Breast cancer awareness among female non-medical college students in Quezon City

Celine Marie C. Matundan, Philip Rico P. Mejia, Maribie R. Minor, Mark Gabriel Anthony M. Mirabueno, Ma. Regina Luz D. Misa, Arem Sheikh L. Molina, Klaudette Anne M. Morales, Jeremiah Martin F. Morgado, Emerito Eliseo P. Nacpil, Johann Rommel T. Naguiat, Aldean Roval M. Ng, Aniana Katherine S. Nicanor, Georgina T. Paredes, MD, MPH, DTM&H (Faculty adviser), Remigio Jay-Ar Z. Butacan IV, MD (Faculty adviser)

Abstract

Introduction Breast cancer remains to be a public health problem in the Philippines. This study determined the level of breast cancer awareness among female non-medical students from selected private colleges in Quezon City.

Methods This was a descriptive cross-sectional survey, and data collection was done on a single occasion. The study population was chosen via convenience sampling. The survey asked about the respondents' ideas on awareness, beliefs, perceived personal risk, perceived seriousness, and knowledge of etiology, diagnosis and management of breast cancer.

Results Majority of the respondents associated lifestyle factors (smoking) with the development of breast cancer. Four-fifths regarded Western medicine as a mainstay of treatment, however, a significant proportion believed that breast cancer could be adequately managed and controlled with complementary and alternative treatments. Around 25% of respondents considered themselves at risk for breast cancer and 40% did not know. Close to 65% said that family history was a risk factor. Almost 50% never heard of self-breast examination; of those who knew about it, only 15% practiced it monthly. The respondents had varied answers when asked about the common symptoms and signs of breast cancer. At least two-thirds of respondents said that the treatment for breast cancer includes surgery and radiation therapy. Majority (79.8%) opined that having an education program would increase the level of awareness of the general public.

Conclusion The students surveyed were generally aware about breast cancer, including aspects of epidemiology, diagnosis and management. The study also a revealed a number of misconceptions regarding breast cancer.

Key words: Breast cancer, awareness, knowledge

Cancer ranks as the third leading cause of mortality in the Philippines.[1] The country also has the highest incidence in Asia and is included in the top 10 nations with morbidity and mortality secondary to breast cancer.[2] Specifically, breast cancer ranks as the second most common cancer type after lung cancer, and it is also the most common cancer found in women, contributing 15% of all new cancer cases for both sexes and 8% of all cancer deaths.[3] In addition, breast cancer is noted to have the highest survivability (40%) among the different cancer forms.[1]

In comparison with other countries, cancer survival between European nations and the Philippines shows a large discrepancy for breast

Correspondence:
Mark Gabriel Anthony M. Mirabueno, Department of Preventive and Community Medicine, College of Medicine, University of the East Ramon Magsaysay Memorial Medical Center Inc., 64 Aurora Boulevard, Barangay Doña Imelda, Quezon City 1113; E-mail: psyco613@gmail.com; Telephone: 9064383404

Presented in the 18th Annual Research Forum, February 24, 2016, University of the East Ramon Magsaysay Memorial Medical Center, Quezon City

cancer. The higher cancer survival for European nations is partially attributed to the easier accessibility and prompt definitive diagnosis due to the implementation of organized screening programs, health system structure, and insurance system. These are not evident in the Philippines; hence, the low cancer survival for this malignant neoplasm in the country.[4]

Raising breast cancer awareness among women is deemed the best way to overcome the burden of disease. Awareness goes beyond level of knowledge pertaining to normal breast physiology, but also considers beliefs regarding breast cancer itself (i.e., those who are aware of their personal risk and those who are not) and the perceived seriousness that it conveys to the general public. Also, the lack of proper knowledge on risk factors and symptoms also contributes to the burden of breast cancer. Thus, the dissemination of information pertaining to means of early breast cancer detection is imperative to raise survivability and avoid progression.[5]

The study aimed to determine the proportion of female, non-medical students from private colleges, universities and other academic institutions in Quezon City who had an adequate level of awareness on breast cancer epidemiology and pathology.

Methods

This was a cross-sectional survey of female college students from private schools in Quezon on their perceptions and beliefs about breast cancer with the use of a self-administered questionnaire. The study was approved by the Ethics Review Committee of the medical center.

Female college students, regardless of age and marital status, enrolled in a baccalaureate course not related to the health professions in the participating schools were recruited and randomly selected. Those who signed an informed consent were included. Excluded were those with physical and psychological limitations or had a history of a breast disorder.

A preliminary list containing all the private colleges in Quezon City was made, and each school was contacted. Letters of permission explaining the purpose and nature of the study were given to the respective contacts provided by each school, along with samples of the testing materials. The investigators visited the schools which agreed to participate, with an adjusted target sample size in mind appropriate to the school's population, and selected available students for participation in the study.

The sample size was estimated at 458, with allowance for a 20% dropout.[6] The corresponding quotas were also adjusted according to the size of the school. Colleges with larger populations had a quota of at least 50-60 respondents, whereas only 20-30 participants were recruited from schools with smaller populations. Study subjects were selected via convenience sampling. This was done to ensure proper representation of the different schools.

A data collection tool, patterned after a previously validated scale, was used.[7] It was available in English and Filipino, depending on the preference of the respondent. The instrument consisted of 25 items in varied formats, divided into two main components: the first part described the general awareness and beliefs pertaining to breast cancer and the second part addressed the perceived need for educational intervention. In addition, an initial section on demographic information was added to the existing instrument. Completed questionnaires were carefully scrutinized to detect errors and omissions, and corrected accordingly.

Awareness was defined as the respondent's consciousness of the existence of breast cancer and determined by a specific item in the questionnaire which directly inquired on the knowledge of the subject on the disease entity. Belief was a set of ideas regarding the disease entity perceived as correct; recurring and prominent beliefs were enumerated with a corresponding percentage of the population that subscribed to each specific belief. Alternative belief was any perception or ideation pertaining to breast cancer that did not conform to the scientific nature of the disease. Perceived personal risk was an individual's perception as to the likelihood of developing breast cancer, expressed in percentage; those who perceived a likelihood of developing the disease were further subdivided into the degree of their perceived risk (low, medium, high) and asked to elaborate on their reasons for giving the degree. Perceived seriousness was an individual's perception on the severity of the condition compared with other diseases (e.g., tuberculosis, malaria, HIV infection and AIDS), presented as percentages reporting degrees of seriousness ("most severe" compared to other illnesses, "moderately severe," "just as severe," "not as severe," "don't know," and "do not wish to

respond"). Knowledge was an individual's correct understanding of evidence-based risk factors, screening procedures, and symptoms regarding breast cancer; this was presented as percentages of those who believed each specific item to be "true," "false," or "don't know."

The study used measures of central tendency to summarize the characteristics and demographics of the study population. Ratios and proportions were also used to compare the distribution of the population according to their: 1) awareness of breast cancer as a disease entity; 2) beliefs; 3) perceived personal risk in developing breast cancer; 4) perceived seriousness of the disease; 5) knowledge of various screening procedures; 6) awareness of risk factors; and 7) awareness of symptoms of the disease. Data processing and analysis were done using the Statistical Package for Social Sciences (SPSS), version 22.

Results

A total of 505 female college students officially enrolled in nine private academic institutions in Quezon City participated in this study. Each of the smaller schools contributed 4 to 8% while each of the bigger schools contributed 11-15% of the respondents. The age range of the study subjects was 15-29 years old, with a mean age of 18 years and a mode of 17 years. Students included in the study were enrolled in 27 different courses, with the top three degree programs being 1) BS Hotel and Restaurant Management; 2) BS Accountancy and 3) BS Tourism Management. Almost all the respondents were single.

Overall awareness Majority of the study participants associated lifestyle factors with the development of breast cancer; two-thirds believed breast cancer was partly caused by bad habits, such as smoking (Table 1). One in three respondents thought breast cancer was due to microoganisms and a slightly lower percentage attributed it to improper nutrition. Less than 10% believed that breast cancer was genetic. Most of the respondents (86.5%) were aware of the burden of breast cancer. Three out of 10 respondents claimed to personally know someone afflicted with breast cancer, more commonly a close relative or friend.

As seen in Table 2, four-fifths of respondents regarded Western medicine as mainstay of treatment for breast cancer with the possibility of cure if managed early. More than half appeared knowledgeable of the possibility of metastasis, which was deemed by more than 75% as non-communicable. A significant proportion of study subjects believed that breast cancer could be adequately managed and controlled with complementary and alternative modalities of treatment. Regarding social perception, 11% of respondents considered having breast cancer as a form of social stigma in the community.

Table 1. Summary of beliefs and perceptions of study subjects regarding possible causes of breast cancer.

Possible causes of illness	Agreeing answers n (%)
Bad habits (i.e., smoking)	319 (63.2)
Microorganisms	171 (33.9)
Malnutrition	163 (32.3)
The will of God	39 (7.7)
Sin	26 (5.1)
Spiritual attack from the evil one	14 (2.8)
Others	39 (7.7)
Don't know	65 (12.9)
Do not wish to respond	16 (3.2)

Table 2. Summary of beliefs of study subjects regarding disease progression, behavior, and treatment of breast cancer.

Belief	Yes n (%)	No n (%)	Don't know n (%)	Do not wish to respond n (%)
Is breast cancer curable in a hospital?	409 (81.0%)	15 (3.0%)	73 (14.5%)	8 (1.6%)
Can cancer spread from one breast to other parts of the body?	296 (58.6%)	72 (14.3%)	136 (26.9%)	1 (0.2%)
Is breast cancer curable by a traditional healer?	85 (16.8%)	218 (60.0%)	199 (39.4%)	3 (0.6%)
Is breast cancer contagious?	28 (5.5%)	380 (75.2%)	97 (19.2%)	0

Perceived personal risk and seriousness About a quarter of respondents considered themselves at risk for breast cancer, one-third thought they were not at risk and 40% did not know. Among the 120 participants who believed they were at risk, 10% felt that they were high risk, 25% considered themselves medium risk and another 25%, low risk. More than 45% of respondents considered breast cancer as at least a moderately severe disease and 40% regarded it be equally serious compared with other medical conditions such as pulmonary tuberculosis, malaria or HIV infection/AIDS.

Knowledge and beliefs on risk factors and causes Close to two-thirds of respondents said that family history was a risk factor for breast cancer. They identified older age, not breastfeeding and lack of regular exercise as the main risk factors for breast cancer, as seen in Table 3. Almost 70% of respondents believed that regular and prolonged use of a bra caused cancer. The other top causes were guinea worm infection, physical assault, frequent manipulation/fondling and scratching, as seen in Table 4.

Knowledge and practice regarding screening and early detection Almost half of respondents never heard of self-breast examination (BSE); less than a third of respondents were aware of the importance of self-breast examination. Of those who knew about it, only 15% practiced it monthly. Of those doing BSE monthly, seven of 10 respondents were able to describe the proper technique. More than 75% of respondents said that knowing how to do

Table 3. Summary of knowledge of study subjects on risk factors for breast cancer.

Risk Factor	True	False	Don't know	Do not wish to respond
	Percentages (%)			
Women who have a relative with breast cancer have a higher chance of getting breast cancer	63.4	10.9	23.6	2.2
Breast cancer is more common in older women than younger women	44.8	22.0	30.9	2.4
Breastfeeding does not change the chances of a woman getting breast cancer	37.0	21.2	38.6	3.2
Not exercising does not change the chances of a woman getting breast cancer	29.9	26.9	41.0	2.2
Drinking alcohol does not change a woman's chance of getting breast cancer	22.2	28.9	45.5	3.4
Having more children at a young age lowers the chances of a woman getting breast cancer	15.4	28.9	52.9	2.8
Fat woman have a higher chance of getting breast cancer than slim women	9.7	32.3	54.1	4.0
Early menstrual flow and late menopause increase the chances of a woman getting breast cancer	8.1	24.8	62.4	4.8
Having TB increases a woman's chance of getting breast cancer	5.7	26.7	64.6	3.0

Table 4. Summary of beliefs of study subjects regarding cause/etiology of breast cancer.

Risk Factor	True	False	Don't know	Do not wish to respond
	Percentages (%)			
Always wearing a bra	69.1	13.9	15.4	1.6
Guinea worm infection	37.4	7.3	51.3	4.0
Attack from an enemy	33.5	16.8	45.5	4.2
Prolonged fondling of the breast by a man	33.1	16.6	46.3	4.0
Scratching the breast	30.5	24.8	41.6	3.2
Child biting mother's breast during breastfeeding	27.7	34.3	35.4	2.6
Breast feeding for a long time	23.0	38.0	35.6	3.4
Large breasts	22.2	28.9	45.5	3.4
Putting money under brazier	21.8	38.0	37.0	96.8
Wrath of God	6.3	50.1	33.7	9.9
Small breasts	5.3	39.6	51.1	4.0

BSE would increase the chances of doing it regularly. They also mentioned educational campaigns, written materials and support groups as other factors that would positively influence their chances of doing BSE. They mentioned fear of finding a mass (49%) and lack of knowledge (32%) as the main barriers in performing a BSE. Almost half of the respondents were unaware of the clinical breast examination CBE) and a number of those familiar with CBE had never undergone the procedure. More than two-thirds of respondents did not know the clinical value of mammography.

Awareness of symptoms The study respondents had varied responses when asked what were the common symptoms and clinical signs of breast cancer, as seen in Table 5. More than half were aware of gross morphological changes in the breast, but around 50% were not aware that dimpling and crust formation in the nipple could also be manifestations of breast cancer.

Knowledge of treatments At least two-thirds of respondents answered that the treatment for breast cancer includes surgery and radiation therapy (Table 6). However, 65% thought that the condition could be treated with medicines for infections.

Education intervention response Majority of the respondents (79.8%) opined that having an education program would increase the level of awareness of the general public. Five strategies for health education were popular among the study subjects as seen in Table 7, including gathering people for a lay forum and public discussion (96%); distribution educational materials, such as books and pamphlets (93.8%); asking breast cancer survivors to give personal testimonies to people (90.9%); use of multi-media, such as television and radio (87.7%); and tapping health experts to discuss breast cancer to community members (83.9%).

Table 5. Summary of knowledge and understanding of breast cancer symptoms among college students.

Sign	True	False	Don't know	Do not wish to respond
	Percentages (%)			
When the breast lump forms a sore	71.3	4.6	23.0	1.2
Swollen breast	66.3	6.9	25.3	1.4
Breast lump that doesn't hurt	61.4	12.1	24.8	1.8
One breast becoming larger than the other	57.8	13.3	27.7	1.2
Redness of the breast that doesn't go away	55.0	6.7	36.4	1.8
When the breast lump ulcerates	53.5	7.9	36.6	2.0
Skin changes on the breast	48.9	12.1	37.2	1.8
Small dimple on the breast	32.1	16.6	48.9	2.4
Crust on the breast nipple	27.3	14.5	54.3	4.0
Inverted nipple	17.4	22.2	55.8	4.6

Table 6. Summary on knowledge of college students of available breast cancer treatment modalities.

Treatment	True n (%)	False n (%)	Don't know n (%)	Do not wish to respond n (%)
Surgery	458 (90.7)	16 (3.2)	27 (5.3)	4 (0.8)
Radiation therapy	329 (65.1)	33 (6.5)	5 (27.3)	5 (1.0)
Medicines to treat infections	328 (65)	47 (9.3)	121 (24)	9 (1.8)
Medicines given by mouth	282 (55.8)	66 (13.1)	150 (29.7)	7 (1.4)
Medicines given through a needle	121 (24)	126 (25)	242 (47.9)	16 (3.2)

Table 7. Summary of proposed and preferred methods of breast cancer education.

Preferred methods	Very good	Good	Not good	Don't know	Do not wish to respond
			Percentages (%)		
Gather people together for health education	77.6	18.4	1.0	2.8	0.2
Have breast cancer survivors teach about breast cancer	67.3	23.6	3.2	5.3	0.6
Distribute educational book or brochure	65.9	27.9	2.8	3.0	0.4
Television and radio programs	62.0	25.7	5.0	6.5	0.8
Have community healers teach about breast cancer	56.8	27.1	6.9	8.5	0.6
Provide information on internet	48.7	34.9	6.3	9.5	0.6
Use video or film	45.9	34.9	8.9	9.1	1.2
Illustrations or plays	42.4	35.0	8.3	13.3	1.2
Teach people songs about breast cancer	17.4	36.8	21.6	22.2	2.0

Discussion

The results showed an 86.5% rate of breast cancer awareness, indicating the possibility of good reception of health education and intervention. This finding was somewhat expected since the respondents were college students; it was assumed higher educational attainment was associated with greater breast cancer awareness level. Others regarded educational attainment as a significant predictor of high breast cancer awareness level, along with significant past medical history and personal contribution to educational and screening programs for malignant neoplasms.[9] However, more than 10% of the respondents did not perceive themselves as having high level of breast cancer awareness. This hinted that there might have been insufficient avenues for breast cancer awareness in their respective schools and living environments. Having an acquaintance or personally knowing a person with breast cancer appeared to increase the level of awareness of this condition. Likewise, exposure to various forms of media contributed to their awareness level.

Majority viewed breast cancer as potentially curable, given the advancement in modern technology and medicine, as well as the availability of resources and treatment modalities in different hospitals. However, some still regarded complementary and alternative medicine as a viable option for breast cancer management. This somewhat reflected certain economic characteristics, general educational background of influential family members, and biopsychosocial/cultural preferences of the study subjects.[10-12]

Only 56.6% of the study subjects realized the metastatic potential of breast cancer, thereby raising the need for more information dissemination on the behavior of the condition. The mere fact that some subjects assumed breast cancer was indeed communicable in nature also highlighted the need to correct misconceptions in this population.

There was generally low perceived personal risk for developing breast cancer among the respondents. Almost 75% were not aware of the risk factors for breast cancer. Thus, many of the respondents could not objectively quantify risk scores due to low level of understanding on breast cancer etiology.[13] Furthermore, of those who stated that they were at risk for breast cancer, almost 60% did not know by how much they were at risk. Thus, there was a good possibility for study subjects to either overestimate or underestimate their actual risk.[6,13]

Less than half of the respondents viewed breast cancer to be a serious medical condition, which might also be compared with other infections of public health importance, like pulmonary tuberculosis, malaria and HIV infection. Others theorized that ethnicity was an important determinant in the level of perception of susceptibility to breast cancer, as well as the gravity and potential catastrophic outcomes of this malignant neoplasm. Beliefs about breast cancer might be culture-bound, as there were noted apparent differences regarding perception among Filipino, Chinese, and Asian-Indian women.[14]

The results revealed the need to discuss the strategy of early detection, as it was surprising how

nearly half of the study population had never heard of the various available screening modalities for breast cancer, including breast self-exam (BSE), clinical breast exam (CBE), and mammography. Various reasons were given for not regularly performing BSE. However, deterrent factors for not doing BSE included undue fear associated with an incidental finding of a palpable breast mass and the implication of additional financial burden to adequately address the breast mass.[14,15] To increase compliance of women to perform BSE, the study subjects recommended having proper demonstration/counter-demonstration of the BSE techniques, as well as engaging women in more awareness and advocacy campaigns for early breast cancer detection.[16-18]

Based on existing clinical practice guidelines and current recommendations of experts, CBE should be done in women aged 20-39 years.[19] Since the study subjects did not belong to this age group, routine CBE during school annual examinations were not performed on these women. The same plausible explanation could be applicable as to why the study subjects were not familiar with mammography. For women less than 50 years of age, mammography appeared to have lower sensitivity and specificity. Likewise, breast cancer in women less than 20 years of age is not common.[20]

Though majority correctly identified advanced age and genetic predisposition/inheritance as non-modifiable risk factors for breast cancer, there were misconceptions regarding other causative and aggravating factors. Others falsely perceived that the prolonged use of undergarments, trauma and accidents, and undue pressure on the breasts predisposed one to have cancer. Others attributed breast tumors to fatalistic circumstances, thereby reflecting the influence of religious and sociocultural factors.

The subjects were able to correctly enumerate some of the more common clinical manifestations of breast cancer, including a palpable breast mass with associated skin and nipple changes and even abnormal nipple discharge. Despite this, many were not able to associate breast cancer and long-term effects of certain hormones, including estogen.[21] Nonetheless, this level of knowledge did not translate automatically to early detection of breast cancer, since most Filipina women often waited for progression of symptoms to more severe states and conditions (e.g., further increase in tumor size) before consulting for medical advice.[1,4] This delayed health seeking behavior of Filipinas might impact on the burden of breast cancer.

Nine out of 10 respondents regarded surgery, specifically mastectomy, as the mainstay of treatment for breast cancer. Two-thirds also regarded radiation therapy as essential in the management of breast cancer. Such perceptions were attributed to personal experiences of the study subjects with their female acquaintances and relatives diagnosed with breast cancer. These findings were consistent with the results of a local study in Metro Manila, which greatly emphasized the role of mastectomy and radiotherapy in the holistic management of breast cancer.[22]

The role of oral and parenteral antibiotics did not appear clear to the subjects. Others assumed chemotherapeutic agents to be synonymous with antimicrobials. This misperception, which was often perpetuated across generations, could result in needless worry and anxiety among patients. Consequently, this might impact on the decision-making of the subjects.

Almost 80% believed that advocacy campaigns, including educational programs and interventions, could significantly increase the level of cancer awareness. This indicated the willingness and receptiveness of the subjects to learn more about breast cancer. Study subjects opined that effective educational campaigns should include holding community assemblies and conducting lay fora for public discussion; sharing of personal experiences of breast cancer survivors; engaging with regular community-based support groups; distribution of educational/teaching materials in communities and schools; and the use of multi-media for information dissemination.

This study documented the level of awareness of college students enrolled in non-medical courses regarding breast cancer. In general, many appeared to be aware of this malignant neoplasm, but a lot of medical misperceptions also surfaced. Given the results, the importance of having sufficient knowledge about breast cancer should be emphasized among young women. In the Philippines, where breast cancer remains to be a major public health problem, promoting early detection of breast cancer and increasing the level of awareness of at-risk population may eventually address the growing burden of this condition.

Acknowledgments

The authors would like to thank Dr. Emma Perry Morse, Dr. Bertha Maegga, Dr. Gertrud Joseph, and Dr. Susan Miesfledt for allowing them to use their instrument in the study. They are also indebted to the administrators of the different schools. Without their help and interest, this study would not have been possible. They would like to extend their undying gratitude to their esteemed advisers, Dr. Remigio Jay-Ar Z. Butacan IV, Dr. Georgina T. Paredes, and Dr. Joan S. Tagorda. They sincerely thank them for their patience, eagerness, and willingness to share their time.

References

1. Ngelangel CA, Wang EHM. Cancer and the Philippine Cancer Control Program. Jpn J Clin Oncol 2002 Aug; 32(Supplement 1): S52-S61.
2. Tubeza PC. Breast cancer is the most prevalent in PH. Philippine Daily Inquirer 2012 Oct 18: Available from: http://www.doh.gov.ph/sites/default/files/101812-0006.pdf.
3. Philippine Society of Medical Oncology. The ABCs of breast cancer 2013 Feb. Available from: http://psmo.org.ph/the-abcs-of-breast-cancer/.
4. Redaniel MT, Laudico A, Mirasol-Lumague MR, Gondos A, Brenner H. Cancer survival difference between European countries and an urban population from the Philippines. Eur J Pub Health 2010; 21(2): 221-8.
5. Ma I, Dueck A, Gray R, Wasif N, Giurescu M, Lorans R, Pizzitola V, Pockaj B. Clinical and self breast examination remain important in the era of modern screening. Ann Surg Oncol 2012; 19(5): 1484-90.
6. Breast Cancer Symposium. Most women have an inaccurate perception of their breast cancer risk. 2013 Sept. Available from: http://www.cancer.net/most-women-have-inaccurate-perception-their-breast-cancer-risk. [Accessed Dec 16, 2014].
7. Morse EP, Maegga B, Joseph G, Miesfeldt S. Breast cancer knowledge, be-liefs, and screening practices among women seeking care at district hospitals in Dar es Salaam, Tanzania. Libertas Academia, Ltd. 2014. 2014; 73-79.
8. Steps involved in processing of data. StudyMode.com. Available from: http://www.studymode.com/essays/Steps-Involved-In-Processing-Of-Data-1639876.html. [Accessed Sept 13, 2014].
9. Tazhibi M, Feizi A. Awareness levels about breast cancer risk factors, early warning signs, and screening and therapeutic approaches among Iranian adult women: A large population based study using latent class analysis. BioMed Res Int 2014; 2014: 9.
10. Mazanah M, Sharan M, Norhasmilia S. Why breast cancer patients seek traditional healers. Int J Breast Cancer 2011; 2012: 9.
11. Taib NA, Yip CH, Ibrahim M, Ng CJ, Farizah H. Breast cancer in Malaysia: Are our women getting the right message? 10 year-experience in a single in-stitution in Malaysia. Asian Pacific J Cancer Prev 2007; 8(1): 141-5.
12. Leong BDK, Chuah JA, Kumar VM, Rohamini S, Siti ZS, Yip CH. Trends of breast cancer treatment in Sabah, Malaysia: A problem with lack of awareness. Singapore Med J 2009; 50(8): 772-6.
13. Salant T, Ganschow PS, Olopade OI, Lauderdale DS. "Why take it if you don't have anything?" Breast cancer risk perceptions and prevention choices at a public hospital. J Gen Intern Med 2006; 21(7): 779-85.
14. Wu TY, West B, Chen YW, Hergert C. Health beliefs and practices related to breast cancer screening in Filipino, Chinese and Asian-Indian women. Cancer Detection and Prevention 2006; 30: 58-66.
15. Romualdez A, dela Rosa JF, Flavier JD, Quimbo S, Hartigan-Go K, Lagrada L, David L. The Philippines health system review. Asian Pacific Observatory on Health Systems and Policies, World Health Organization 2011; 1(2): 1-137.
16. Simi A, Yadollahie M, Habibzadeh F. Knowledge and attitudes of breast self examination in a group of women in Shiraz, southern Iran. Postgrad Med J 2009; 85: 283-7.
17. Tourney C, Lorenzi T, Couzin I Levin S. Social information use and the evo-lution of unresponsiveness in collection. J R Soc Interface 2015; 12: 1-9.
18. Clement R, Krause S, von Engelhardt N, Faria J, Krause J, Kurvers R. Collective cognition in humans: Groups outperform their best members in a sentence reconstruction task. Public Library of Science 2013; 8(10): 943-71.
19. Bickley L, Szilagyi P. Bates' Guide to Physical Examination and History Taking. 11th Ed. Philadelphia: Lippincott Williams & Wilkins; 2013.
20. Brunicardi C, Andersen D, Billiar T, Dunn D, Hunter J, Matthews J, Pollock, R (editors). Schwartz's Principles of Surgery. 10th ed. New York: McGraw-Hill Education; 2014.
21. Ferris L, Shamian J, Tudiver F. The Toronto breast self-examination instrument (TBSEI): Its development and reliability and validity data. J Clin Epidemiol 1991; 44:1309-17.
22. Ngelangel CA, Cordero CP, Lacaya L. Women and child health care knowledge, beliefs, and practices among Filipino women randomly selected from the 1989 telephone directory of Metro Manila. Philipp J Intern Med 1993; 31: 89-102.
23. Ngelangel CA, Lacaya L. Breast cancer in the Philippines: Determinants of stage at diagnosis. Philipp J Intern Med 1992; 30: 231-47.
24. Laudico AV, Medina V, Lumague MRM, Mapua C, Redaniel MT, Valenzuela F, Pukkala Eero. 2010 Philippine cancer facts and estimates. Philippine Cancer Society, Inc. 2010. Available from: http://www.philcancer.org.ph/wp-content/uploads/2014/04/2010-Philippine-Cancer-Facts-Estimates.pdf.