vaccine era: unmasking the role of herpes zoster." Showed that 50% of caregivers had good knowledge about diseases and 20.0% of them average knowledge regarding the herpes zoster diseases . Form the investigator point of view the majority of the caregivers good knowledge regarding continuous giving care of the patients.

According to research question (2): Are the patients and caregivers with herpes zoster able to provide self-care practice for preventive measure?

Regarding to the patient self care practice regarding preventive measures of herpes zoster. The current study revealed that one third of them done self care practice regarding patient isolation during the period of diseases and this result agreed with (Moore, 2014) who carried out study in Saint Mary's College of California of "Early intervention support group for individuals diagnosed with genital herpes" that indicated that 35.0% of the studied sample done practice regarding patient isolation during the period of infected . From the investigator point of view the patient a wear to the important of patient isolation to prevent spread the infection.

Regarding to total self care practices of the patients the current study presented that about one third of the studied sample using especial equipment during the period of diseases, this result were agreed with(Arnold, 2016).study carried out in the University of California for "assess un covering mechanisms of varicella zoster pathogenesis using a Rhesus macque model". Mentioned that 30.0 % of the patients using personal special equipment during the disease , From the investigator point of view the lake of patients self care practice due to lack of training program about their self care practice for the disease process.

Regarding to total self care practices of the patients the current study presented that about one third of the studied sample using mask and gloves during the self care practice, this result were agreed with Bresse et al . (2018)". Mentioned that 30.0 % of the patients using mask and gloves during the period of disease.

The current study revealed that about one third of the sample was using handkerchief during the period of treatment , this result were agreed with Arnold, (2016) in Texas University, who studied "Uncovering mechanisms of varicella zoster virus pathogenesis using a rhesus macaque model" presented that 90%the majority of the study sample were using handkerchief during the period of treatment .From the investigator point of view this result due to lack of the patients and their caregiver awareness about preventive measures of the herpes zoster and need for increase the patient and their caregiver education .

Regarding the Safety disposal and discharge the current study presented that more than one quarter of them done practice regarding safety disposal and discharge of waste and this study agreed with (Agarwal, 2014).study in India Institute of Medical Sciences for "Assessment of quality of life in Indian patients with genital herpes" who presented that about 38.8% of the studied sample do safe disposal and discharge of waste during the period of disease.

Regarding the patients done practice regarding proper nutrition during diseases period less than two thirds of them proper good nutrition during the period of disease , and this study agreed with Bricout et al (2015) about the " Herpes zoster-associated mortality in Europe: a systematic review" that indicated that 75.0% of the studied sample receive proper nutrition during the diseases period .

Concerning to regulatory of taking medication the current study displayed that more than half of the studied sample were take the herpes zoster medication in an orderly manner, this result was disagreed with Clemens, (2018) who carry study about "Herpes zoster risk and vaccination in inflammatory bowel disease patients" and showed that more than 63.7% the studied sample were take the herpes zoster medication in an orderly manner, From the investigator point of view the majority of the study sample old age and have loss of memory lead to not regularity of taken medication

The current study revealed that nearly three quarters of the sample w as continuous follow up every week during the period of disease , this result were agreed with Bouhassira et al. (2018) about " Patient perspective on herpes zoster and its complications: an observational prospective study in patients aged over 50

years in general practice, showed that the majority of patient was continuous follow up during the period of disease. From the investigator point of view it regard to the follow up system in the dermatology hospital every week.

Regarding to frequency hand washing for patient the current study revealed that nearly three quarter of the studied sample carry frequency hand washing during the period of disease; this study agreed with (Agarwal, 2014).study carried out in India Institute of Medical Sciences for "Assessment of quality of life in Indian patients with genital herpes" who presented that the 94% of the studied sample carry frequency hand washing during the period of disease, From the investigator point of view it regard to lack of knowledge about the importance of hand washing.

Regarding to total self care practice this study illustrated that more than two third of patients had not done self care practice for preventive measures. At the same line the study by (Harvey, 2016) carried out in University of "Michiganmaking good decisions: Examining the cost-effectiveness and optimal timing of the herpes zoster vaccine" mentioned that 91% of the patient not done self care practice for preventive measures, From the investigator point of view the patient not done practice due to lack of health education program about herpes zoster.

Regarding to the caregivers self care practice regarding preventive measures of herpes zoster. The current study revealed that less than two third of them done self care practice regarding patient isolation during the period of diseases and this result agreed with Brisson et al (2017) about "Exposure to varicella boosts immunity to herpes-zoster: implications for mass vaccination against chickenpox" that indicated that 60.0% of the studied sample done practice regarding patient isolation during the period of infected. From the investigator point of view the caregivers a wear to the important of patient isolation to prevent spread the infection.

Regarding to total self care practices of the caregivers the current study presented that about Slightly more than half of the studied sample using especial equipment during the period of diseases, this result were agreed with" Burke et al. (2018) about "Immune responses to varicella-zoster in the aged". Mentioned that 50.0 % of the caregivers using personal special equipment during the disease, From the investigator point of view the lake of caregivers self care practice due to lack of training program about their self care practice for the disease process.

Regarding to total self care practices of the caregivers the current study presented that less than half of them using mask and gloves during the self care practice, this result were agreed with Che et al (2014) about "Risk of herpes/herpes zoster during anti-tumor necrosis factor therapy in patients with rheumatoid arthritis. Systematic review and meta-analysis". Mentioned that 50.0 % of the caregivers using mask and gloves during the period of disease

The current study revealed that about less than two third of the sample was using handkerchief during the period of treatment, this result were agreed with Chen et al. (2014) about "Antiviral treatment for preventing postherpetic neuralgia" presented that 60 % of the study sample were using handkerchief during the period of treatment. From the investigator point of view this result due to lack of the caregiver awareness about preventive measures of the herpes zoster and need for increase the patient and their caregiver to participation of education program about harps zoster diseases.

Regarding the Safety disposal and discharge the current study presented that more then quarter of them done practice regarding safety disposal and discharge of waste and this study agreed with Cobo et al. (2017) about "Oral acyclovir in the treatment of acute herpes zoster ophthalmicus." who presented that about 30.8% of the studied sample do safe disposal and discharge of waste during the period of disease.

Regarding the patients done practice regarding proper nutrition during diseases period less than two thirds of them proper good nutrition during the period of disease, and this study agreed with Cohen (2013) about "Clinical practice: herpes zoster" that indicated that 62.0% of the studied sample receive proper nutrition during the diseases period.

Concerning to regulatory of taking medication the current study displayed that more than half of the studied sample were take the herpes zoster medication in an orderly manner, this result was disagreed with De Boer et al (2013) about "Cost-effectiveness of vaccination of the elderly against herpes zoster in the Netherlands" and showed that more than 63.7% the studied sample were take the herpes zoster medication in an orderly manner.

The current study revealed that nearly three quarters of the sample was continuous follow up every week during the period of disease, this result were agreed with De Broucker et al. (2016) about "Acute varicella zoster encephalitis without evidence of primary vasculopathy in a case-series of 20 patients:showed that the majority of caregivers was continuous follow up during the period of disease. From the investigator point of view it regard to the follow up system in the dermatology hospital every week.

Regarding to frequency hand washing for caregivers during the patients care ,the current study revealed that majority of the studied sample carry frequency hand washing during patients care; this study agreed with De Melker., et al. (2016) about "The epidemiology of varicella and herpes zoster in the Netherlands: implications for varicella zoster virus vaccination" who presented that the majority of the studied sample carry frequency hand washing during the period of patient care , From the investigator point of view it regard to the caregiver good knowledge about the importance of hand washing for prevent herpes zoster infection.

Regarding to total self care practice this study sample, illustrated that more than half of caregivers had done self care practice for preventive measures. At the same line the study by (Drolet et al. (2017) about "Predictors of postherpetic neuralgia among patients with herpes zoster: a prospective study" .mentioned that 91% of the caregivers done self care practice for preventive measures, from the investigator point of view the caregivers done self practice due to aware the important of preventive measure to control the spread the herpes zoster infection.

Regarding to observe home environmental, the present study findings revealed that the majority of the patients had separate in housing and brick the quality of building house. The majority of them had armed home ground and live in two rooms. All patients had tap water as a source of drinking water while the majority of them stored water in covered container. This results showed also that the majority of patients had ordinary bath room. Regarding sewage system, all of patients had governmental sewage network. The majority of patients had poor degree of sun exposure and the majority them had inadequate ventilation. This result was similar to a study carried out in U.S.A byBrink etal (2012) who reported that more than half of the sample had sewage network . The household wastes disposed through cesspool. The health risks of uncontrolled solid wastes are most serious that contribute to spreading of infectious diseases.

According to research question (3): Are any relation between the patients and their caregivers knowledge, self care practice for preventive measures?

According to relation between total knowledge and total self care practice of the patient and their caregivers the result of this study showed that there was highly statistical significance relation between total knowledge and total self care practice and this result is agrees with(Draper, 2016).study carried out in Northeastern University who assess "Adult Vaccination: Legal and Public Policy Reforms to Address Herpes Zoster Vaccination Uptake" found that, there is relation between total knowledge and total self practice this result indicated that the more knowledge to the patients and their caregivers improve the patient and their caregivers self care practice.

According to relation between total knowledge and demographic characteristics for patient the result of this study showed that there was highly statistical significance correlation between educational levels and total knowledge and this contradicted with the study by Hane, et al (2016), found there was significant relation between patient's knowledge about herpes zoster and their socio- demographics characteristics.

Regarding to correlation between total knowledge, total self care practice and demographic characteristics for studied patients and caregivers. the current study represented that there was highly significance correlation between total knowledge score and total self practice score, regarding patient and caregivers age, and educational level , this result were in agreement with Kornfeind,(2017) study to determine "Intermolecular complementation between mutant monomers as a mechanism to study varicella-zoster portal domains" who indicated that their significance correlation between total knowledge , total self care practice regarding patient and caregivers age, and educational level .

Regarding to the relation between total knowledge and total self care practice. The current study represented that there was positive relation between patients. total knowledge and total self care practice regarding herpes zoster with statistical significance difference between patient knowledge and practice ,this result were in agreement with Esteban-Vasallo et al (2014) about "Temporal trends in incidence rates of herpes zoster among patients treated in primary care centers in Madrid (Spain)", who indicated that their statistical significance difference between patient knowledge and practice

VI. Conclusion

Based on the study findings, it can be concluded that theresults revealed that the patients complain from herpes and their caregivers had poor knowledge and poor self care practices regarding herpes zoster. Finally there was statistical significance difference between knowledge and practice of studied sample

VII.Recommendations

Based on the finding of the study, the following important recommendations are proposed urgent need for education and training programs for the patients and their caregivers about herpes zoster, Empower the patients and their caregivers to apply appropriate self care practice regarding herpes zoster, Future studies

needed to be conducted with different variables, subjects and different settings to provide strong evidence about preventive program for herpes zoster.

Table (1): Frequency Distribution of the Studied patients' Demographic Characteristics (N=200)

Demographic Characteristics	No	%
Age groups (in years)		
60 <65	79	39.5
65 <70	53	26.5
≥70	68	34.0
Mean ± SD = 63.2 ± 4.7		
Sex		
Male	134	67.0
Females	66	33.0
Marital status		
Single	29	14.5
Married	84	42.0
Divorcee	39	19.5
Widowed	48	24.0
level of education		
Read and write	75	37.5
Basic education	56	28.0
Technical diploma	61	30.5
University or more	8	4.0

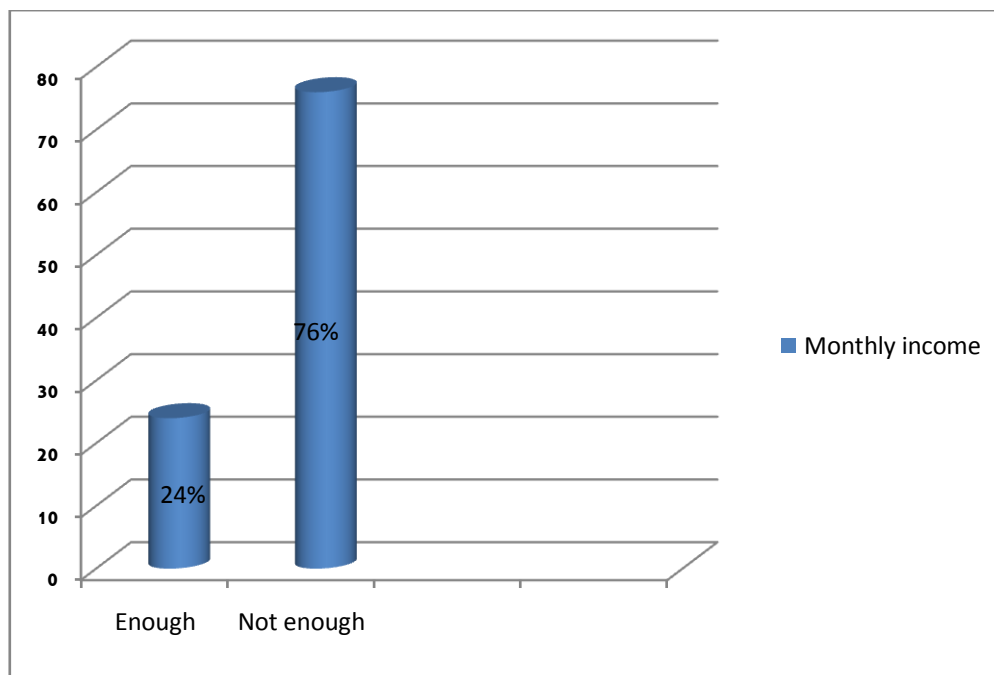


Figure (1): Frequency Distribution of the Studied Patients' According to their Monthly Income

Figure (2) cleared that, 76.0% of the patients the monthly income not enough the daily needs, while monthly income 24.0% of them were enough.

Table (2): Frequency Distribution of the Studied caregivers' Demographic Characteristics (N=200)

Demographic characteristics	N	%
Age groups (in years)		
20-30	83	41.5
31- 40	53	26.5
≥40	64	32.0
Mean ± SD = 22.8 ± 4.8		
Sex		
Male	79	39.5
Females	121	60.5
Marital status		

Single	80	40.0
Married	89	44.5
Divorcee	0	0.0
Widowed	31	15.5
Monthly income		
Enough	59	29.5
Not enough	119	59.5
Enough and saved	22	11.0
Level of education of caregivers:		
Read and write	18	9.0
Basic education	97	48.5
Technical diploma	36	18.0
University or more	49	24.5
Caregivers Occupation		
Employed	75	37.5
Hand workers	35	17.5
Retirement	21	10.5
Not working	69	34.5
Family members		
2- 4	128	64.0
5- 8	72	36.0

Table (2) illustrated that 41.5% of studied caregivers were in the age group 20 - 30 years, also 60.5% were females and 44.5% of them were married. Regarding number of family members; 64.0 % was ranged from 2-4 members. As well as, 48.5%, of them had basic education and 37.5 % of the caregivers employed.

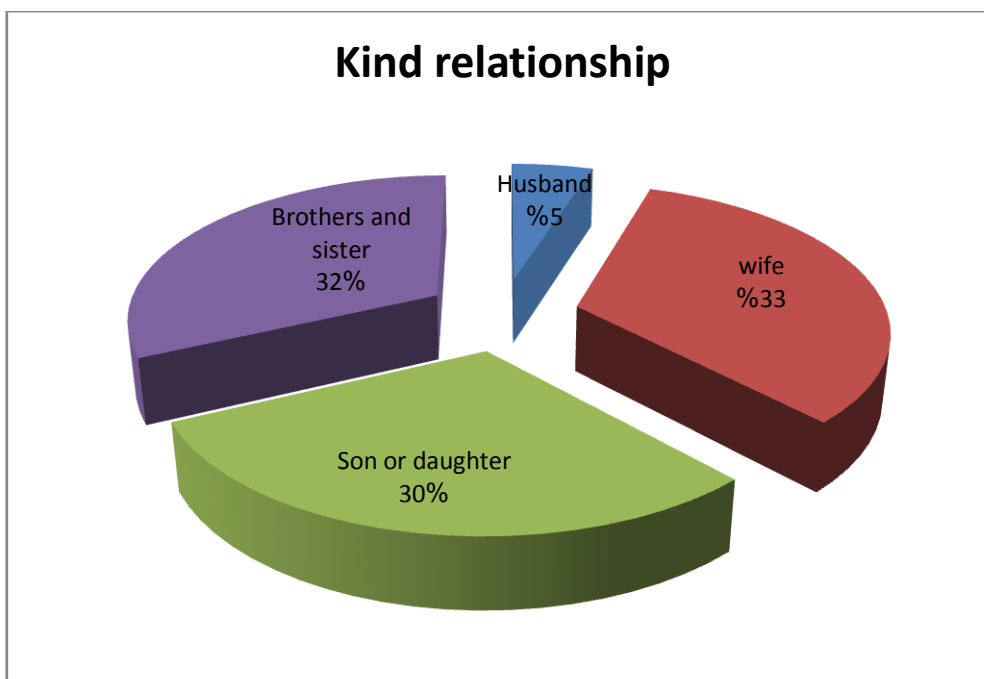


Figure (3): Frequency Distribution of the Studied caregivers According to Kind Relation (N=200)
Part (II): Studied Sample' Knowledge about herpes zoster's infection

Table (3): Frequency Distribution of the Studied Patients' knowledge regarding herpes zoster's infection . (N=200).

Item	Patients knowledge			
	Correct		Incorrect	
	No	%	No	%
Patients knowledge				
Meaning of herpes zoster's	50	25.0	150	75.0
Causes of heaps zoster's	60	30.0	140	70.0
Signs and symptoms	120	60.0	80	40.0
Complication	55	27.5	145	72.5

Mode of transmission	30	15.0	170	85.0
Incubation period	40	20.0	160	80.0
Vaccine against herpes zesters	100	50.0	100	50.0
Duration of treatment	50	25.0	150	75.0
Methods of preventive measures	40	20.0	160	80.0

Regarding studied sample knowledge about herpes zoster's infection table (3) illustrated that the 42.5% of all patients had correct knowledge about the disease in all items of knowledge related to meaning of the disease, causes of diseases, signs and symptoms, complication, mode of transmission., incubation period, vaccination, duration of treatment and methods of preventive measures .

Figure (4): Frequency Distribution of the Studied Patient' Total Score of Knowledge regarding to herpes zoster's infection (No=200)

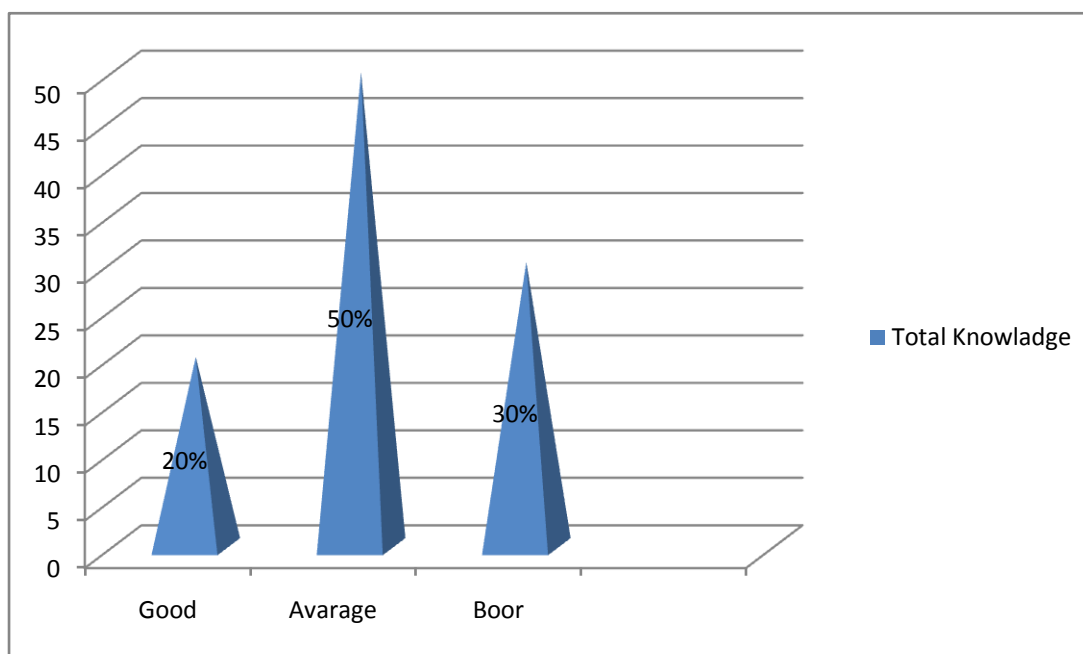


Figure (4): Illustrated the 50.0% of patient had average total knowledge regarding herpes zoster's.30.0% of patients had poor knowledge, and 20.0% of them had good total knowledge regarding herpes zoster.

Table (4): Frequency Distribution of the Studied Caregivers ' knowledge regarding herpes zoster's infection. (N=200).

Item	Caregivers knowledge			
	Correct		Incorrect	
	No	%	No	%
Caregivers knowledge				
Meaning of herpes zoster's	60	30.0	140	70.0
Causes of heaps zoster's	100	50.0	100	50.0
Signs and symptoms	120	60.0	80	40.0
Complication	60	30.0	140	70.0
Mode of transmission	80	40.0	120	60.0
Incubation period	70	35.0	130	65.0
Vaccine against herpes zesters	120	60.0	80	40.0
Duration of treatment	60	30.0	140	70.0
Methods of preventive measures	100	50.0	100	50.0

Regarding studied sample' knowledge about herpes zoster's infection table (3) illustrates that the majority of caregivers had correct knowledge about the disease in all items of knowledge related to meaning of the disease, causes of diseases, signs and symptoms, complication, mode of transmission., incubation period, vaccination, duration of treatment and methods of preventive measures.

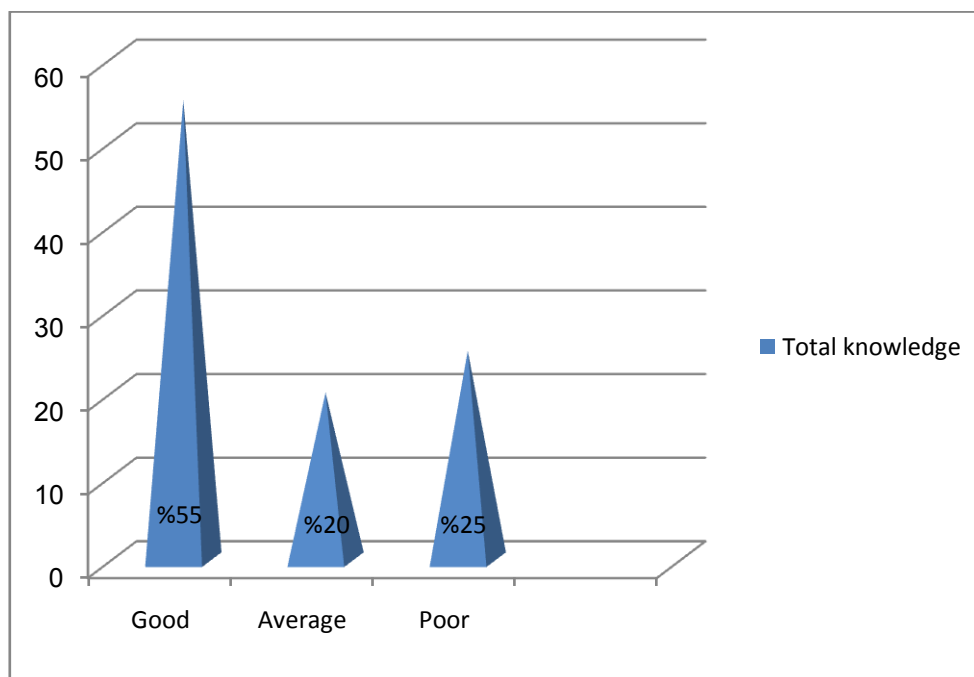


Figure (4): Frequency Distribution of the Studied Caregivers' total Score of Knowledge regarding to herpes zoster's infection (N=200)

Part III: Studied Sample' self care practices regarding herpes zoster's infection

Table (5): Frequency Distribution of the Studied Patient' practice regarding self care and preventive measures of herpes zoster's infection (N=200)

Item	Patients self care practice			
	Done		Not done	
	No	%	No	%
Patients self care practicefor preventive measures				
Patient isolation	64	32.0	136	68.0
Using especial equipment	58	29.0	142	71.0
Using mask and gloves	50	25.0	150	75.0
Using handkerchief	70	35.0	130	65.0
Safety disposal and discharge	57	28.5	143	71.5
Proper nutrition during diseases period	123	61.5	77	38.5
Regularity of taking medication	113	56.5	87	43.5
Good ventilation of the place	73	36.5	127	63.5
Continues follow-up	140	70.0	60	30.0
Frequently hand washing	147	73.5	53	26.5

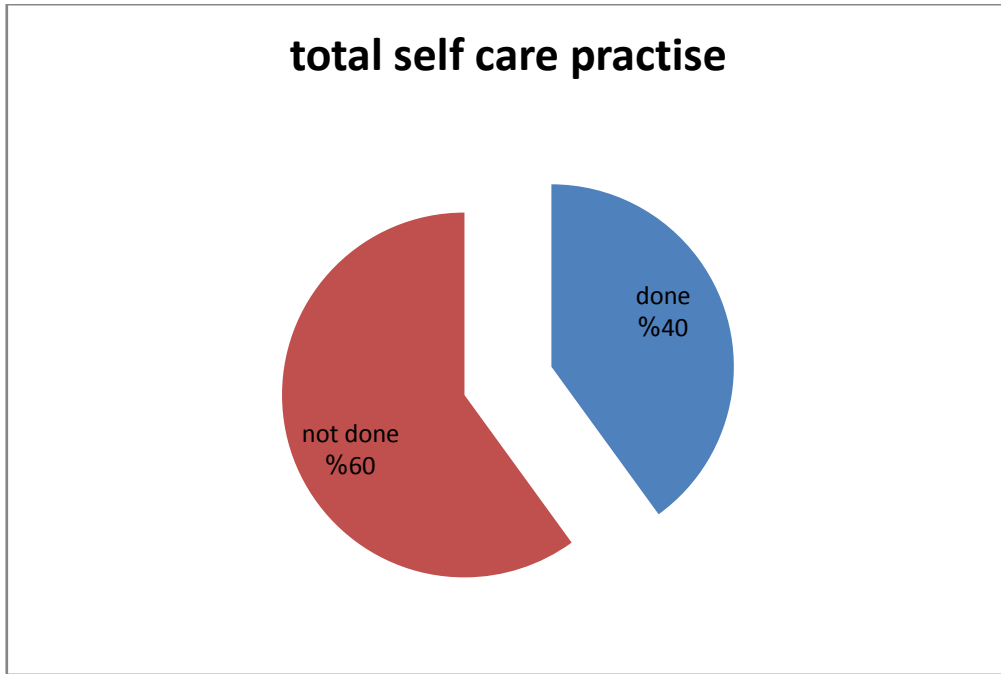


Figure (5): Frequency Distribution of the Studied Patient' Total practice regarding self care for preventive measures of herpes zoster's infection (N=200)

Table (6): Frequency Distribution of the Studied caregivers self care practice Regarding self care for preventive measures of herpes zoster's infection (N=200)

Item	Caregivers self care practice			
	Done		Not done	
	No	%	No	%
Caregivers self care practice for preventive measures				
Patient isolation	120	60.0	80	40.0
Using especial equipment	100	50.0	100	50.0
Using mask and gloves	95	47.0	105	52.0
Using handkerchief	120	60.0	80	40.0
Safety disposal and discharge	57	28.5	143	71.5
Proper nutrition during diseases period	123	61.5	77	38.5
Regularity of taking medication	113	56.5	87	43.5
Good ventilation of the place	127	63.5	73	36.5
Continues follow-up	140	70.0	60	30.0
Frequently hand washing	150	75.0	50	25.0

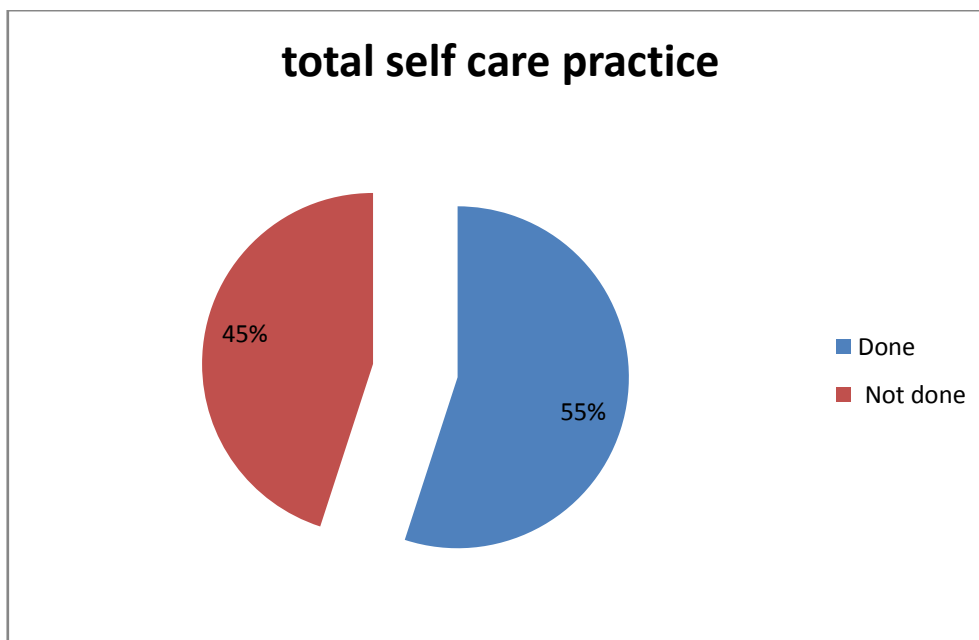


Figure (6): Frequency Distribution of the Studied caregivers' Total practice regarding self care for preventive measures of herpes zoster's infection (N=200)

Table (7): Home Environmental Condition That Reported by the Studied Sample (N=200)

Home condition	N	%
House condition:		
Separate	162	81.0
Shared	38	19.0
Quality of the building:		
Mud	0	0.0
Brick	200	100.0
Number of room		
Two	170	85.0
Three and more	30	15.0
Types of the home ground		
Mud	10	5.0
Court	30	15.0
Armed	160	80.0
Source of drinking water:		
Tap house	200	100.0
Water Storage		
Yes	30	15.0
No	170	85.0
Store system		
Covered container	200	100.0
Types of bath room		
Balladry bath room	20	10.0
Ordinary bath room	180	90.0
Sewage system		
Governmental sewage networks	200	100.0
The degree of sun exposure		
Poor	200	100.0
Ventilation		
Adequate	30	15.0
Not adequate	170	85.0
Garbage disposal		
Every day	170	85.0
Every two day	30	15.0

Table (8): Relations between patients and their caregivers total self care practice score and with total knowledge score

Items	patients		Caregivers	
	r	p	R	P
Total self care practice score	0.445	<0.01**	0.397	<0.01**
Total knowledge score	0.463	<0.01**	0.841	<0.01**

Table (9): Relation between Total Knowledge and Socio Demographic Data for Studied Patient Regarding herpes zoster.

Demographic data		Knowledge			T-test	
		Mean	±	SD	T or F	P-value
Age	60 -65	12.833	±	4.665	1.396 F	0.250
	65- 70	6.077	±	5.491		
	≥ 70	4.667	±	6.742		
Educational level	Read and write	1.700	±	2.557	24.710 F	<0.001*
	Basic education	3.923	±	4.569		
	Technical or diploma	8.833	±	7.388		
	University or more	17.308	±	6.562		

Table (10): Relation between Patients' Total self care Practices and Their Demographic Characteristics about herpes zoster: (N=200)

Demographic data		Self care Practices			T-test	
		Mean	±	SD	t or F	P-value
Age	60 -65	1.333	±	2.066	3.302F	0.025*
	65- 70	2.231	±	4.475		
	≥ 70	8.833	±	7.388		
Educational level	Read and write	0.000	±	0.000	3.469 F	0.020*
	Basic education	4.667	±	6.742		
	Technical or diploma	4.692	±	6.529		
	University or more	5.077	±	6.551		

Table (11): Correlation between Knowledge, Practice and Demographic Data for Studied Patients and their caregivers Regarding herpes zoster (N=200)

Variable	Patients				Caregivers			
	Age		Educational level		Age		Educational level	
	R	P	R	P	r	P	R	P
Total knowledge score	-0.316	<0.05*	0.307	<0.05*	-0.345	<0.05*	0.503	<0.01**
Total self care practice score	-0.433	<0.01**	0.339	<0.05*	-0.393	<0.01**	0.489	<0.01**

Table (12): Relation between Total Scores of Knowledge and Total Scores of Practice for Studied Patient Regarding herpes zoster

Item	Practice	
	r	p-value
Knowledge	0.322	<0.001

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