

## Lived Experiences with Arthritis among Older People

JOEL P. DEFENSOR

*joel\_defensor@yahoo.com*

Liceo de Cagayan University, Cagayan de Oro City

Date Submitted: Aug. 24, 2010

Final Revision Complied: Oct. 30, 2010

Plagiarism Detection: Passed

Flesch Reading Ease: 36.78

Gunning Fog Index: 15.47

**Abstract** - Arthritis is one of the many disabling diseases in the Philippines today. Its effects on the older persons are paramount in terms of productivity and quality of life. This study identified the experiences of older people with arthritis in Cagayan de Oro City. A descriptive method was used. The study was conducted at the office of Senior Citizen's Organization, Cagayan de Oro City. The respondents were members of OSCA (Office of Senior Citizen Affairs) who are affected by arthritis. An interview schedule was used in the gathering of data. The majority of older people are still living under the debilitating and disabling effects of arthritis despite the advancement of medical management. Without proper medical management of arthritis, quality life for older people with arthritis shall remain to be attained. Effective ways must be done to deliver education, knowledge and understanding of arthritis to the older individuals.

**Keywords** - lived experiences, arthritis, older people

## INTRODUCTION

The years of medical and nursing advancement changed the faces of different disorders affecting older people. With the discovery of new drugs and the application of preventive measures, the problems brought about by the signs and symptoms of these diseases have been remarkably reduced. However, there are still a lot of people who suffer from the effects of these diseases, not only physically but also psychosocially. Among these disorders, arthritis could be considered one of the most debilitating conditions affecting mostly the older people in the Philippines, not to mention other groups in their early age. The disabling effects of arthritis may be manifested in an individual's personal, social and employment activities (Porth 2002).

Arthritis is now increasing in terms of prevalence affecting people in their 60's. There are over a hundred types of arthritis (Smeltzer 2008). However, the three most common types are rheumatoid arthritis (RA), osteoarthritis (OA) and gouty arthritis (GA). These three common types of arthritis are the focus of this study because of their increased prevalence in the Philippines. Most of the older Filipino people are now commonly suffering from these debilitating conditions. Age groups under the cohort of baby boomers are most likely candidates for arthritic disorders in this decade (<http://livinginthephilippines.com>).

Arthritis is increasing significantly, affecting every race but there are differences in the prevalence and distributions in different populations and countries. About one (1) percent of world's population is affected by arthritis (<http://www.informanthealthcare.com>). And it is estimated that around 350 million people have arthritis worldwide (<http://www.medicinenet.com>). Majority of affected individuals are women; children are also victims of this disorder.

In the Philippines, arthritis is also increasing every year, particularly affecting older individuals who do not seek medical attention since they do not have enough resources for the treatment. For some, the hindrances of treatment are their cultural beliefs (Ringsven 1997). These different cultural beliefs are sometimes the hindrance to preventive and treatment management. Some minority groups in a given community have unique practices in the treatment of arthritis. Cultural diversity also contributes to the widespread increased of arthritis cases (Tan 2003). Treatments are neglected because older people think that arthritis is part of the aging process. This is further discussed

in the theoretical framework of the study. According to the Philippine Rheumatoid Association, the number of arthritis sufferers and those with soft tissue rheumatism is now climbing at 2.6 million Filipinos and increasing in number yearly (<http://showbizandlifestyle.inquirer.net>).

The researcher considered this study because of his interest in musculoskeletal and immunological problems particularly arthritis. Based on the researcher's observation in the community today, there are individuals who take risk of just ignoring their symptoms of arthritis because they consider it as part of the aging process. In the near future, majority of Cagayanons will suffer from the effects of this disorder if no preventive intervention will be followed. Many older persons are now suffering from the negative impact of arthritis in this generation. In the community where the researcher was exposed as a clinical instructor in Community Health Nursing, a lot of aging populations are showing manifestations of arthritis. These older individuals are not only complaining of the joint pain (arthralgia) brought about by the disorder but also having problems with immobility and deformity due to joint deterioration. The patient's knowledge and understanding of the disease are important to decrease the discomfort and disabling effects of arthritis. The researcher believed that older persons have the right to enjoy their remaining years as healthy individuals with minimal physical, emotional, and spiritual discomforts in life.

The researcher conducted this study to further understand the perceived behavior of older people pertaining to the causes, signs and symptoms, disabling effects, treatments, treatment responses, family and individual coping and how this perceived behavior affects their well-being as senior citizens. Health care providers play an important role in the management of arthritis by helping older people with arthritis their quality of life, free from discomfort, and remain productive in society.

## FRAMEWORK

This study is anchored on the health belief theory contending that concepts about health that an individual believes are true. Such beliefs may or may not be based or in line with facts (Kozier 2007).

This theory has six important elements. *Perceived Threat* has two types such as perceived susceptibility (one's subjective perception of contracting the disease) and perceived severity (feeling of seriousness in contracting the disease or leaving the disease untreated). *Perceived Benefits* connote believed

effectiveness designed to reduce the threat of illness. *Perceived Barriers* are possible negative consequences that might result from taking health actions (physical, psychological and financial demands). *Cues to Action*, refers to physical symptoms of health condition that motivate older people to take action. *Other Variables* refer to the demographics, psychosocial, and structural variables that affect individual perception and influence health-related behavior. Lastly, *Self-Efficacy* refers to the belief of individual about the disease and its treatment is successfully done, thus producing the desired effects-reduction of symptoms (<http://www.familyhealthinternational.com>).

This theory tries to explain how individuals respond to disease psychologically and how they cope based on their behaviors. In line with arthritis, older individuals have different attitudes and beliefs in the prevention and treatment of this disorder. These attitudes and beliefs are manifested, for instance, in the “pasmo” system. People tend to believe that arthritis is caused mainly by habitual washing of extremities (hands and feet) after long periods of tiring and strenuous physical activities.

The disabling effects of arthritis may be manifested in an individual's personal, social, and employment activities. To help persons with arthritis, health care providers must have a working knowledge of the specific disease and an understanding of the underlying pathologic processes. Basic education is fundamental in rectifying misconceptions.

## OBJECTIVES OF THE STUDY

This study sought to answer to the following objectives: (1) to describe the profile of the respondents with arthritis (2) to describe the experiences of the respondents in terms of types of arthritis, symptoms, causative factors and diagnostic/laboratory examinations done; (3) to determine the respondents' management and prevention practices in terms of coping, medications, lifestyle modification and its effects, other alternative treatments and preventive modalities; and, (4) to determine the prognoses of the respondents.

## MATERIALS AND METHODS

This study used the descriptive design and was conducted in the office of the Senior Citizen's Organization, Cagayan de Oro City. The respondents were members of OSCA (Office of Senior Citizen Affairs) who were affected by arthritis.

The study was conducted among the 34 members of the Office of Senior Citizen Affairs in Cagayan de Oro City. The OSCA is a regulatory body of different organizations of older people having the advocacy of uplifting the protection, promotion of health, and prevention of diseases among older people. The respondents were selected based on the following criteria: male or female who have signs and symptoms of arthritis (either medically diagnosed or undiagnosed), 60 years old and above, resident of Cagayan de Oro City, and willing to participate in the study.

An interview schedule was used to obtain information on the respondents' profile, their experiences with arthritis to include, management and prevention of arthritis, their prognosis and interview tool was tested for clarity to ensure the accuracy of data. The tool was translated into the local dialect for the respondents to understand the information asked for. The study had clearance from the Ethics Board. Informal consent from the participants was obtained.

Permission to conduct the study was obtained from the Dean of the Graduate School of Liceo de Cagayan. Also, the comment of the office-in-charge of the OSCA to conduct the study among its members was sought.

The researcher and research assistants then distributed the instrument to the respondents who were given directions on how to accomplish it. The study complied with the ethical requirements of research involving human subjects. An informed consent was sought prior to the data collection. An interview with the respondents then followed. The gathered data were analyzed using descriptive and inferential statistics.

## RESULTS AND DISCUSSION

Table 1 shows the profile of the respondents. As to age, majority of the respondents were young old (60-70 years old), while 29% were middle old and five percent were old/old.

The result denotes that, majority of the respondents affected by arthritis are usually young old (60-70 year old). Commonly, onset of arthritis is seen at the age of 60 years old. Young old people are still actively involved in various activities; hence they are more at risk of developing arthritis. Those who were middle old (71-80 year old) might have suffered from the disease since their early 60's. This finding implies that the life expectancy among Filipinos is not that high.

As to marital status, 71% of the elderly were married and majority of older people with arthritis has support system. On the other hand, widows accounted for 24% and single for 6% of the sample size.

The occupations of the respondents before retiring were highly distributed to the different government and non-government institutions. The occupations of highest number were government employee and housekeepers. Others were blue color jobs. The data further reveal that the majority of respondents had income below minimum wage. Their previous income could be related to the severity of arthritis. Low income could mean poor diet, lack of medical consultation, non-compliance with medication, and less monitoring of the disease.

Furthermore, in terms of weight, most of them (70%) were overweight, taking into account their average height of 5'2". An association as to educational attainment, 35% finished college while 26% obtained elementary education only. The rest of the respondents were unable to finish college (11%) and high school (11%). These data reveal that majority did not have college education, a factor that could have an impact on the understanding of the disease process and its treatment.

In terms of socio-economic status, 50% of the respondents had below average life status, while other 44% had average and only 6% above average. Financially impoverished, they could hardly sustain their medication and some would not even bother to go to the doctor for check-up.

As to received monthly income and source of income, 62% of respondents received below P3, 500.00 mostly sourced from pension, while 32% earned P3, 500.00 to P10, 000.00. Only 14% got financial support from their children. The data suggest that most of the respondents are self-reliant. However, the money they receive monthly is only enough for their daily expenses, not enough to cover medication and medical consultation.

In terms of support system, 97% of the respondents had their own families for support while only 3% received support from an organization. Filipinos are indeed very family oriented, providing the aged the needed support.

Table 1. Profile of older people with arthritis

Age		Frequency	Percentage
60-70 years old		22	65
71-80 years old		10	29
81 years old above		2	6
Overall		34	100.00
Gender		Frequency	Percentage
Male		14	41
Female		20	59
Overall		34	100.00
Marital Status		Frequency	Percentage
Single		2	6
Married		24	71
Widow		8	24
Overall		34	100.00
Previous Occupation		Frequency	Percentage
Self employed		2	6
Businessman		2	6
Electrician		1	3
Teacher		3	9
Government Employee		6	18
Carpenter		2	6
Laundry Woman		1	2
Mechanic		1	3
Housekeeper		4	12
Vendor		2	6
Village Health Worker		2	6
Helper		2	6
Factory Worker		2	6
Ship Captain		1	3
Salesman		1	3
Driver		2	6
Overall		34	100.00

Continuation of Table 1

Weight	Frequency	Percentage
50 lbs. below	2	6
51-60 kg.	10	29
71-80 kg.	21	62
81 kg above	1	3
Overall	34	100.00
Educational Attainment	Frequency	Percentage
Elementary level	0	0
Elementary Graduate	9	26
High School level	4	12
High School Graduate	5	15
College level	4	12
College Graduate	12	35
Overall	34	100.00
Socio Economic Status	Frequency	Percentage
Below average	17	50
Average	15	44
Above average	2	6
Overall	34	100.00
Source of Income	Frequency	Percentage
Pension	17	50
Self-employed	11	32
Children	5	15
Others	1	3
Overall	34	100.00
Income	Frequency	Percentage
3,500.00 below	21	62
3,501.00 to 10,000.00	11	32
10,001.00 above	2	6
Overall	34	100.00



Continuation of Table 1

Support System	Frequency	Percentage
Family	33	97
Friends	0	0
Senior Citizen Organization	1	3
Overall	34	100.00

Table 2 shows that the most frequent type of arthritis the respondents had was rheumatoid arthritis, followed by osteoarthritis (29%) and gouty arthritis (11%). However, a few others were not able to identify their type of arthritis and had two types of arthritis at the same time. The data imply that a significant number of people, most of whom are women, are affected by rheumatoid arthritis. Rheumatoid arthritis is five times higher in women than in men (Smeltzer 2008). Osteoarthritis is generally common among the overweight/obese. Weight is found to be the usual causal factor of osteoarthritis. Gouty arthritis affected only very few but it is considered to be the most debilitating type of arthritis. Majority of the respondents believed that arthritis is caused by the food they consumed. Acknowledging the cause of the disease decreases the risk of having the disease.

Table 2. Older people with types of arthritis

Types of arthritis	Frequency	Percentage
Rheumatoid Arthritis	15	44
Osteoarthritis	10	30
Gouty Arthritis	4	12
Don't know/not sure	5	15
Overall	34	100.00

In terms of signs and symptoms, Table 3 shows that pain was the most common symptom. Pain is caused by joint inflammation, degradation of membrane, and destruction of ball and socket of the joints. The second most common symptom was numbness, which is caused by the decrease sensation of the peripheral nerve that might be related to the decrease conduction of electrical nerve impulses in the joint area. Deformity was also identified. Deformity is considered to be chronic; this is usually the late sign

of rheumatoid arthritis. Uncommon symptoms included tophi, swelling, podagra, and redness, which are cardinal signs of gouty arthritis. Fever was not a usual symptom.

Table 3. Older people with arthritis  
signs and symptoms

Signs/Symptoms	Frequency	Percentage
pain	34	100
Swelling	4	12
Numbness	26	76
Redness	1	3
podagra (swelling of the big toe)	3	9
tophi (formation of nodules in between joint)	5	15
Immobility	2	6
Deformity	6	18
Fever	0	0

In relation to the frequency of signs and symptoms, Table 4 shows that 67% of the respondents experienced the symptoms of arthritis every week while 20% experienced the symptoms daily. Less than ten percent had the symptoms once a month or few times a year. The debilitating effects of arthritis were evident among the majority of the respondents, affecting their day-to-day activities and their psychosocial functioning.

Table 4. Older people with arthritis  
in terms of frequency of signs and symptoms

Frequency of S/Sx	Frequency	Percentage
Always (everyday)	7	20
Often (every week)	23	68
Sometimes (every month)	3	9
Seldom (few times a year)	1	3
<b>Overall</b>	<b>34</b>	<b>100.00</b>

As to severity of discomfort, Table 5 reveals that 44% experienced moderate pain while 29% experienced severe pain. As cited by Black (2005), experiencing chronic pain for a longer period of time can sometimes increase tolerance to pain. Only 3% had very severe pain while 24% had mild pain. The severity of discomfort may necessitate medical attention or alternative treatment to alleviate the pain. The data imply that despite the advent of medical management, majority of people with arthritis are still suffering from moderate to severe pain. This problem should be thoroughly addressed in the management of arthritis.

Table 5. Older people with arthritis  
in terms of severity of pain

Severity of pain	Frequency	Percentage
10 (very severe)	1	3
7-9 (severe)	10	29
4-6 (moderate)	15	44
1-3 (mild)	8	24
<b>Overall</b>	<b>34</b>	<b>100.00</b>

Table 6 shows that 67% of the respondents believed that arthritis is a problem caused by “pasma” or muscular pain, which is a layman’s term for muscular fatigue merely caused by muscle strain/muscular overwork. Arthritis is believed to be caused mainly by habitual washing of extremities (hands and feet) after long period of tiring and strenuous physical activities. Though “pasma” is not accepted in medical practices and has no medical basis at all, it is still considered the main cause of arthritis among Cagayanons.

Moreover, 59% of the respondents believed that aging is also one reason for having arthritis. According to them, it is normal to have arthritis when the person ages. In short, arthritis is considered a normal part of aging. Furthermore, the data show that 41% believed that arthritis is caused by the food they eat. Consumption of food high in fats and internal organs can lead to arthritis. However, 20% believed that it is hereditary or genetic in nature; that is, it runs in the family, hence can be avoided. Less than 10% believed that arthritis is caused by obesity and sedentary lifestyle. According to health belief theory, *perceived threat* has bigger impact on the treatment of arthritis.

When an individual has knowledge on how he could acquire the disease, he would be serious about avoiding the possibility of contracting the disease. If majority of the respondents believe that consumption of certain food groups can cause arthritis, then they will avoid those foods to lessen symptoms or avoid or manage arthritis.

*Perceived benefits* of an individual could help reduce the risk of acquiring arthritis. Some respondents think that arthritis is merely a problem due to overwork or “over fatigue”. However, beliefs find no medical support. Thus, by reducing workload, they thought they could avoid arthritis. Hence, older people should be educated on this matter to correct their misconceptions. The researcher totally should also be considered as combination and part of the management of arthritis.

Table 6. Experiences of older people with arthritis  
in terms of causative factors

Causative factors	Frequency	Percentage
aging (degenerative in nature)	20	59
bad diet (unhealthy food)	14	41
hereditary/genetic	7	20
Obesity	1	3
“pasma’	23	68
kidney problem	0	0
secondary factor (diseases)	0	0
sedentary lifestyle ( minimal activity with less time to do physical exercises)	3	9
Trauma	0	0

As regards diagnostic examination underwent by the respondents, in Table 7, shows that almost 80% did not seek any diagnostic examinations. Less than 20% of the respondents had blood exams, X-ray and arthrocentesis. These data reveal that most of the respondents were unmindful of their condition, a behavior that could be due to financial inability to pay for those medical exams.

Table 7. Experiences of older people with arthritis in terms of  
diagnostic and laboratory examinations

Diagnostic/laboratory exams	Frequency	Percentage
Never been to a Doctor for check-up	27	79
Blood exams	5	15
(ANA, C reactive protein, anti CCP)		
X-ray	4	12
Arthrocentesis	1	3
Arthroscopy	0	0

Coping with physical and psychosocial effects is a challenge for someone who has arthritis. As shown in Table 8, when asked about their way of coping with the disease, 38% answered just rest and enjoy doing other activities to ignore the discomforts like pain. However such coping will not cause the pain to subside. Others just ignored the discomforts (29%) or simply accepted and bore (20%) the discomforts. All of the respondents were active members of the Office of the Senior Citizen Affairs. Support system is important for an individual who is suffering from arthritis.

Table 8. Experiences of older people with arthritis  
in terms of coping

Coping	Frequency	Percentage
“Pahulay/lingaw-lingaw”	13	38
Ignore	10	29
Acceptance	7	20
Use of Cane	3	9
OSCA activities	34	100

As revealed in Table 9, many of the respondents used alternative medication like herbal to alleviate their discomfort, accounting for about 47% of respondents. This finding suggests the respondents, dependence on alternative or herbal medication, rather than on medical management. The respondents experienced relief after taking alternative treatment. Under the health belief theory, people tend to adapt behaviors that produce the desired

effects. Moreover, 32% of the respondents used drugs like None Steroidal Anti-inflammatory Drugs (NSAID) to decrease the symptoms and alleviate pain. These drugs are mostly over-the-counter drugs taken without prescription at all. Self-medication is a dangerous practice among older individuals. Prescribed medication is important to lessen the possible side-effects that could add up to the problems. Other drugs like colchicines, allopurinol and probenecid are prescribed drugs but were not taken by the respondent. These drugs are also intended for gouty arthritis, which affected only a very few of the respondents.

Table 9. Experiences of older people with arthritis  
in terms of medications

Medications	Frequency	Percentage
NSAIDS	11	32
Herbal	16	47
Others:	7	20

Lifestyle modification is important in the management of arthritis. Table 10 shows the different modifications that the respondents perceived to be helpful. Regular exercise was perceived by 79% of the respondents a good option to prevent arthritis attack or relapse of symptoms. There are still individuals with arthritis who do not exercise. Physical activity is important to lessen symptoms of arthritis (Smeltzer 2008). On the other hand, 59% of the respondents identified the importance of healthy diet. Based on the earlier data, food is considered as one of the many causes of arthritis. Thus, the respondents would avoid food that could cause arthritis. In the case of gout, this is exacerbated by the consumption of food high in purine, such as the internal organs of animals and nuts. Moreover, 32% of the respondents made use of relaxation techniques while only one was into stress modification, implying that only few of the respondents believe that relaxation and stress modification techniques affect exacerbation of arthritic symptoms.

About 67% claimed that they improved in their daily functioning after following a healthy lifestyle. More than half of the respondents (53%) had lesser symptoms while 32% did not notice any improvement of their condition. Lifestyle change should be made a lifetime effort.

Table 10. Experiences of older people  
with arthritis in terms of lifestyle change

Lifestyle Change	Frequency	Percentage
Healthy Diet	20	59
Regular Exercises	27	79
Stress modification	1	3
Relaxation techniques	11	32
Improvement of ADL	23	68
Less symptoms attack	18	53
None	11	32

Table 11 shows the different alternative and treatment modalities resorted by the respondents. As shown, 88% took time to rest the affected part to alleviate the discomforts of arthritis, while 41% massaged the affected area, which is a good alternative to lessen pain (Kozier 2007). Less than 30% of the respondents used warm compress and elevated the affected area. Further, 11% applied herbal liniments to the affected area. The data show that almost half of the respondents used alternative modalities while a greater number of them just took a rest to improve the condition.

Table 11. Experiences of older people with arthritis in terms  
of alternative treatment and preventive modalities

Alternative Treatment/ Preventive Modalities	Frequency	Percentage
Warm compress	10	29
Rest	30	88
Immobilization of the area affected	1	3
Deep breathing exercises	0	0
Massage/rub affected area	14	41
Elevation of affected area	8	24
Herbal medications	4	12
Others	1	3

As to the source of information on the alternative modalities, Table 12 shows that 41% of respondents were informed by their health providers (doctors, midwives, and nurses) in the health center. Forty – one percent of the respondents learned about them from the multimedia, while less than 23% from family, relatives and friends. Only a few of the respondents went to see a doctor for consultation.

Table 12. Experiences of older people with arthritis in terms of source of information for treatment (multiple responses)

Source of information for treatment	Frequency	Percentage
Health care provider	14	41
Family or relatives	8	24
Friends	7	20
Multimedia (TV, Radio, Newspaper, Magazine, Brochures, Internet)	14	41

Table 13 shows the different indicators on the experiences of older people with arthritis in terms of prognosis. The indicator “Good” means the absence of signs and symptoms for longer period of time on improvement of the quality of life. The second indicator is “fair”; means decreasing frequency and severity of signs and symptoms, but they are still evident. The indicator is “poor” improvement at all or the condition is worsening.

As revealed, 73% of the respondents had fair prognosis. That is, they experienced minimal reduction of signs/symptoms. As shown in Table 2, majority of the respondents suffered from severe pain. On the other hand, 14% of the respondents never noted any improvement of their condition while 12% had good prognosis. The findings could be linked with the fact that majority of them did not have medical check-up at all. Instead, they relied on their cultured beliefs. If adherence to such beliefs persists, arthritis will remain a health problem among the people in Cagayan de Oro City.



Table 13. Experiences of older people with arthritis  
in terms of prognosis

Indicators	Frequency	Percentage
Good (absence of S/Sx)	4	12
Fair (decreased frequency and Severity of symptoms)	25	74
Poor (no improvement of S/Sx)	5	15
<b>Overall</b>	<b>34</b>	<b>100</b>

### CONCLUSIONS

The elderly in Cagayan de Oro City are beset by pain or discomfort brought about by the three common types of arthritis. More women than men at their young - old stage are affected by the disease. Rheumatoid arthritis is the most common type in both sexes. The disabling effects of arthritis are not properly addressed by the elderly because of the belief that arthritis is a normal part of aging and because of lack of financial resource to pay for health care services. Most of them manage their illness through self-medication and the use of herbal plants and non-prescribed drugs. Finally, majority of them have fair prognosis due to a lack of effective means of managing the disease.

### RECOMMENDATIONS

Based on the findings and the conclusions, the following recommendations are advanced:

1. The City Health Office and OSCA should formulate specific programs for the members with arthritis.
2. The OSCA should hold lecture on arthritis for its members. The lecture should include topics on causal factors, risks, types of joint damage, medical treatments, alternative treatments, and preventive management.
3. OSCA members who have attended seminars treatment should help disseminate the information to their fellows.
4. OSCA should hold free clinic, weekly to provide the elderly free diagnostic service.

5. The City Health Office should hold monthly activities for the elderly with arthritis and free consultation program.
6. Nursing schools should intensify their extension program to help the government in its effort to provide assistance to the elderly with arthritis.
7. Researchers should consider of doing similar study that look into other areas, like the debilitating effects of arthritis in relation to physical and psychosocial functioning of the affected.

#### **NOTE:**

*Pursuant to the international character of this publication, the journal is indexed by the following agencies: (1)Public Knowledge Project, a consortium of Simon Fraser University Library, the School of Education of Stanford University, and the British Columbia University, Canada;(2) E - International Scientific Research Journal Consortium; (3) Journal Seek - Genamics, Hamilton, New Zealand; (4) Google Scholar; (5) Philippine Electronic Journals (PEJ);and,(6) PhilJol by INASP.*

#### **LITERATURE CITED**

Arthritis in the Philippines, retrieved on June 20 from <http://www.showbizandlifestyle.inquirer.net>

Kozier, B.,Berman, A., Snyder, S., & Erb, G.

2007. Fundamentals of nursing. Philippine: Pearson Education South Asia.

Porth, C.

2002. Pathophysiology concepts of altered health states. Philippine: Lippincott Williams and Wilkins.

Ringsven, M., & Bond, D.

1997. Gerontology and leadership skills for nurses. Albany, New York: Delmar Publishers

Tan, P.

2003. Arthritis. The Philippine Star, p 21

Smeltzer, S., Bare, B., Hinkle, J., & Cheever, K.

2008. Textbook of medical-surgical nursing. Philippine: Lippincott Williams and Wilkins.